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The University of Iowa 2014-15 General Catalog

The General Catalog provides information about academic programs at The University of Iowa, one of three universities governed by the Board of Regents, State of Iowa. The Catalog also provides links to supporting offices at the University, a list of administrative officers, an A-Z list of University of Iowa faculty members, a University calendar, and a link to the Code of Iowa for information regarding admission requirements and Iowa resident/nonresident standing.

The General Catalog is published for informational purposes and should not be construed as the basis of a contract between a student and The University of Iowa. Every effort is made to provide information that is accurate at the time of publication. However, information on courses, curricula, fees, policies, regulations, and other matters is subject to change any time during the period for which the Catalog is in effect.

For PDF versions of archived back editions, visit Office of the Registrar/General Catalog and use the drop-down menu under "Catalog Snapshots."

The General Catalog is produced by the Office of the Registrar and the Office of Strategic Communication. Your comments and suggestions are welcome. Questions concerning the Catalog may be directed to the Office of the Registrar at registrar-publications@uiowa.edu.

The University of Iowa has been accredited by the North Central Association of Colleges and Schools since the association's organization in 1913. The University is a member of the Association of American Universities and is associated with Indiana, Michigan State, Northwestern, Ohio State, Pennsylvania State, Purdue, and Rutgers Universities and the Universities of Illinois, Maryland, Michigan, Minnesota, Nebraska, and Wisconsin in the Big Ten Conference. Along with the Big Ten universities, it also is associated with The University of Chicago in the Committee for Institutional Cooperation (CIC).

The University of Iowa prohibits discrimination in employment, educational programs, and activities on the basis of race, national origin, color, creed, religion, sex, age, disability, veteran status, sexual orientation, gender identity, or associational preference. The University also affirms its commitment to providing equal opportunities and equal access to University facilities. For additional information, contact the Office of Equal Opportunity and Diversity, 202 Jessup Hall, The University of Iowa, Iowa City, IA 52242-1316; 319-335-0705 (voice) and 319-335-0697 (text).

Academics at Iowa

The University of Iowa offers academic degree and nondegree programs at the undergraduate and graduate levels. It also offers postdoctoral study and other opportunities for nondegree study and research. The General Catalog describes the University's degree and nondegree programs at the undergraduate and graduate levels.

The following pages provide global information about undergraduate, graduate, and professional study across the University. They include lists of all undergraduate majors (including tracks and emphases), certificates, and minors, with links to the relevant Catalog sections; a link to the College of Liberal Arts and Sciences' undergraduate General Education Program; information about the undergraduate Four-Year Graduation Plan; information about graduate and professional study; descriptions of the University's course numbering and grading systems; and contact information for supporting offices (admissions, registrar, housing, student financial aid, and equal opportunity).

- Undergraduate Study (p. 6)
 - Undergraduate Majors and Pre-majors (p. 7)
 - Undergraduate Certificates (p. 10)
 - Undergraduate Minors (p. 11)
 - General Education Program (p. 12)
 - Four-Year Graduation Plan (p. 13)
- Graduate and Professional Study (p. 14)
- Course Numbering (p. 15)
- Grading (p. 19)
- Supporting Offices (p. 20)

For information about degree and nondegree programs in specific disciplines and interdisciplinary areas, including graduation requirements and courses offered, see the links under Colleges and Other Academic Units (p. 21) in the Catalog.

To find the Catalog section for a specific academic department or program, use the Catalog's A-Z Directory or the Catalog Contents index.

Undergraduate Study

University of Iowa undergraduate students may earn majors, certificates, and minors in more than 100 subject areas. Many majors have varied tracks or emphases, which students may choose according to their own educational goals and interests. Each program is described in the 2014-15 General Catalog, with information on courses and other graduation or completion requirements. Click on the program links under "Undergraduate Majors and Pre-majors," "Undergraduate Certificates," and "Undergraduate Minors."

- Undergraduate Majors and Pre-majors (p. 7)
- Undergraduate Certificates (p. 10)
- Undergraduate Minors (p. 11)

Students enrolled in the College of Liberal Arts and Sciences must complete the college's General Education Program in order to earn an undergraduate degree; other colleges also require General Education course work as part of their undergraduate curricula. For a detailed description of the program and its requirements, use the following link.

- General Education Program (p. 12)

Undergraduate students may participate in the Four-Year Graduation Plan, in which students agree to certain conditions that guide their study, and the University ensures availability of courses that students need in order to graduate in four years or provides remedies for delays in graduation due to lack of a course.

- Four-Year Graduation Plan (p. 13)

Undergraduate Majors and Pre-majors

The University of Iowa offers the following undergraduate majors, pre-majors, and preparatory course work for selected professional degrees. Some majors offer Teacher Education Programs or the opportunity to earn a degree with teacher licensure, as indicated below. Each major links to the appropriate section of the 2014-15 General Catalog. Additional information about all majors is available on the Office of Admissions web site under Undergraduate Areas of Study.

Majors and Tracks

- Accounting (p. 663) (B.B.A.)
- Actuarial science (B.S.): see Statistics and Actuarial Science (p. 627)
- African American studies (p. 26) (B.A.)
- American studies (p. 44) (B.A.)
- Ancient civilization (B.A.): see Classics (p. 155)
Egypt and the ancient Near East track
- Anthropology (p. 55) (B.A., B.S.)
Anthropology for the health professions track (B.S.)
Cultural resource and heritage management specialization
Gender and culture specialization
Environmental anthropology specialization
Medical anthropology specialization
Teacher licensure
- Applied physics (B.S.): see Physics and Astronomy (p. 520)
- Art (B.A., B.F.A.): see Art and Art History (p. 75)
Ceramics concentration (B.F.A.)
Drawing concentration (B.F.A.)
Graphic design concentration (B.F.A.)
Intermedia concentration (B.F.A.)
Jewelry and metal arts concentration (B.F.A.)
Painting concentration (B.F.A.)
Photography concentration (B.F.A.)
Printmaking concentration (B.F.A.)
Sculpture concentration (B.F.A.)
Three-dimensional design concentration (B.F.A.)
Teacher licensure (B.A., B.F.A.)
- Art history (B.A.): see Art and Art History (p. 75)
Teacher licensure
- Asian languages and literature (B.A.): see Asian and Slavic Languages and Literatures (p. 102)
Chinese track
Hindi track
Japanese track
Sanskrit track
Teacher licensure
- Astronomy (B.A., B.S.): see Physics and Astronomy (p. 520)
- Athletic training (B.S.): see Health and Human Physiology (p. 359)
- Bachelor of Applied Studies (p. 1245) (B.A.S.)
- Bachelor of Liberal Studies (p. 1248) (B.L.S.)
- Biochemistry (p. 1055) (B.A., B.S.)
- Biology (p. 122) (B.A., B.S.)
Cell and developmental biology track
Comprehensive biology track
Evolutionary biology track
Genetics and biotechnology track
Neurobiology track
Plant biology track
Teacher licensure
- Biomedical engineering (p. 871) (B.S.E.)
Bioinformatics/computational biology track
Bioimaging track
Biomaterials track
Cardiovascular biomechanics track
Cellular engineering track
Musculoskeletal biomechanics track
Pre-medicine track
- Biomedical sciences (p. 137) (B.S.)
- Business administration (B.B.A.): see Business (p. 657)
- Business analytics and information systems (B.B.A.): see Management Sciences (p. 707)
- Chemical engineering (B.S.E.): see Chemical and Biochemical Engineering (p. 881)
Biochemical engineering track
Business track
Chemical process engineering track
Entrepreneurship track
Energy and environmental engineering track
Pharmaceuticals track
Polymers track
Pre-medicine track
Sustainability track
- Chemistry (p. 139) (B.A., B.S.)
Teacher licensure
- Cinema (B.A.): see Cinematic Arts (p. 148)
- Civil engineering (B.S.E.): see Civil and Environmental Engineering (p. 892)
Civil subtrack
Environmental subtrack
Civil engineering practice track (civil or environmental)
Engineering sustainable world track (environmental)
Entrepreneurial career path track (civil or environmental)
Environmental health engineering track (environmental)
Environmental remediation and control track (environmental)
Human modeling and simulation track (civil)
Management track (civil or environmental)
Pre-architecture track (civil or environmental)
Structures, mechanics, and materials track (civil or environmental)
Transportation engineering track (civil or environmental)
Urban and regional planning track (civil or environmental)
Water resources engineering track (civil or environmental)
- Classical languages (B.A.): see Classics (p. 155)
Teacher licensure
- Communication studies (p. 183) (B.A.)
- Comparative literature (B.A.): see Comparative Literature (p. 199)
Literature and arts track
World languages and literature track
- Computer science (p. 204) (B.A., B.S.)
- Dance (p. 222) (B.A., B.F.A.)

Economics (p. 680) (B.A., B.B.A., B.S.)
 Analytical economics track
 Business economics track
 Policy economics track

Electrical engineering (B.S.E.): see Electrical and Computer Engineering (p. 906)
 Computer subtrack
 Electrical engineering subtrack

Elementary education (p. 251) (B.A., B.S.)
 Teacher licensure

Engineering (p. 852) (B.S.E.)

English (p. 252) (B.A.)
 Creative writing track
 Teacher licensure

Enterprise leadership (p. 690) (B.A.)

Environmental policy and planning (p. 284) (B.A., B.S.)
 Planning track
 Policy track

Environmental sciences (p. 288) (B.A., B.S.)
 Biosciences track (B.S.)
 Chemical sciences track (B.S.)
 Geosciences track (B.S.)
 Hydrosociences track (B.S.)

Ethics and public policy (p. 297) (B.A.)
 Economics specialization
 Philosophy specialization
 Political science specialization
 Sociology specialization
 Student-designed specialization

Finance (p. 697) (B.B.A.)

French (B.A.): See French and Italian (p. 300)
 French and Arabic track
 Language track
 Literature and culture track
 Teaching track

Gender, women's, and sexuality studies (p. 312) (B.A.)

Geography (B.A., B.S.): see Geographical and Sustainability Sciences (p. 334)
 Environmental studies track
 Geographic information science track
 Health and society track
 Teacher licensure

Geoscience (B.A., B.S.): see Earth and Environmental Sciences (p. 238)

German (p. 347) (B.A.)
 Teacher licensure

Health and human physiology (p. 359) (B.A.)
 Exercise science track
 Health promotion track
 Health studies track

History (p. 389) (B.A.)
 Teacher licensure

Human physiology (B.S.): see Health and Human Physiology (p. 359)

Industrial engineering (B.S.E.): see Mechanical and Industrial Engineering (p. 917)
 Computer and information systems track
 Entrepreneurship track
 Human factors and ergonomics track

Management track
 Medical systems track

Informatics (B.A., B.S.): see Computer Science (p. 204)
 Art cognate (B.A.)
 Bioinformatics cognate (B.S.)
 Economics cognate (B.A.)
 Geoinformatics cognate (B.A.)
 Health informatics cognate (B.A.)
 Human-computer interaction cognate (B.A.)
 Linguistics cognate (B.A.)
 Medical informatics cognate (B.S.)
 Music cognate (B.A.)
 Social informatics cognate (B.A.)
 Individualized cognates (B.A., B.S.)

Interdepartmental studies (p. 408) (B.A.)
 Applied human services track
 Business studies track
 Engaged social innovation track
 Health science track
 Individualized plan of study track

International relations (B.A., B.S.): see Political Science (p. 535)
 Conflict and foreign policy track
 International business and economic relations track
 Regional politics and relationships track
 Transnational issues track
 Self-defined track

International studies (p. 428) (B.A.)
 African studies track
 Caribbean studies track
 Development track
 East Asian studies track
 European studies track
 Global artistic tradition and change track
 Global health studies track
 Global resources and the environment track
 Human rights track
 International business track
 International communication and information track
 Islamic and Middle Eastern studies track
 Latin American studies track
 Postcolonial and diasporic studies track
 Russian, East European, and Eurasian studies track
 South Asian studies track

Italian (B.A.): see French and Italian (p. 300)
 Teacher licensure

Journalism and mass communication (p. 447) (B.A., B.S.)

Linguistics (p. 462) (B.A.)
 Teaching English as a second language (TESL) emphasis

Management (B.B.A.): see Management and Organizations (p. 702)
 Entrepreneurial management track
 Human resource management track
 Leadership and management track

Marketing (p. 711) (B.B.A.)

Mathematics (p. 469) (B.A., B.S.)
 General track (Program A)
 Math education track (Program B)
 Specialization areas track (Program C)
 Teacher licensure

Mechanical engineering (B.S.E.): see Mechanical and Industrial Engineering (p. 917)

Energy and utilization track
 Manufacturing and materials processing track
 Mechanical engineering design track
 Medical Laboratory Science (p. 1084) (B.S.)
 Microbiology (p. 1088) (B.S.)
 Music (p. 488) (B.A., B.M.)
 Brass/woodwind track (B.M.)
 Composition track (B.M.)
 Jazz studies track (B.M.)
 Music therapy track (B.M.)
 Organ track (B.M.)
 Percussion track (B.M.)
 Piano track (B.M.)
 String track (B.M.)
 Voice track (B.M.)
 Teacher licensure
 Nuclear medicine technology (p. 1100) (B.S.)
 Nursing (p. 1156) (B.S.N.)
 Articulation option TCV
 Articulation option EVC
 Pharmacy (p. 1175) (Pharm.D.)
 Philosophy (p. 515) (B.A.)
 Physics (B.A., B.S.): see Physics and Astronomy (p. 520)
 Teacher licensure
 Political science (p. 535) (B.A., B.S.)
 Teacher licensure
 Portuguese (B.A.): see Spanish and Portuguese (p. 609)
 Teacher licensure
 Psychology (p. 551) (B.A., B.S.)
 Teacher licensure
 Radiation sciences (p. 1136) (B.S.)
 Diagnostic medical sonography in cardiac and vascular sonography track
 Diagnostic medical sonography in general and vascular sonography track
 Radiation therapy and computed tomography track
 Radiologic technology and cardiovascular interventional track
 Radiologic technology and computed tomography track
 Radiologic technology and magnetic resonance imaging track
 RT to B.S.
 Religious studies (p. 564) (B.A.)
 Russian (B.A.): see Asian and Slavic Languages and Literatures (p. 102)
 Teacher licensure
 Science education (p. 809) (B.S.)
 All-science emphasis
 Biology emphasis
 Chemistry emphasis
 Earth science emphasis
 Physics emphasis
 Teacher licensure
 Social work (p. 586) (B.A.)
 Sociology (p. 599) (B.A., B.S.)
 Criminology track
 Spanish (B.A.): see Spanish and Portuguese (p. 609)
 Teacher licensure

Speech and hearing science (B.A.): see Communication Sciences and Disorders (p. 171)
 Sport studies (B.A.): see American Studies (p. 44)
 Sport and recreation management (B.S.): see Health and Human Physiology
 Business studies emphasis
 Coaching and sport instruction emphasis
 Entrepreneurship emphasis
 Event management emphasis
 Sport and diversity emphasis
 Student-designed emphasis
 Statistics (B.S.): see Statistics and Actuarial Science (p. 627)
 Mathematical statistics track
 Statistical computing track
 Statistics in business, industry, government, and research track
 Theatre arts (p. 640) (B.A.)
 Therapeutic Recreation (B.S.): see Health and Human Physiology (p. 359)
 Child life track
 Inclusive recreation track
 Women's studies: see Gender, Women's, and Sexuality Studies (p. 312) (B.A.)

Pre-majors and Preparatory Course Work

For information about the following pre-majors and preparatory course work for selected professional degrees, see the Office of Admissions web site Undergraduate Areas of Study.

Pre-chiropractic
 Dentistry (preparatory course work for the D.D.S.)
 Law (preparatory course work for the J.D.)
 Medicine (preparatory course work for the M.D.)
 Pre-mortuary science
 Pre-occupational therapy
 Pre-optometry
 Pharmacy (preparatory course work for the Pharm.D.)
 Physical therapy (preparatory course work for the D.P.T.)
 Physician assistant (preparatory course work for the M.P.A.S.)
 Pre-podiatry
 Pre-veterinary medicine

Undergraduate Certificates

The University of Iowa offers a number of certificates for undergraduates, most in interdisciplinary areas. Colleges offering undergraduate certificates include the College of Liberal Arts and Sciences, the Tippie College of Business, the College of Engineering, the College of Public Health, and University College.

Certificate in Aging Studies (p. 33)
Certificate in American Indian and Native Studies (p. 36)
Certificate in American Sign Language and Deaf Studies:
see American Sign Language (p. 40)
Certificate in Clinical and Translational Science (p. 1259)
Certificate in Critical Cultural Competence (p. 221)
Certificate in Disability Studies (p. 232)
Certificate in Entrepreneurial Management (p. 693)
Certificate in Fundraising and Philanthropy Communication
(p. 310)
Certificate in Global Health Studies (p. 354)
Certificate in Human Rights (p. 1263)
Certificate in International Business (p. 420)
Certificate in Latin American Studies (p. 459)
Certificate in Leadership Studies (p. 1271)
Certificate in Medieval Studies (p. 482)
Certificate in Museum Studies (p. 485)
Certificate in Nonprofit Management (p. 1284)
Certificate in Performing Arts Entrepreneurship (p. 512)
Certificate in Public Health (p. 1200)
Certificate in Risk Management and Insurance (p. 721)
Certificate in Sustainability (p. 1304)
Certificate in Technological Entrepreneurship (p. 937)
Certificate in Wind Energy (p. 939)
Certificate in Writing (p. 653)

Undergraduate Minors

Undergraduate minors are offered in numerous disciplines and interdisciplinary areas by the College of Liberal Arts and Sciences, the Tippie College of Business, the College of Education, and University College.

- Aerospace studies (p. 1243)
- African American studies (p. 26)
- Aging studies (p. 33)
- American Indian and native studies (p. 36)
- American Sign Language (p. 40)
- American studies (p. 44)
- Ancient civilization: see Classics (p. 155)
- Anthropology (p. 55)
- Arabic: see French and Italian (p. 300)
- Art: see Art and Art History (p. 75)
- Art history: see Art and Art History (p. 75)
- Asian languages (emphasis in Chinese, Hindi, Japanese, or Sanskrit): see Asian and Slavic Languages and Literatures (p. 102)
- Astronomy: see Physics and Astronomy (p. 520)
- Biology (p. 122)
- Business administration: see "Undergraduate Programs" in Business (p. 657)
- Chemistry (p. 139)
- Cinema: see Cinematic Arts (p. 148)
- Classical languages: see Classics (p. 155)
- Communication sciences and disorders (p. 171)
- Communication studies (p. 183)
- Comparative literature (p. 199)
- Computer science (p. 204)
- Dance (p. 222)
- Economics (p. 680)
- Educational psychology: see Psychological and Quantitative Foundations (p. 780)
- English (p. 252)
- Environmental policy and planning (p. 284)
- Environmental sciences (p. 288)
- French: see French and Italian (p. 300)
- Gender, women's, and sexuality studies (p. 312)
- Geographic information science: see Geographical and Sustainability Sciences (p. 334)
- Geography: see Geographical and Sustainability Sciences (p. 334)
- Geoscience: see Earth and Environmental Sciences (p. 238)
- German (p. 347)
- Global health studies (p. 354)
- Greek: see Classics (p. 155)
- Health and the human condition: see Classics (p. 155)
- History (p. 389)
- Human physiology: see Health and Human Physiology (p. 359)
- Human relations: see Rehabilitation and Counselor Education (p. 794)
- Informatics: see Computer Science (p. 204)
- International relations: see Political Science
- International studies
- Italian: see French and Italian (p. 300)
- Latin: see Classics (p. 155)
- Latin American studies (p. 459)
- Latina/o studies: see History (p. 389)
- Linguistics (p. 462)
- Mass communication: see Journalism and Mass Communication (p. 447)
- Mathematics (p. 469)
- Microbiology (p. 1088)
- Military science (p. 1281)
- Music (p. 488)
- Philosophy (p. 515)
- Physical activity and nutrition science: see Health and Human Physiology (p. 359)
- Physics: see Physics and Astronomy (p. 520)
- Political science (p. 535)
- Portuguese: see Spanish and Portuguese (p. 609)
- Psychology (p. 551)
- Religious studies (p. 564)
- Rhetoric and persuasion: see Rhetoric (p. 576)
- Russian: see Asian and Slavic Languages and Literatures (p. 102)
- Social work (p. 586)
- Sociology (p. 599)
- Spanish: see Spanish and Portuguese (p. 609)
- Sport studies: see American Studies (p. 44)
- Sport and recreation management: see Health and Human Physiology (p. 359)
- Statistics: see Statistics and Actuarial Science (p. 627)
- Theatre arts (p. 640)
- Therapeutic Recreation: see Health and Human Physiology (p. 359)

General Education Program

All students entering the College of Liberal Arts and Sciences who wish to earn a Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), or Bachelor of Music (B.M.) degree must complete the CLAS General Education Program in addition to the requirements of their major and other requirements for graduation.

Undergraduate degree programs in other colleges include General Education requirements, which often may be satisfied with certain courses approved for the CLAS General Education Program.

For detailed information about CLAS General Education requirements and lists of courses approved in the CLAS General Education areas, see General Education Program (p. 323) (College of Liberal Arts and Sciences).

Four-Year Graduation Plan

Nearly all students who enter the University as first-year students are automatically eligible for the University's Four-Year Graduation Plan. Students who fulfill their responsibilities to the plan as outlined at the web site below have a commitment from The University of Iowa that they will be able to enroll in the courses they need to graduate in their primary major in four years.

Students wanting to stay on track for a four-year graduation need to work closely with their advisors to make sure they understand the requirements that must be met, as well as the appropriate sequences in which to take courses.

More information about the Four-Year Graduation Plan and about the student's responsibilities is located on the First-Year Experience web site.

The Plan does not apply to second majors, minors, or certificates. The following majors are not part of the Four-Year Graduation Plan:

- Computer Science
- Elementary Education
- Environmental Sciences
- Informatics
- Nuclear Medicine Technology
- Nursing (B.S.N. competitive admission students)
- Radiation Sciences
- Science Education

Although these departments do not participate in the program, with careful planning students still may be able to complete some of these programs in four years.

Graduate and Professional Study

The University of Iowa offers graduate and professional degree programs and graduate certificate programs in a broad array of disciplines and interdisciplinary areas of study. Each of the University's 11 colleges offers one or more master's degree programs, and most offer doctoral degree programs. Degree programs are presented by individual colleges, with most graduate degrees being conferred by the Graduate College.

The Graduate (p. 940) College section of the Catalog provides a list of most University of Iowa graduate degree programs as well as information about interdisciplinary graduate degree programs, joint degree programs, and certificate programs.

For information about graduate and professional degree and nondegree programs in specific disciplines and interdisciplinary areas, including graduation requirements and courses offered, see the appropriate General Catalog sections.

- Tippie College of Business (p. 657)
- College of Dentistry (p. 723)
- College of Education (p. 755)
- College of Engineering (p. 852)
- Graduate (p. 940) College
- College of Law (p. 1005)
- College of Liberal Arts and Sciences (p. 22)
- College of Medicine (p. 1038)
- College of Nursing (p. 1156)
- College of Pharmacy (p. 1175)
- College of Public Health (p. 1191)

Prospective graduate and professional students should apply through the Office of Admissions.

Course Numbering

The University of Iowa has moved to a new course numbering system. Course numbers consist of an alphabetical prefix (up to four letters) showing the college, department, or program that administers the course, followed by a colon and a four-digit numerical suffix for the individual course. For example, SOC:2810 identifies the course numbered 2810 in the Department of Sociology (SOC), titled Social Inequality.

Course suffix numbers 0000-0999 designate prelower-level courses; numbers 1000-2999 designate lower-level undergraduate courses; numbers 3000-4999 designate courses for upper-level undergraduate and graduate students (except in the College of Engineering, where numbers 3000-5999 designate courses for undergraduate and graduate students); numbers 5000-7999 designate graduate-level courses; and numbers 8000-9999 designate professional-level courses.

In this edition of the Catalog, the new course numbers are followed by the legacy (old) course numbers in parentheses. The sociology course example listed above appears as SOC:2810 (034:066) Social Inequality.

Tippie College of Business

ACCT (06A)	Accounting
BNDT (620)	Business Nondepartmental
BUS (06B)	Business Administration
ECON (06E)	Economics
ENTR (06T)	Entrepreneurship
FIN (06F)	Finance
MBA (06N)	School of Management (Master of Business Administration Program)
MGMT (06J)	Management
MKTG (06M)	Marketing
MSCI (06K)	Management Sciences

College of Dentistry

DENT (112)	Dentistry
DPH (111)	Dental Public Health (Preventive and Community Dentistry)
ENDO (083)	Endodontics
FAMD (114)	Family Dentistry
GSND (223)	Geriatric and Special Needs Dentistry
OMFS (087)	Oral and Maxillofacial Surgery
OPER (082)	Operative Dentistry
OPRM (086)	Oral Pathology, Radiology, and Medicine
ORDN (089)	Orthodontics
ORSC (151)	Oral Science
PCD (111)	Preventive and Community Dentistry
PEDO (090)	Pediatric Dentistry
PERI (092)	Periodontics
PROS (084)	Prosthodontics

College of Education

EALL (07X)	Education Interdepartmental/Education Honors Opportunity Program
EDTL (07E)	Education Teaching and Learning
EPLS (07B)	Educational Policy and Leadership Studies
PSQF (07P)	Psychological and Quantitative Foundations
RCE (07C)	Rehabilitation and Counselor Education
REA (205)	UI REACH
SIED (097)	Science Education

College of Engineering

BME (051)	Biomedical Engineering
CBE (052)	Chemical and Biochemical Engineering
CEE (053)	Civil and Environmental Engineering
ECE (055)	Electrical and Computer Engineering
ENGR (057)	Core Engineering Courses
IE (056)	Industrial Engineering
ME (058)	Mechanical Engineering

Graduate College

AMCS (22A)	Applied Mathematical and Computational Sciences
BISC (156)	Biosciences Program
GENE (127)	Genetics
GRAD (650)	Graduate College
IGPI (200)	Interdisciplinary Graduate Program in Informatics
IMMU (148)	Immunology
IP (287)	International Programs
IWP (181)	International Writing Program
MCB (142)	Molecular and Cellular Biology
NSCI (132)	Neuroscience
PORO (160)	Rhetorics of Inquiry
SLIS (021)	Library and Information Science
TBM (163)	Translational Biomedicine
TOX (198)	Human Toxicology
UICB (108)	University of Iowa Center for the Book
URP (102)	Urban and Regional Planning

College of Law

LAW (091)	Law
LWAB (660)	Law Study Abroad

College of Liberal Arts and Sciences

ACTS (22S)	Actuarial Science (Statistics and Actuarial Science)
AFAM (129)	African American Studies

AINS (149)	American Indian and Native Studies	DRAW (01F)	Drawing (Art and Art History, School of)
AMST (045)	American Studies	DSGN (01D)	Design (Art and Art History, School of)
ANIM (01D)	Animation (Art and Art History, School of)	DST (219)	Disability Studies
ANTH (113)	Anthropology	ECON (06E)	Economics
ARAB (195)	Arabic Language and Literature (French and Italian)	EES (012)	Earth and Environmental Sciences
ARTE (01E)	Art Education (Art and Art History, School of)	ENGL (008)	English
ARTH (01H)	Art History (Art and Art History, School of)	ENNM (08A)	English Department Nonmajor Course Work (English)
ARTI (01P)	Art Interdepartmental (Art and Art History, School of)	ENVS (159)	Environmental Sciences
ARTS (01A)	General Art (Art and Art History, School of)	ESL (212)	English as a Second Language Programs
ASIA (039)	Asian Languages and Literatures (Asian and Slavic Languages and Literatures)	FPC (217)	Fundraising and Philanthropy Communication
ASL (158)	American Sign Language	FREN (009)	French (French and Italian)
ASLE (158)	American Sign Language in English	GEOG (044)	Geography (Geographical and Sustainability Sciences)
ASP (153)	Aging Studies Program	GHS (152)	Global Health Studies
ASTR (029)	Astronomy (Physics and Astronomy)	GRMN (013)	German
ATEP (027)	Athletic Training Program (Health and Human Physiology)	GWSS (131)	Gender, Women's, and Sexuality Studies
BIOC (099)	Biochemistry	HHP (027)	Health and Human Physiology
BIOL (002)	Biology	HIST (016)	History
BKAT (01X)	Papermaking (Art and Art History, School of)	HPAS (28S)	Health and Physical Activity Skills (Health and Human Physiology)
CCCC (208)	Critical Cultural Competence	HRTS (216)	Human Rights
CERM (01C)	Ceramics (Art and Art History, School of)	IIEP (212)	Iowa Intensive English Program (English as a Second Language)
CHEM (004)	Chemistry	INTD (145)	Interdepartmental Studies
CHIN (039)	Chinese (Asian and Slavic Languages and Literatures)	INTM (01J)	Intermedia (Art and Art History, School of)
CINE (048)	Cinema (Cinematic Arts)	IS (187)	International Studies
CL (218)	Comparative Literature	ITAL (018)	Italian (French and Italian)
CLAS (610)	Liberal Arts and Sciences Nondepartmental (College of Liberal Arts and Sciences)	JMC (019)	Journalism and Mass Communication, School of
CLSA (20E)	Classics: Ancient Civilizations (Classics)	JPNS (39J)	Japanese (Asian and Slavic Languages and Literatures)
CLSG (20G)	Greek (Classics)	LAS (130)	Latin American Studies
CLSL (20L)	Latin (Classics)	LEIS (169)	Leisure Studies (Health and Human Physiology)
CNW (08N)	Creative Nonfiction Writing (English)	LING (103)	Linguistics
COMM (036)	Communication Studies	MATH (22M)	Mathematics
CS (22C)	Computer Science	MDVL (162)	Medieval Studies
CSD (003)	Communication Sciences and Disorders	MICR (061)	Microbiology
CW (08C)	Creative Writing—Writers' Workshop (English)	MTLS (01G)	Metalworking and Jewelry (Art and Art History, School of)
DANC (137)	Dance	MUS (025)	Music
DPA (188)	Division of Performing Arts (Performing Arts Entrepreneurship)	MUSM (024)	Museum Studies
		PHIL (026)	Philosophy
		PHTO (01L)	Photography (Art and Art History, School of)

PHYS (029)	Physics (Physics and Astronomy)
PNTG (01K)	Painting (Art and Art History, School of)
POLI (030)	Political Science
PORT (038)	Portuguese (Spanish and Portuguese)
PRNT (01M)	Printmaking (Art and Art History, School of)
PSY (031)	Psychology
RELS (032)	Religious Studies
RHET (010)	Rhetoric
SCLP (01N)	Sculpture (Art and Art History, School of)
SLA (164)	Second Language Acquisition
SLAV (041)	Russian (Asian and Slavic Languages and Literatures)
SOAS (039)	Southern Asia Studies (Asian and Slavic Languages and Literatures)
SOC (034)	Sociology
SPAN (035)	Spanish (Spanish and Portuguese)
SPST (028)	Sport Studies (American Studies)
SSW (042)	Social Work, School of
STAT (225)	Statistics (Statistics and Actuarial Science)
SWAH (211)	Swahili (French and Italian)
TAPE (212)	TA Preparation in English (English as a Second Language)
TDSN (01T)	Three-Dimensional Design (Art and Art History, School of)
THTR (049)	Theatre Arts
TRNS (218)	Translation
WLLC (218)	Division of World Languages, Literatures, and Cultures
WRIT (220)	Writing

Carver College of Medicine

ACB (060)	Anatomy and Cell Biology
ANES (116)	Anesthesia
BIOC (099)	Biochemistry
CTS (193)	Cardiothoracic Surgery
DERM (062)	Dermatology
DIET (050)	Hospital Dietary (Dietetic Internship)
EM (184)	Emergency Medicine
EMTP (677)	EMT—Paramedic Program
FAM (115)	Family Medicine
FRRB (077)	Free Radical and Radiation Biology
IM (078)	Internal Medicine
MED (050)	Carver College of Medicine
MICR (061)	Microbiology
MPB (072)	Molecular Physiology and Biophysics

MSTP (405)	Medical Scientist Training Program
NEUR (064)	Neurology
NSG (183)	Neurosurgery
OBG (066)	Obstetrics and Gynecology
OPHT (067)	Ophthalmology and Visual Sciences
ORTH (076)	Orthopaedics and Rehabilitation
OTO (068)	Otolaryngology—Head and Neck Surgery
OTP (671)	Orthoptics Teaching Program
PA (117)	Physician Assistant Program (Physician Assistant Studies and Services)
PATH (069)	Pathology
PCOL (071)	Pharmacology
PEDS (070)	Pediatrics (Stead Family Department of Pediatrics)
PERF (193)	Perfusion (Cardiothoracic Surgery)
PSYC (073)	Psychiatry
PTRS (101)	Physical Therapy and Rehabilitation Science
RAD (074)	Radiology
RADO (186)	Radiation Oncology
RSCI (675)	Cardiovascular Interventional Program
RSCT (676)	Computed Tomography Program
RSMR (674)	Magnetic Resonance Imaging Program
RSMS (673)	Diagnostic Medical Sonography Program
RSNM (107)	Nuclear Medicine Technology
RSP (680)	Radiation Sciences
RSRT (670)	Radiologic Technology Program
RSTH (672)	Radiation Therapy Program
SURG (075)	Surgery
URO (079)	Urology

College of Nursing

NURS (096)	Nursing
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College of Pharmacy

PHAR (046)	Pharmacy
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College of Public Health

BIOS (171)	Biostatistics
CBH (172)	Community and Behavioral Health
EPID (173)	Epidemiology
HMP (174)	Health Management and Policy
MPH (170)	Master of Public Health Program
OEH (175)	Occupational and Environmental Health

University College

ABRD (165)	Study Abroad
AERO (23A)	Aerospace Studies
CCP (409)	Career Center Programs
CDE (402)	Center for Diversity & Enrichment
CSI (407)	College Success Initiatives
FYP (420)	First-Year Programs
HONR (143)	University of Iowa Honors Program
IALL (00L)	Iowa Lakeside Laboratory
IAP (408)	Intercollegiate Athletic Participation
IBA (168)	Iowa Biosciences Advantage
IYWS (406)	Iowa Young Writers' Studio
LLS (410)	Lifetime Leisure Skills
LS (421)	Leadership Studies
MILS (023)	Military Science
PCP (414)	Patient Care Practicum
SITS (416)	Student Information Technology Skills
SSTP (418)	Secondary School Training Program (Secondary Student Training Program)
UIUB (401)	University of Iowa Upward Bound
ULIB (417)	University Libraries
URES (422)	Undergraduate Research Experiences

Grading

The University uses a letter grading system for individual courses, except for the College of Law, which uses a numeric system for course grading. In order to compute grade-point average, letter grades are converted according to the following numerical scale. Grade-point averages are displayed at the bottom of students' grade reports and are truncated so as not to exceed 4.00. All of the following marks appear on the permanent record.

Grade points for each semester hour:

A+	4.33
A	4.00
A-	3.67
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
C-	1.67
D+	1.33
D	1.00
D-	0.67
F	0

Not used in computing grade-point average:

AUS	Audit Successful
AUU	Audit Unsuccessful
H	Honors (Medicine and Pharmacy)
H-	Near Honors (Medicine)
IP	In Progress
N	Nonpass
P	Pass
S	Satisfactory
U	Unsatisfactory

Other marks on the permanent record:

I	Incomplete
O	No grade reported
R	Registered, no grade required
W	Withdrawn
=	Changed grade
#	Grade not included in G.P.A.
*	Undergraduate honors section

Supporting Offices

Prospective undergraduate, graduate, and professional students should apply to the University through the Office of Admissions. Several other University of Iowa offices provide major services to entering and continuing students.

Application for admission (undergraduate, graduate, and professional programs):

Office of Admissions
The University of Iowa
107 Calvin Hall
Iowa City, IA 52242-1396
Phone: 1-319-335-1566
E-mail: admissions@uiowa.edu
Web site, undergraduate admissions: <http://admissions.uiowa.edu>
Web site, graduate and professional admissions: <http://grad.admissions.uiowa.edu>

Registration, residency status, transcripts, tuition and fees, services for veterans, verifications, general catalog, course offerings, classroom scheduling, graduation analysis, degree audits, diplomas and certificates:

Office of the Registrar
The University of Iowa
1 Jessup Hall
Iowa City, IA 52242-1316
Phone: 1-319-335-0238
E-mail: registrar@uiowa.edu
Web site: <http://www.registrar.uiowa.edu>

Student housing information, application:

University Housing and Dining
The University of Iowa
8 Burge Hall
Iowa City, IA 52242-1214
Phone: 1-319-335-3000
E-mail: reshall-housing@uiowa.edu
Web site: <http://housing.uiowa.edu>

Scholarships, grants, loans, student employment:

Office of Student Financial Aid
The University of Iowa
208 Calvin Hall
The University of Iowa
Iowa City, IA 52242-1315
Phone: 1-319-335-1450
E-mail: financial-aid@uiowa.edu
Web site: <http://www.uiowa.edu/financial-aid>

Equal opportunity/nondiscrimination:

Office of Equal Opportunity & Diversity
202 Jessup Hall
The University of Iowa
Iowa City, IA 52242-1316
Phone: voice 1-319-335-0705; text 1-319-335-0697
E-mail: diversity@uiowa.edu
Web site: <http://diversity.uiowa.edu/office/equal-opportunity-and-diversity>

Colleges and Other Academic Units

The University of Iowa offers academic programs and courses through its 11 colleges, University College, and the Division of Continuing Education. For information on each unit, including its constituent departments, programs, and schools and its academic programs (degrees, certificates, minors), click on the following links. University courses are listed under the units that offer them.

- College of Liberal Arts and Sciences (p. 22)
- Tippie College of Business (p. 657)
- College of Dentistry (p. 723)
- College of Education (p. 755)
- College of Engineering (p. 852)
- Graduate College (p. 940)
- College of Law (p. 1005)
- Carver College of Medicine (p. 1038)
- College of Nursing (p. 1156)
- College of Pharmacy (p. 1175)
- College of Public Health (p. 1191)
- University College (p. 1242)
- Division of Continuing Education (p. 1316)

College of Liberal Arts and Sciences

Dean

- Chaden Djalali

Associate dean for graduate and online education

- Marc Armstrong

Associate dean for undergraduate programs and curriculum

- Helena Dettmer

Associate dean for research and development

- Joseph K. Kearney

Executive associate dean

- Raúl Curto

Undergraduate majors: B.A.; B.S.; B.F.A.; B.L.S.; B.M.

Graduate degrees: programs leading to M.A.; M.S.; M.F.A.; Ph.D. (degrees conferred by Graduate College)

Web site: <http://clas.uiowa.edu/>

The College of Liberal Arts and Sciences (CLAS) is the oldest and largest of the 12 colleges that make up The University of Iowa. Students from all over the United States and more than 50 other nations study together in the college. Every University of Iowa undergraduate takes courses offered by the college, and more than 75 percent of undergraduates earn their degrees from the College of Liberal Arts and Sciences.

The college provides a comprehensive liberal arts education, offering more than 70 majors and certificates as well as a wide variety of minors and opportunities for interdisciplinary work. Students also may design their own majors through the college's Interdepartmental Studies Program.

In addition to their academic pursuits, undergraduate students participate in the college in a variety of ways. They serve on the Dean's Student Advisory Committee and as members of the Undergraduate Educational Policy and Curriculum Committee and the General Education Curriculum Committee—collegiate committees that advise the deans on important educational issues. Students are invited to serve on ad hoc committees within the college as well, and many departments have an undergraduate student group or association. CLAS students also serve in the University of Iowa Student Government. Interested students should contact the appropriate committee or office.

CLAS Web Site

The College of Liberal Arts and Sciences web site contains a wealth of information for students and faculty members.

The CLAS Office of Academic Programs & Student Development page is devoted to undergraduate students and their advisors. It provides information on academic policies and procedures, including requirements of the CLAS General Education Program (see Academic Policies Handbook). Information about scholarships, service

opportunities, and upcoming deadlines also is available on this page and on the For Students pages.

The CLAS Departments and Divisions link provides a list of the college's departments, programs, and schools as well as its undergraduate majors, minors, and certificates.

Faculty members turn to the CLAS web site for information about teaching, curriculum, and resources for advising and instructing students. They also find updates on important CLAS committees as well as a link to the Dean's Office.

Office of Academic Programs & Student Development

Located in Schaeffer Hall, at the center of campus, the Office of Academic Programs & Student Development is an integral part of the College of Liberal Arts and Sciences. The office's staff, led by the associate dean for undergraduate programs and curriculum, welcomes students wishing to declare or change majors; file second-grade-only options; or petition to register late, add or drop a course late, or withdraw an entire registration after the established deadlines.

The office's staff members answer students' questions concerning academic requirements and programs of study. They meet with students about General Education Program requirements, graduation requirements, collegiate policies that affect students, and a range of other issues, including academic probation and dismissal and strategies for the successful completion of a degree.

Students in the College of Liberal Arts and Sciences may petition for exceptions to CLAS rules and requirements in the Office of Academic Programs & Student Development. Students may discuss their questions and the petition process first with an associate director in the office.

The office works closely with students on academic probation and counsels them on strategies for success. It conducts semiannual reviews of students on academic probation, handles dismissals from the college, and considers requests for reinstatement.

The Office of Academic Programs & Student Development also oversees appropriate disciplinary action for academic misconduct, such as plagiarism.

General Education Program

All students entering the College of Liberal Arts and Sciences who wish to earn a Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), or Bachelor of Music (B.M.) degree must complete the CLAS General Education Program in addition to the requirements of their major and the other requirements for graduation.

The General Education Program requires students to explore topics outside of their majors, helping them to acquire the knowledge and transferable skills necessary for becoming well-educated individuals. During this exploration of required General Education topics and courses, many students also discover intriguing majors, minors, and certificates that challenge them to embrace personal transformation and new goals.

The General Education requirements must be completed before graduation; most students complete them during their first two years at Iowa, especially since General Education courses stress the transferable skills of critical

thinking, writing, and public speaking that help students to be more successful in their majors.

For General Education requirements, related academic policies, and lists of approved courses, see General Education Program (p. 323) in the Catalog.

CLAS Units and Academic Programs

The College of Liberal Arts and Sciences includes nearly 40 administrative units ranging across the fine and performing arts, humanities and letters, social sciences, and natural and mathematical sciences. These units offer more than 200 undergraduate programs of study, including 75 majors—some with multiple tracks, and a wide variety of certificates and minors. They also offer more than 50 graduate programs, with degrees granted by the Graduate College.

Undergraduate Majors, Certificates, and Minors

The college offers undergraduate majors in a broad range of disciplines. In addition, other colleges at the University offer undergraduate majors to CLAS students, with the College of Liberal Arts and Sciences granting the degrees. The Tippie College of Business offers a major in economics (B.A. and B.S.) and a major in enterprise leadership (B.A.); the Carver College of Medicine offers majors in biochemistry (B.A. and B.S.) and in microbiology (B.S.); and the College of Education offers majors in elementary education (B.A. and B.S.) and in science education (B.S.). For descriptions of the majors and their requirements, see "Majors Offered with Other Colleges" under "Index: Academic Programs" on this page.

The College of Education offers a Teacher Education Program leading to licensure at the secondary level for students who have completed certain CLAS majors, such as art, English, mathematics, the sciences, and world languages, and who wish to work with students in middle school or high school. Students must apply for admission to the Teacher Education Program; contact the College of Education's Office of Education Services.

Students who begin their study in the College of Liberal Arts and Sciences may apply to degree programs in other colleges at The University of Iowa. If they are accepted, they may earn undergraduate degrees in business (B.B.A.) or nursing (B.S.N.); a B.S. with a major in medical laboratory science, nuclear medicine technology, or radiation sciences; or a professional degree in pharmacy (Pharm.D.). Use the Catalog's A-Z Directory to link to these programs.

Students who are interested in earning a professional or graduate degree in addition to a bachelor's degree may apply to early admission or joint degree programs offered through partnerships between CLAS and other UI colleges. Students admitted to these programs may count a limited amount of credit toward both degrees. CLAS has early admission programs with the College of Dentistry (D.D.S. (p. 726)) and the College of Law (J.D. (p. 1005)). Joint bachelor's/graduate degree programs are available in several disciplines; see "Joint Programs" in the Graduate (p. 940) section of the Catalog.

The College of Liberal Arts and Sciences offers a wide selection of undergraduate certificates and minors,

including two certificates offered with other colleges: the Certificate in International Business (with the Tippie College of Business) and the Certificate in Wind Energy (with the College of Engineering). Find CLAS certificates and minors under "Index: Academic Programs" on this page.

CLAS students also may earn undergraduate certificates and minors offered by other colleges. The Tippie College of Business offers certificate programs in entrepreneurial management and in risk management and insurance, and a minor in business administration. The College of Public Health offers an undergraduate public health certificate, and University College offers certificate programs in clinical and translational science, human rights, leadership studies, nonprofit management, and sustainability. The College of Education offers minors in educational psychology and in human relations. For lists of all undergraduate certificates and minors offered by the University, see Certificates (p. 10) and Minors (p. 11) in the Academics at Iowa section of the Catalog.

Undergraduates also may take courses in book arts from the Center for the Book (p. 956), a Graduate College program.

Graduate Degrees and Certificates

The College of Liberal Arts and Sciences offers graduate programs in most of its disciplines, with degrees conferred by the Graduate College. Students may earn degrees at the master's and doctoral levels; graduate certificates are available in some areas of study. See the Graduate (p. 940) College section of the Catalog for a complete list of graduate degrees offered by the University.

For information about specific CLAS graduate programs, see the links under "Index: Academic Programs" on this page.

Nondepartmental Courses

Most College of Liberal Arts and Sciences courses are offered by the college's departments, programs, and schools. They are listed and described in the corresponding General Catalog sections; see the links under "Index: Academic Programs" on this page.

The college also offers the following nondepartmental courses.

Lower-Level Undergraduate

CLAS:1000 (610:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

CLAS:1600 (610:060) Life Design: Building Your Future 1 s.h.

How interests and talents can be paired up to achieve a fulfilling life; what students are passionate about; address questions (i.e., How can you identify what you're good at? How can you build a life of purpose and meaning? How can you cultivate mentors? What is the relationship between ambition, drive, and success? What major might be the best fit and how can University resources help your academic and personal success?); portfolio of reflective exercises, activities, journal assignments.

CLAS:1700 (610:070) Got CLAS? Blending College of Liberal Arts and Sciences Majors with Your Passions 1 s.h.

Process of choosing a major; focus on strengths, discover passions, and dream of possibilities while cultivating an active, complementary university experience; develop mentoring relationships with faculty, voice fears about choosing a major and career, take risks in revising and expanding life and career expectations; introduction to majors within the College of Liberal Arts and Sciences (CLAS); assessments to define strengths and interests, reflection of experiences. Recommendations: first-year undergraduate standing and College of Liberal Arts and Sciences open major.

Upper-Level Undergraduate and Graduate

CLAS:3111 (610:111) Reimagining Downtown 3 s.h.

Interdisciplinary perspective; assist upper-level undergraduates apply their education and creativity toward a specific initiative, the Downtown Project, located in the Fremont East and Arts District areas of Las Vegas, Nevada. Requirements: junior or senior standing and admission by application.

CLAS:3200 (610:126) International Perspectives: Xicotepec 1-3 s.h.

Interdisciplinary service-learning course; Mexican culture and history through community-based service project, assigned readings, and discussion; includes a required spring break trip to Mexico. Same as SOC:3200 (034:116).

CLAS:4100 (610:099) Peer Mentoring 1-2 s.h.

Opportunities to participate in classroom and course activities as mentors for other students.

CLAS:4200 (610:175) Undergraduate Internship arr.

Professional and/or creative experience for writing certificate students; students must arrange an on- or off-campus internship with faculty advisor approval. Requirements: undergraduate standing and a minimum of 24 s.h. of course work with at least 12 s.h. in University of Iowa courses.

Graduate

CLAS:5100 (610:210) Practicum: Introduction to College Instruction for Teaching Assistants arr.

Guidance for teaching assistants seeking introduction to teaching at college level; focus on practical pedagogical concerns, including how to structure a course, devise learning outcomes, develop a syllabus and a calendar of assignments, evaluate student work, and create a student-centered classroom with collaborate learning experiences; pre-semester intensive training session, weekly meetings during first month of semester, periodic meetings to address midterm and late-semester issues; concurrent with TA teaching assistantships. Recommendations: interest in teacher training and preparation.

General Education

General Education Program (p. 323)

Departments, Programs, and Schools

African American Studies (p. 26)

American Studies (p. 44)

Anthropology (p. 55)

Art and Art History (p. 75)

Biology (p. 122)

Biomedical Sciences (p. 137)

Chemistry (p. 139)

Cinematic Arts (p. 148)

Classics (p. 155)

Communication Sciences and Disorders (p. 171)

Communication Studies (p. 183)

Computer Science (p. 204)

Creative Writing (Iowa Writers' Workshop) (p. 219)

Division of Performing Arts (p. 234)

Dance (p. 222)

Music (p. 488)

Theatre Arts (p. 640)

Division of World Languages, Literatures, and Cultures (p. 235)

American Sign Language (p. 40)

Asian and Slavic Languages and Literatures (p. 102)

Comparative Literature (p. 199)

French and Italian (p. 300)

German (p. 347)

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African American Studies

Interim chair

- Timothy J. Havens

Professors

- Horace Porter (F. Wendell Miller Professor; English/American Studies/African American Studies), Leslie Schwalm (History/African American Studies/Gender, Women's, and Sexuality Studies), Richard B. Turner (Religious Studies/African American Studies)

Associate professors

- Venise Berry (Journalism and Mass Communication/African American Studies), Tim Havens (Communication Studies/African American Studies), Lena Hill (English/African American Studies), Michael Hill (English/African American Studies), Katrina Sanders (Educational Policy and Leadership Studies/African American Studies), Miriam Thaggert (English/African American Studies), Deborah Whaley (American Studies/African American Studies)

Assistant professor

- Damani Phillips (Music/African American Studies)

Associate professor emeritus

- Michael Lomax

Undergraduate major: African American studies (B.A.)

Undergraduate minor: African American studies

Graduate degree: M.A. in African American world studies

Web site: <http://clas.uiowa.edu/afam/>

African American studies focuses on the study of people of African descent in the United States and the African diaspora. The African American Studies Program originated in 1969 through courses intended to foster awareness of African Americans' role in the development of the United States and the world. Because a thorough understanding of the African American experience cannot be achieved through study restricted to the perspective of a single discipline, all students are required to pursue courses in the humanities, social sciences, and performing arts.

The African American Studies Program draws upon faculty from American studies; communication studies; education; English; gender, women's, and sexuality studies; health and human physiology; history; journalism and mass communication; religious studies; rhetoric; sociology; sport studies; and theatre arts.

Undergraduate Programs of Study

- Major in African American studies (Bachelor of Arts)
- Minor in African American studies

Bachelor of Arts

The Bachelor of Arts with a major in African American studies requires a minimum of 120 s.h., including at least 30 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education

Program (p. 323). Transfer credit is evaluated individually and is limited to a maximum of 9 s.h.

INTRODUCTORY COURSES

Students are required to complete two of the following introductory courses.

AFAM:1010 (129:062) Foundations in African American Studies	3 s.h.
AFAM:1020 (129:061)/AMST:1030 (045:030) Introduction to African American Culture	3 s.h.
AFAM:1030 (129:060) Introduction to African American Society	3 s.h.

Foundations in African American Studies [AFAM:1010 (129:062)] explores the history and the methodology of African American studies. Starting with readings related to the formation of the discipline, the course shows students what an African American studies approach to interpretation entails and culminates in a research paper.

Introduction to African American Society [AFAM:1030 (129:060)] examines the construction of social and historical institutions in the United States and the African diaspora (e.g., Black church, Black family, gender, sexuality). The course may include readings in political science, religion, history, sociology, geography, anthropology, and other disciplines.

Introduction to African American Culture [AFAM:1020 (129:061)] presents themes in African American cultural studies. It includes readings in literature, music, film studies, religious studies, and the visual and performing arts.

AFRICAN AMERICAN STUDIES CORE

In addition to the two required introductory courses, all students must complete at least two courses from each of the three topical areas below (minimum of 18 s.h.). Additional courses may be approved for the topical areas; consult with an African American studies advisor.

History, Religion, and the Diaspora

Two of these:

AFAM:1250 (129:050)/RELS:1350 (032:034) Introduction to African American Religions	3 s.h.
AFAM:2265 (129:065)/HIST:2265 (16A:065) Introduction to African American History	3 s.h.
AFAM:2600 (129:093) Black Culture and Experience (when topic is history, religion, and the diaspora)	3 s.h.
AFAM:2730 (129:063)/RELS:2730 (032:063) African American Islam	3 s.h.
AFAM:3245 (129:123)/RELS:3745 (032:126) Twentieth-Century African American Religion: Civil Rights to Hip-Hop	3 s.h.
AFAM:3555 (129:158)/ENGL:3555 (008:157) Topics in African Cinema	3 s.h.
AFAM:3900 (129:140) Topics in African American Studies (when topic is history, religion, or the diaspora)	arr.
AFAM:4195 (129:170)/HIST:4295 (16A:187) African American History 1619-1865	3 s.h.
AFAM:4275 (129:137)/HIST:4275 (16A:147) History of Slavery in the U.S.A.	3-4 s.h.
AFAM:4298 (129:187)/HIST:4296 (16A:188) African American History 1865-Present	3 s.h.

AFAM:4310 (129:163)/HIST:4710 (16W:120) Pre-Colonial African History	3 s.h.
AFAM:4715 (129:164)/HIST:4715 (16W:121) African History Since 1880	3 s.h.
AFAM:7205 (129:205)/HIST:7205 (016:205)/ GWSS:7205 (131:206) Gender and Race in Nineteenth-Century U.S.	arr.
EPLS:5126 (07B:126) Twentieth-Century Educational Movements	2-3 s.h.

Literature and Performing Arts

Two of these:

AFAM:1820 (129:082) Everybody is a Star: Black Celebrity Since 1968	3 s.h.
AFAM:1830 (129:083) Music of the African American Diaspora	3 s.h.
AFAM:2014 (129:014) Giants of Jazz: Miles, Trane, and Duke	3 s.h.
AFAM:2465 (129:069)/ENGL:2465 (008:069) Selected African American Authors	3 s.h.
AFAM:2600 (129:093) Black Culture and Experience (when topic is literature or performing arts)	3 s.h.
AFAM:2781 (129:081)/ENGL:2460 (008:080) Black Literature and Politics: Controversies of National Allegiance	3 s.h.
AFAM:3459 (129:116)/ENGL:3459 (008:116) African American Literature Before 1900	3 s.h.
AFAM:3460 (129:117)/ENGL:3460 (008:117) African American Literature After 1900	3 s.h.
AFAM:3462 (129:186)/ENGL:3462 (008:186)/ THTR:3462 (049:186) African American Drama	3 s.h.
AFAM:3465 (129:181)/ENGL:3465 (008:137) African American Autobiography	3 s.h.
AFAM:3710 (129:150)/GWSS:3710 (131:137) African American Women Writers	3 s.h.
AFAM:3810 (129:175)/THTR:3410 (049:190) African American Theatre I	3 s.h.
AFAM:3811 (129:191)/THTR:3411 (049:191) African American Theatre II	3 s.h.
AFAM:3840 (129:182)/THTR:3403 (049:182) Free Style Writing: Poetry, Plays, and Performances	3 s.h.
AFAM:3900 (129:140) Topics in African American Studies (when topic is literature or performing arts)	arr.
AFAM:4500 (129:183)/THTR:4413 (049:183) Black Feminist Tradition and Culture	3 s.h.
AFAM:4710 (129:162)/ENGL:4410 (008:162) Midwest African American Literature and Culture	3 s.h.

Media, Politics, and Social Institutions

Two of these:

AFAM:2070 (129:070)/COMM:2069 (036:069) Black TV Drama: The Wire	3 s.h.
AFAM:2076 (129:076)/COMM:2076 (036:076) Race, Ethnicity, and Media	3 s.h.
AFAM:2079 (129:079)/SPST:2079 (028:079) Race and Ethnicity in Sport	3 s.h.

AFAM:2600 (129:093) Black Culture and Experience (when topic is media, politics, and social institutions)	3 s.h.
AFAM:2610 (129:097)/LEIS:1097 (169:097) Race, Sport, and Globalization	3 s.h.
AFAM:3053 (129:153)/AMST:3053 (045:153) The Civil Rights Movement	3 s.h.
AFAM:3130 (129:126) Black American Cinema	3 s.h.
AFAM:3400 (129:102)/AMST:3400 (045:102) Black Popular Music	3 s.h.
AFAM:3500 (129:108)/RELS:3808 (032:108) Malcolm X, King, and Human Rights	3 s.h.
AFAM:3900 (129:140) Topics in African American Studies (when topic is media, politics, or social institutions)	arr.
AFAM:3925 (129:122)/JMC:3165 (019:165) African Americans and the Media	3 s.h.
AFAM:4001 (129:195)/COMM:4172 (036:172) Television and African American Culture	3 s.h.

ELECTIVES

Students also must take two elective courses (minimum of 6 s.h.) selected from the three topical areas listed above. With the approval of an African-American studies advisor, students may substitute relevant courses offered by other departments for one or both electives; the substituted courses may not be cross-listed with African American studies. Students must gain the advisor's approval before enrolling in a substitute course.

Two electives selected from the three topical areas above, or approved substitutes	6 s.h.
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LANGUAGE REQUIREMENT

The language requirement for the African American studies major is the same as the World Languages requirement of the College of Liberal Arts and Sciences General Education Program (p. 323). Students are encouraged, but not required, to take African language courses (Swahili is currently offered) or Spanish language courses to fulfill the World Languages requirement.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

During the first year of study, students should focus on completing the General Education Program, perhaps including Swahili or Spanish course work to begin satisfying the World Languages requirement.

Before the fifth semester begins: at least three courses in the major, including AFAM:1010 (129:062) Foundations in African American Studies; and AFAM:1030 (129:060) Introduction to African American Society or AFAM:1020 (129:061) Introduction to African American Culture

Before the seventh semester begins: at least seven courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in African American studies have the opportunity to graduate with honors in the major. Honors study enables students to pursue special interests and individual in-depth research.

Honors students in African American studies complete all of the required course work for the major (30 s.h.); they should use one or more of their elective courses to develop the honors thesis. Honors students are encouraged to register for up to 6 s.h. in AFAM:4990 (129:095) Honors Project, which will enhance their ability to complete honors projects under the guidance of the supervising faculty member. Students take AFAM:4990 (129:095) with the approval of their African American studies advisor, who typically supervises the course. Students may count up to 6 s.h. earned in AFAM:4990 (129:095) toward the 30 s.h. required for the major.

Under the guidance of the African American studies advisor, the honors student defines a research project (thesis) using primary, secondary, or archival sources. Students make project proposals by the end of their junior year. Each student completes a thesis under the guidance of a supervising faculty member and presents the results as a senior essay to a committee of three faculty members, including the supervising African American studies faculty member and two other African American studies faculty members of the student's choice. The student's committee may choose to hear an oral defense of the honors thesis, usually during the student's last semester.

Honors students in African American studies must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in African American studies requires a minimum of 15 s.h., including 12 s.h. taken at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Course work done for another major or minor may not be counted toward the minor in African American studies.

The minor must include the following course work.

Introductory courses—two of these (6 s.h.):

AFAM:1010 (129:062) Foundations in African American Studies	3 s.h.
AFAM:1020 (129:061)/AMST:1030 (045:030) Introduction to African American Culture	3 s.h.
AFAM:1030 (129:060) Introduction to African American Society	3 s.h.

African American studies core—all of these (9 s.h.), with at least two taken at The University of Iowa:

One course listed under "History, Religion, and the Diaspora" above

One course listed under "Literature and Performing Arts" above

One course listed under "Media, Politics, and Social Institutions" above

Graduate Program of Study

- Master of Arts in African American world studies African American studies is not accepting graduate students in 2014-15.

Cocurricular Activities

Afro-American Cultural Center

African American studies encourages students to use facilities of the Afro-American Cultural Center. The center serves as a museum and library of educational and cultural artifacts and exhibits of African American culture, providing cultural enrichment for the Iowa City community and promoting diversity among all members of the University community. It also provides a cultural meeting place for African American students.

African American Studies Student Association

The African American Studies Student Association aims to promote knowledge about people of African descent by sponsoring programs on various topics. Any University of Iowa student interested in African American studies is eligible to become a member.

Graduate Seminar

Graduate students from a range of disciplines in the College of Liberal Arts and Sciences are encouraged to participate in the program's interdisciplinary graduate seminar, which is dedicated to advanced readings, scholarly books, and articles in African American studies.

Graduate Student Mentoring and Advising

African American studies sponsors several intellectual and social gatherings for graduate students across disciplines. During these events, students connect with others interested in African American studies and receive advice about becoming faculty members and being productive members of the academic profession.

Seminar and Lecture Series

The African American Studies Seminar Series and the Darwin Turner Lecture bring important scholars and creative artists to the University of Iowa campus. Guests of the lecture and seminar series have included Amiri Baraka, Michelle Wallace, and Valerie Smith.

The New Research in African American Studies lecture series, sponsored by the College of Liberal Arts and Sciences, focuses on research by faculty in the African American Studies Program.

Courses

Lower-Level Undergraduate

- AFAM:1000 (129:029) First-Year Seminar** 1 s.h.
Small discussion class; topics chosen by instructor. Requirements: first-year standing.
- AFAM:1010 (129:062) Foundations in African American Studies** 3 s.h.
Introduction to interdisciplinary methods in African American studies; overview of the discipline's central branches, including literature, religion, media and performing arts, history, political science. GE: Values, Society, and Diversity.
- AFAM:1020 (129:061) Introduction to African American Culture** 3 s.h.
Interdisciplinary look at Black culture in the United States through significant contributions of the humanities (music, art, literature, drama, philosophy) to development of Black culture. GE: Values, Society, and Diversity. Same as AMST:1030 (045:030).
- AFAM:1030 (129:060) Introduction to African American Society** 3 s.h.
Social and cultural history of African Americans through framework of general works in anthropology, sociology, history. GE: Social Sciences; Values, Society, and Diversity.
- AFAM:1240 (129:040) The Art of Listening to Jazz** 3 s.h.
What is jazz and its importance; guided introduction to jazz music, anatomy of jazz music, cultural context; development of skills to become an informed listener; process of performing jazz music, its connection with Black culture; focused listening/analysis of prominent jazz artists' work from past and present, including intersection between jazz and hip hop; formal music experience or training not required.
- AFAM:1250 (129:050) Introduction to African American Religions** 3 s.h.
GE: Values, Society, and Diversity. Same as RELS:1350 (032:034).
- AFAM:1820 (129:082) Everybody is a Star: Black Celebrity Since 1968** 3 s.h.
How shifts in social access after 1968 meant that renowned blacks no longer automatically saw themselves as freedom fighters; effects of change shown in Michael Jackson's career, Barack Obama's election, and fame of Beyonce, Lil' Wayne, and Oprah; analysis of black celebrity from 1968 to 2012 with focus on Muhammad Ali, Dianna Ross, Whitney Houston, Denzel Washington, Michael Jordan, Stevie Wonder, T.D. Jakes, Condoleeza Rice, Jay Z, LeBron James; black celebrity influence on post-civil rights understandings of gender, class, sexuality, politics; biographies, cultural criticism, music videos, movies, documents.
- AFAM:1830 (129:083) Music of the African American Diaspora** 3 s.h.
History and characteristics of music styles emerging from African American culture from time of slavery to present; beginning with Negro spiritual, exploration of origins and musical anatomy of relevant music styles (blues, gospel, jazz, rhythm and blues, funk); ubiquitous role music plays in civil, cultural, and political unrest amongst African American community throughout 20th century.
- AFAM:2014 (129:014) Giants of Jazz: Miles, Trane, and Duke** 3 s.h.
Miles Davis, John Coltrane and Duke Ellington as figureheads of the Jazz music style; how they changed the trajectory of modern music along with sidemen (B. Strayhorn and H. Hancock); Ellington's resolute defiance of stereotypical views of African Americans; Miles' brazen protests against civil injustices; how these icons are much more than mere musicians; cultural impact of landmark albums including "Kind of Blue," "A Love Supreme," and "The Birth of the Cool"; focus on their life, music and sociopolitical impact.
- AFAM:2064 (129:064) Racial Inequity and the Experiences of African American Families in the U.S.** 3 s.h.
Racial inequality and experiences of African American families in the U.S. during 20th and 21st centuries; historical context for contemporary research on African American family; relative impact of structural and cultural factors on various aspects of African American family life, declining marriage rates, family formation patterns; intersections of race and class in family life; research methods used to examine dynamics of African American family life, including quantitative analysis, structured qualitative interviews, and ethnography. Same as SOC:2064 (034:064).
- AFAM:2070 (129:070) Black TV Drama: The Wire** 3 s.h.
Social and political impact of television dramas featuring people of African descent in the West; HBO's *The Wire* series—a social commentary, commercial, and aesthetic force—has pioneered new ways of thinking about the relationship between media and society at large while revolutionizing ways in which black urban life is portrayed in today's world; focus on complex intersections between urban poverty, education, and political system, crime, mediation in Western society. Same as COMM:2069 (036:069).
- AFAM:2076 (129:076) Race, Ethnicity, and Media** 3 s.h.
Introduction to debates about media portrayals of race and ethnicity; focus primarily on entertainment media; use of general analytic perspectives (stereotype analysis, aesthetic analysis, history) applied to real-world examples; address one or more racial/ethnic groups in the United States. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as COMM:2076 (036:076).
- AFAM:2079 (129:079) Race and Ethnicity in Sport** 3 s.h.

Structural and ideological barriers to racial and ethnic equality in sport, with focus on African American sport experiences; historical and contemporary issues, media representations. Same as SPST:2079 (028:079).

AFAM:2265 (129:065) Introduction to African American History 3 s.h.

GE: Values, Society, and Diversity. Same as HIST:2265 (16A:065).

AFAM:2465 (129:069) Selected African American Authors 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as ENGL:2465 (008:069).

AFAM:2600 (129:093) Black Culture and Experience 3 s.h.

Topics vary.

AFAM:2610 (129:097) Race, Sport, and Globalization 3 s.h.

Introduction to current discussion surrounding the link between sport, race, and globalization; critical cultural studies perspective used to examine the meaning of race and sport within a global context; labor migration of talented athletes, identity politics, and dynamics of equality in sport along such lines as race, class, and gender; examination of African American diaspora within a sport context to study political, economic, and social construction of race and sport on African and Asian continents. Same as LEIS:1097 (169:097).

AFAM:2730 (129:063) African American Islam 3 s.h.

Same as RELS:2730 (032:063).

AFAM:2781 (129:081) Black Literature and Politics: Controversies of National Allegiance 3 s.h.

Black literature born amid political controversy, from slave narratives to award-winning texts of late 20th century; evolving politics of African American writers; changing political landscape of this expansive period and representative literature; how African American writers shape U.S. political debate; surprising politics of many canonical African American writers. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:2460 (008:080), POLI:2107 (030:099).

Upper-Level Undergraduate and Graduate

AFAM:3053 (129:153) The Civil Rights Movement 3 s.h.

History of the American civil rights movement. Same as AMST:3053 (045:153).

AFAM:3130 (129:126) Black American Cinema 3 s.h.

Major historical and cultural movements in Black cinema; independent and early Hollywood films, animation, Blaxploitation, the Black Renaissance, Black auteurs (e.g., Spike Lee, Julie Dash), hip-hop cinema, womanist films, 21st-century developments in film (e.g., theatre to film adaptations of Tyler Perry), new media's effect on film and cinema; particular attention given to gender, sexualities, region, ethnicity, and class. Same as AMST:3130 (045:126).

AFAM:3245 (129:123) Twentieth-Century African American Religion: Civil Rights to Hip-Hop 3 s.h.

Twentieth-century African American religious history; major political and cultural movements, such as civil rights, black power, black feminism/womanism, hip-hop. Same as RELS:3745 (032:126).

AFAM:3400 (129:102) Black Popular Music 3 s.h.

History and expressive culture of people of African descent living in America through popular music forms; historical time span between the 17th and 21st centuries; poetry, music, cultural analysis, film, and art as sources for the study of Black music; genres covered include spirituals and gospel, blues, jazz, rock, rhythm and blues, Afropunk, alternative and neo soul, and hip-hop. Recommendations: AFAM:1020 (129:061) and AMST:1030 (045:030). Same as AMST:3400 (045:102).

AFAM:3459 (129:116) African American Literature Before 1900 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature. Same as ENGL:3459 (008:116).

AFAM:3460 (129:117) African American Literature After 1900 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as ENGL:3460 (008:117).

AFAM:3462 (129:186) African American Drama 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:3462 (008:186), THTR:3462 (049:186).

AFAM:3465 (129:181) African American Autobiography 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as ENGL:3465 (008:137).

AFAM:3500 (129:108) Malcolm X, King, and Human Rights 3 s.h.

Religion and politics of Malcolm X and Martin Luther King, Jr. in the context of U.S. civil rights and international human rights in West Africa and the Muslim world; emphasis on civil rights connections to Gandhi, the Nobel Peace prize, and other international experiences that have impacted Pan Africanists, such as Stokely Carmichael, who worked on human rights. Recommendations: international studies major or undergraduate standing. Same as RELS:3808 (032:108).

AFAM:3550 (129:119) African Literature 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3550 (008:119).

AFAM:3555 (129:158) Topics in African Cinema 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3555 (008:157).

AFAM:3710 (129:150) African American Women Writers 3 s.h.
Introduction to major African American women authors of the 19th, 20th, and 21st centuries; major debates of black feminist literary scholarship; analyze African American literary representations by reading novels, poetry, short stories, plays, relevant historical and critical texts. GE: Values, Society, and Diversity. Same as GWSS:3710 (131:137).

AFAM:3810 (129:175) African American Theatre I 3 s.h.
Works by African American playwrights and relevant historical documents, Africa through Black Renaissance; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as THTR:3410 (049:190).

AFAM:3811 (129:191) African American Theatre II 3 s.h.
Works by African American playwrights and relevant historical documents, Black Renaissance to present; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as THTR:3411 (049:191).

AFAM:3840 (129:182) Free Style Writing: Poetry, Plays, and Performances 3 s.h.
Creative writing lab experience in reading, writing, and performing poetry and short plays; expansion of students' horizons of the self; arc of innovation in African American literature from Harlem Renaissance to present, with texts from Langston Hughes and Zora Neale Hurston to Saul Williams and Jill Scott; role of the artist in society and as outsider and insider; shifting perspectives on race, gender, class; musical influences and models, from blues to house music; sensuality, spirituality; artistic reflections on the cultural moment; effects of these on literary form and performance style; students create and perform a work for an audience. Same as THTR:3403 (049:182).

AFAM:3900 (129:140) Topics in African American Studies arr.
Different topic each semester.

AFAM:3925 (129:122) African Americans and the Media 3 s.h.
GE: Values, Society, and Diversity. Same as JMC:3165 (019:165).

AFAM:4001 (129:195) Television and African American Culture 3 s.h.
Role of television in African American culture; examination of debates, stereotyping, authenticity, effects of programming, aesthetics, and television's relationship to other forms of cultural expression. Prerequisites: for communication studies majors or for those in COMM:4172 (036:172) — COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: for COMM:4172 (036:172) — g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as COMM:4172 (036:172).

AFAM:4195 (129:170) African American History 1619-1865 3 s.h.
Race and African American history, from the rise of racial slavery to the Civil War; advanced course. Same as HIST:4295 (16A:187).

AFAM:4275 (129:137) History of Slavery in the U.S.A. 3-4 s.h.
Origins, development; focus on labor, family, gender, community, culture, resistance; South's defense of slavery; wartime collapse, destruction of slavery. Same as HIST:4275 (16A:147).

AFAM:4298 (129:187) African American History 1865-Present 3 s.h.
African American history since Reconstruction; survey of African American politics and society from Reconstruction to present. Same as HIST:4296 (16A:188).

AFAM:4310 (129:163) Pre-Colonial African History 3 s.h.
Africa to 1880; oral tradition, other sources; political development, ecological change, slavery and slave trade. GE: Historical Perspectives. Same as HIST:4710 (16W:120).

AFAM:4500 (129:183) Black Feminist Tradition and Culture 3 s.h.
Survey of selected theoretical texts that chronicle shifting perspectives on feminism; comparative interdisciplinary survey of artistic works that reflect such perspectives. Same as THTR:4413 (049:183).

AFAM:4710 (129:162) Midwest African American Literature and Culture 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as ENGL:4410 (008:162).

AFAM:4715 (129:164) African History Since 1880 3 s.h.

Africa in colonial, post-colonial period; economics, political structures of colonialism; social change, political life in the 20th century. GE: International and Global Issues. Same as HIST:4715 (16W:121).

AFAM:4900 (129:199) Senior Seminar 3 s.h.

African American, African, and African Caribbean culture and experience; comparative approach to synthesize students' earlier study. Requirements: African American studies senior standing.

AFAM:4910 (129:176) Special Topics 3 s.h.

Selected topics, issues, and debates about various components of African American culture including literature, sociology, psychology, media, history, rhetoric, theater, sports, health, and education.

AFAM:4980 (129:179) Independent Study arr.

Topics vary.

AFAM:4990 (129:095) Honors Project arr.

Independent research and writing on interdisciplinary topic.

Graduate

AFAM:5900 (129:212) Advanced Readings in African American Culture arr.

Textual, social, political analyses of works by Black authors. Same as RELS:5900 (032:259).

AFAM:6635 (129:231) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).

AFAM:7205 (129:205) Gender and Race in Nineteenth-Century U.S. arr.

Same as HIST:7205 (016:205), GWSS:7205 (131:206).

AFAM:7214 (129:287) Readings: African American Women's History arr.

Same as HIST:7214 (016:287), GWSS:7214 (131:287).

AFAM:7710 (129:259) Seminar: Interpreting Oral Histories arr.

Interpretations and methods applied by historians in various world regions to different forms of oral history, from old oral traditions to contemporary autobiographical testimony. Same as HIST:7710 (016:259).

Aging Studies

Chair

- Edward J. Saunders

Coordinator

- Mercedes Bern-Klug

Undergraduate minor: aging studies

Undergraduate certificate: aging studies

Graduate certificate: aging studies

Web site: <http://clas.uiowa.edu/socialwork/undergraduate-program/aging-studies-program/certificate-aging-studies>

The Aging Studies Program offers undergraduate and graduate programs and a selection of courses open to students in all majors.

Undergraduate students in the College of Liberal Arts and Sciences who would like to focus on aging studies as their major or as a second major should consider the individualized plan of study track offered by the Interdepartmental Studies Program. See Interdepartmental Studies (p. 408) in the Catalog.

The Aging Studies Program is administered by the School of Social Work (p. 586).

Undergraduate and Graduate Programs of Study

- Certificate in Aging Studies (undergraduate and graduate)
- Minor in aging studies (undergraduate)

The College of Liberal Arts and Sciences grants the undergraduate certificate and minor; the Graduate College confers the graduate certificate.

Certificate

The Certificate in Aging Studies requires 21 s.h. of credit. Completion of the certificate is noted on the student's transcript.

The undergraduate certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Undergraduate students must maintain a g.p.a. of at least 2.00 in work for the certificate. Undergraduate students may earn the undergraduate certificate or the minor in aging studies, but not both.

The graduate certificate program is open to University of Iowa graduate students with aging-related career interests and needs. Graduate students must maintain a g.p.a. of at least 2.50 in work for the certificate.

The Certificate in Aging Studies takes a multidisciplinary approach to gerontology. Its course work has been coordinated and sequenced to provide a broad background in aging for students from varied disciplines. Students should talk with the Aging Studies Program coordinator about their intent to earn the certificate. They work with their academic advisors and the coordinator to develop an individual plan of study that complements their degree program and career interests.

The certificate's required 21 s.h. must be earned in Aging Studies Program courses (prefix ASP) and other courses approved for the program. With permission from the Aging Studies Program coordinator, students also may be able to use other aging-related courses for the certificate. Students must earn at least 18 s.h. of certificate credit in courses numbered 3000 or above, and they must earn at least 15 s.h. toward the certificate at The University of Iowa.

Certificate requirements include a core curriculum of six courses and an additional 5 s.h. of elective course work from the list of approved aging-related courses. Students may take core courses before or concurrently with other courses in the program, but they should complete the core courses before they enroll in the internship and internship seminar. Students who complete an aging-related internship or practicum in their major field may be able to count that experience as their Aging Studies Program internship; consult with the Aging Studies Program coordinator. Transfer credit requests are evaluated individually by the Aging Studies Program coordinator.

The Certificate in Aging Studies requires the following course work.

CORE COURSES

All certificate students must complete the following six core courses. Graduate students should contact the Aging Studies Program coordinator about an independent study option for ASP:3900 (153:124).

One of these—graduate students must choose ASP:3135 (153:135):

ASP:2181 (153:181) The Anthropology of Aging	3 s.h.
ASP:3135 (153:135) Global Aging	3 s.h.

One of these—graduate students must choose ASP:3900 (153:124):

ASP:1800 (153:085)/CSD:1800 (003:085)/LEIS:1800 (169:085)/NURS:1800 (096:085)/SSW:1800 (042:085) Basic Aspects of Aging	3 s.h.
ASP:3900 (153:124) Independent Study in Gerontology	arr.

All of these:

ASP:3150 (153:150)/PSY:2915 (031:050) Psychology of Aging	3 s.h.
ASP:3160 (153:160) Biology of Aging	3 s.h.
ASP:4189 (153:189) Aging Studies Internship Seminar	1 s.h.
ASP:4190 (153:190)/SSW:4190 (042:190) Aging Studies Internship	3 s.h.

ELECTIVES

Students must complete an additional 5 s.h. of electives selected from courses offered by the Aging Studies Program (prefix ASP) and/or from approved aging-related courses offered by other academic units. Practicum and/or research courses offered by other academic units may be accepted for elective credit if they focus on aging; students who wish to apply course work from other departments should consult the Aging Studies Program chair.

Minor

Undergraduate students in the Colleges of Liberal Arts and Sciences, Education, Engineering, Nursing, and the Tippie College of Business may earn the minor in aging studies. Students must have the approval of their college or major department in order to earn the minor.

Students may earn the minor or the undergraduate certificate in aging studies, but not both.

The minor in aging studies requires a minimum of 15 s.h. in aging-related course work, including 12 s.h. in courses numbered 3000 or above taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. The minor must include ASP:1800 (153:085) Basic Aspects of Aging. Students earning the minor may not enroll in ASP:4190 (153:190) Aging Studies Internship. Courses for the minor must be approved by the Aging Studies Program.

Courses

Lower-Level Undergraduate

ASP:1000 (153:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

ASP:1800 (153:085) Basic Aspects of Aging 3 s.h.

Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. GE: Social Sciences. Same as LEIS:1800 (169:085), NURS:1800 (096:085), SSW:1800 (042:085), CSD:1800 (003:085).

ASP:2181 (153:181) The Anthropology of Aging 3 s.h.

Comparative anthropological perspective on aging; ethnographies from diverse contexts used to examine intersections of kinship, religion, health, and medicine in later life. Same as ANTH:2181 (113:147), GHS:2181 (152:147).

Upper-Level Undergraduate and Graduate

ASP:3135 (153:135) Global Aging 3 s.h.

Demographic factors that contribute to the world wide phenomena of population aging in context of WHO Active Aging and the United Nation's Principles for Older Persons frameworks. Same as SSW:3135 (042:135), GHS:3050 (152:153).

ASP:3150 (153:150) Psychology of Aging 3 s.h.

The later years of human life viewed from perspectives of developmental psychology, biology, sociology. Prerequisites: PSY:1001 (031:001). Same as PSY:2915 (031:050).

ASP:3151 (153:151) The Anthropology of the Beginnings and Ends of Life 3 s.h.

Examination of diverse understandings of birth and death, drawing on anthropological analysis of personhood, kinship, ritual, and medicine; how social inequality and new technologies shape human experience at life's margins. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010). Same as ANTH:3151 (113:151), GHS:3151 (152:156).

ASP:3152 (153:152) Anthropology of Caregiving and Health 3 s.h.

Diverse understandings and practices of care around the world; focus on relationships between caregiving practices and health across the life course. Same as ANTH:3152 (113:152), GHS:3152 (152:149).

ASP:3160 (153:160) Biology of Aging 3 s.h.

Biogerontology; definition of aging and senescence, biological theories of aging, demographics, model systems foraging, premature aging syndromes, aging of organ systems in humans.

ASP:3168 (153:168) Aging and Leisure 3 s.h.

Status of the well elderly in relation to retirement issues, use of free time, and factors that support leisure activity; leisure services in long-term care. Same as LEIS:3168 (169:168).

ASP:3501 (153:195) Introduction to Nursing Homes 3 s.h.

Overview of nursing home roles in context of long-term care system, characteristics of nursing home residents. Same as SSW:3501 (042:195).

ASP:3610 (153:161) Rhetorical Issues in Health Care 3 s.h.

Role of rhetoric in health care practice, decisions, and ethics; rhetorical production of patient and professional selves in health care; varied practices, diverse perspectives, and situated production of medical and health care knowledge. Requirements: satisfactory completion of General Education rhetoric requirement. Same as RHET:3610 (010:161).

ASP:3740 (153:147) End-of-Life Care for Adults and Families 2-4 s.h.

End-of-life issues in care of adults, older adults, and their families. Requirements: RN license. Same as NURS:3740 (096:147), MED:3740 (050:147), PHAR:3740 (046:146).

ASP:3753 (153:153) Programs and Services for Aging Adults 3 s.h.

Major gerontological programs and services, practitioners' need for basic aging-practice competence; aging network; income, employment, health maintenance programs; continuum of care (preventive and well-elderly services, in-home services, community-based services, institutional care); assessment; major elder health issues, informal care; end-of-life care. Same as SSW:3753 (042:153).

ASP:3785 (153:185) Social Policy and the Elderly 3 s.h.

Public social policies, their affect on well-being of elderly, including women and minorities; U.S. and other nations' policies. Prerequisites: SSW:4843 (042:143). Requirements: an introductory course on aging, and junior or higher standing. Same as SSW:3785 (042:185).

- ASP:3786 (153:186) Death/Dying: Issues Across the Life Span** 3 s.h.
Introduction to death and dying; historical, cultural, societal, personal perspectives. Same as SSW:3786 (042:186).
- ASP:3900 (153:124) Independent Study in Gerontology** arr.
Individual projects and/or research.
- ASP:3920 (153:120) Service Learning in Aging Studies** 1-3 s.h.
Experiential learning in settings with older adults. Corequisites: ASP:1800 (153:085), if not taken as a prerequisite.
- ASP:4165 (153:165) Communication Disorders and Aging** 2 s.h.
Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communication and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech-language pathologists and audiologists. Offered spring semesters of even years. Same as CSD:4165 (003:165).
- ASP:4189 (153:189) Aging Studies Internship Seminar** 1 s.h.
Opportunity for students to exercise critical thinking related to experiences in their aging studies internship. Prerequisites: ASP:1800 (153:085), ASP:3135 (153:135), ASP:3150 (153:150), and ASP:3160 (153:160). Corequisites: ASP:4190 (153:190).
- ASP:4190 (153:190) Aging Studies Internship** 3 s.h.
Opportunities for students in various disciplines to relate their areas of study to older adults and aging; interdisciplinary relationships, approaches to meeting needs of older adults. Same as SSW:4190 (042:190).
- ASP:6610 (153:261) Epidemiology of Aging** 1-2 s.h.
Epidemiologic methods for studying health and social problems of older persons; applications including research and public health practice and policy. Prerequisites: EPID:4400 (173:140). Same as EPID:6610 (173:261).
- ASP:7400 (153:410) State of the Science in Biobehavioral Research on Aging** 3 s.h.
Analysis and evaluation of science in biobehavioral aging research; overview of aging research and interdisciplinary contributions; biobehavioral phenomena pertinent to aging populations; relevant epidemiologic research, population/community-based research, primary prevention research, qualitative and quantitative analyses, instrumentation, intervention research, measurement studies; ethical and methodological issues, context of care; identification of literature gaps and future research agendas that promote successful aging. Requirements: for NURS:7400 (096:410) — doctoral standing; for ASP:7400 (153:410) — Ph.D. enrollment. Recommendations: knowledge of pathophysiology, research design, and statistics. Same as NURS:7400 (096:410).
- ASP:7401 (153:420) State of the Science in Geriatric Mental Health Research** 3 s.h.
Analysis and evaluation of science in geriatric mental health research in nursing and other disciplines; cognitive and affective function, substance abuse, and caregiver health/support; relevant epidemiologic research, population/community-based research, primary prevention research, qualitative and quantitative analyses, instrumentation, intervention research, and measurement studies; review and analysis of program evaluation and services research, emphasis on ethical and methodological issues; identification of literature gaps and future research agendas that promote successful aging. Requirements: for NURS:7401 (096:420) — doctoral standing; for ASP:7401 (153:420) — Ph.D. enrollment. Recommendations: knowledge of psychopathology, research design, and statistics. Same as NURS:7401 (096:420).
- ASP:8355 (153:145) Introduction to Geriatric Dentistry** 2 s.h.
Biological, psychological, and social aspects of aging; normal aging and disease processes associated with aging; pathological changes that affect oral health treatment of dental diseases and patient management. Requirements: D.D.S. enrollment or completion of dental hygiene program. Same as DENT:8355 (112:145).
- ASP:5219 (153:219) Aging and the Family** 2-3 s.h.
Research related to aging and the family; intergenerational relations, marital status in later life, diversity of older families, caregiving, elder abuse, policy issues. Same as SSW:5219 (042:219).
- ASP:5401 (153:241) The Care of the Frail Elderly** 3 s.h.
Clinical management of the elderly; emphasis on economic considerations, principles of gerontological care, common syndromes, ethical issues; clinical application experience in a long-term care setting. Prerequisites: NURS:5029 (096:224). Same as NURS:5401 (096:241).
- ASP:5750 (153:144) Medicare and Medicaid Policy** 3 s.h.
Health policies most pertinent to Americans over age of 65. Same as HMP:5750 (174:144).

Graduate

American Indian and Native Studies

Director

- Horace Porter

Coordinator

- Erica Prussing

Affiliated faculty

- Margaret Beck (Anthropology), Michelene Pesantubbee (Religious Studies/American Studies), Phillip Round (English)

Undergraduate minor: American Indian and native studies

Undergraduate certificate: American Indian and native studies

Graduate certificate: American Indian and native studies

Web site: <http://www.uiowa.edu/~ainsp/>

The American Indian and Native Studies Program (AINSP) is an interdisciplinary program that focuses on the histories, cultures, literatures, and contemporary legal and political issues of Native North Americans and other indigenous peoples of the Americas.

Students taking AINSP courses begin to understand historical and contemporary social issues among indigenous peoples of the Americas. Through experiences with ethnic, social, and political diversity, they acquire expertise for employment in advocacy, social services, health care, education, and other areas that require cross-cultural understanding. They also gain a background for more specialized or advanced study in a variety of disciplines, including anthropology, economics, education, ethnic studies, geography, history, political science, psychology, and religious studies.

A certificate in AINSP complements degrees in professional areas such as health care, business, social work, and law.

The American Indian and Native Studies Program is administered by the Department of American Studies (p. 44).

Undergraduate Programs of Study

- Certificate in American Indian and Native Studies
- Minor in American Indian and native studies

The College of Liberal Arts and Sciences grants the undergraduate certificate and minor.

Certificate

The undergraduate Certificate in American Indian and Native Studies requires a minimum of 21 s.h. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate.

Completion of the certificate is noted on the student's transcript.

A student may earn the certificate or the minor in American Indian and native studies, but not both.

Students plan their programs in close cooperation with AINSP faculty advisors. They may count a maximum of 6 s.h. of course work from their major toward the AINSP undergraduate certificate. Courses applied toward the AINSP certificate also may be used to complete the General Education Program (p. 323) or the requirements for a major or a minor.

The AINSP undergraduate certificate requires the following course work.

All of these:

AINS:1049 (149:049) Introduction to American Indian and Native Studies	3 s.h.
AINS:3002 (149:102) Introduction to American Indian History and Policy	3 s.h.
AINS:3441 (149:113) Native American Literature	3 s.h.

At least 3 s.h. from these:

AINS:2165 (149:110) Native Peoples of North America	3 s.h.
AINS:3276 (149:076) American Indian Environmentalism	3 s.h.
AINS:4000 (149:199) Special Topics: American Indian and Native Studies	arr.
AINS:4095 (149:195) Directed Cultural Experience	arr.
AINS:4990 (149:197) Independent Study	arr.

And:

Electives chosen from the "Associated Courses" and "Courses" lists below	9 s.h.
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Minor

The minor in American Indian and native studies requires a minimum of 15 s.h., including 12 s.h. taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may count a maximum of 6 s.h. of course work from a major toward the AINSP minor.

A student may earn the minor or the certificate in American Indian and native studies, but not both.

The minor includes the following course work.

AINS:1049 (149:049) Introduction to American Indian and Native Studies	3 s.h.
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One of these:

AINS:3002 (149:102) Introduction to American Indian History and Policy	3 s.h.
AINS:3441 (149:113) Native American Literature	3 s.h.

At least 3 s.h. from these:

AINS:2165 (149:110) Native Peoples of North America	3 s.h.
AINS:3276 (149:076) American Indian Environmentalism	3 s.h.

AINS:4000 (149:199) Special Topics: American Indian and Native Studies	arr.
AINS:4095 (149:195) Directed Cultural Experience	arr.
AINS:4990 (149:197) Independent Study	arr.

And:

Electives numbered 2000 or above chosen from the "Associated Courses" and "Courses" lists below	6 s.h.
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Cultural Experience

The program highly recommends that students have an in-depth American Indian cultural experience, usually through study or volunteer work, before they complete their undergraduate requirements. Consult AINSP faculty advisors about available options for AINS:4095 (149:195) Directed Cultural Experience.

Graduate Program of Study

- Certificate in American Indian and Native Studies

The Graduate College confers the graduate certificate.

Certificate

The graduate Certificate in American Indian and Native Studies requires a minimum of 20 s.h. in courses approved for AINSP and numbered 3000 or above (see "Associated Courses" and "Courses" below). Graduate students must maintain a g.p.a. of at least 3.00 in work toward the certificate. They may count a maximum of 6 s.h. of course work from their major field of study toward the AINSP graduate certificate.

Graduate students must apply to the academic coordinator to be admitted to the AINSP graduate certificate program. Students who earned an undergraduate certificate in the program may not receive a graduate certificate.

The AINSP graduate certificate requires the following course work.

AINS:3002 (149:102) Introduction to American Indian History and Policy	3 s.h.
AINS:6099 (149:299) Independent Study Project	2 s.h.

Electives numbered 3000 or above chosen from the "Associated Courses" and "Courses" lists below	15 s.h.
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Graduate students may petition the AINSP steering committee to include a 2000-level course chosen from the "Associated Courses" and "Courses" lists.

Associated Courses

AINSP accepts the following courses as electives. Although these courses are not offered by AINSP, they are concerned in part with Native North Americans or other indigenous peoples of the Americas. Students may petition the AINSP faculty for permission to use other relevant courses as electives for the undergraduate or graduate certificate or the minor.

For course descriptions, see the appropriate department sections of the Catalog.

ANTHROPOLOGY

ANTH:2220 (113:163) Archaeology of Mesoamerica	3 s.h.
ANTH:3265 (113:181) Archaeology of the Great Plains	3 s.h.

ART AND ART HISTORY

ARTH:3120 (01H:105) Art of Pre-Columbian America	3 s.h.
ARTH:3130 (01H:104) American Indian Art	3 s.h.
ARTH:3990 (01H:199) Topics in Art History (when content is appropriate)	3 s.h.

EDUCATION

EPLS:5123 (07B:123) History of Ethnic/Minority Education	3 s.h.
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ENGLISH

ENGL:2410 (008:088) Selected American Authors After 1900 (when content is appropriate)	2-3 s.h.
ENGL:3418 (008:108) Literature and Culture of America Before 1800	3 s.h.
ENGL:3419 (008:105) Literature and Culture of Nineteenth-Century America	3 s.h.
ENGL:3444 (008:115) Literatures of the American Peoples	3 s.h.

HISTORY

HIST:4220 (16A:131) The Frontier in American History to 1840	3 s.h.
HIST:4221 (16A:132) The Frontier in American History 1840-Present	3 s.h.
HIST:4510 (16W:111) Colonial Latin America	3 s.h.

SPANISH AND PORTUGUESE

SPAN:3220 (035:149) Visual Culture: Colonial Spanish America	3 s.h.
SPAN:4330 (035:173) Colonial Spanish American Literature	3 s.h.

Courses

Lower-Level Undergraduate

AINS:1049 (149:049) Introduction to American Indian and Native Studies 3 s.h.

Themes and methodologies in the study of American Indians and other indigenous peoples; approaches from anthropology, history, law, literature, other disciplines. Offered fall semesters. GE: Values, Society, and Diversity. Same as AMST:1049 (045:049).

AINS:1355 (149:005) Literatures of Native American Peoples 3 s.h.

Genres of Native American literature, including oral literature; focus on written literature (fiction, essays, poetry, drama). Prerequisites: ENGL:1200 (08G:001) and RHET:1030 (010:003). Requirements: successful completion of the rhetoric requirement and then ENGL:1200 (08G:001). GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity. Same as ENGL:1355 (08G:005).

AINS:2078 (149:082) American Indian Women: Myth, Ritual, and Sacred Power	3 s.h.	AINS:3257 (149:167) North American Archaeology	3 s.h.
Participation of women and girls in native religious traditions; obstacles to knowing and understanding native women's religious roles and experiences. Same as RELS:2778 (032:078).		Prehistoric cultural development north of Mexico from initial occupation to European contact and conquest; emphasis on dynamics of culture change. Same as ANTH:3257 (113:167).	
AINS:2085 (149:085) Native American Material Culture	3 s.h.	AINS:3258 (149:159) Southwestern Archaeology	3 s.h.
Overview of American collectors and collections of Indian objects, prehistoric to contemporary. Same as AMST:2085 (045:085).		Anthropological overview of prehistoric cultures of the American Southwest; emphasis on understanding archaeological arguments concerning major processes in the past. Same as ANTH:3258 (113:159).	
AINS:2165 (149:110) Native Peoples of North America	3 s.h.	AINS:3276 (149:076) American Indian Environmentalism	3 s.h.
History, culture of American Indian peoples; emphasis on North America. GE: Values, Society, and Diversity. Same as ANTH:2165 (113:110), AMST:2165 (045:105).		Same as RELS:3976 (032:076).	
AINS:2290 (149:087) Food and Culture in Indian Country	3 s.h.	AINS:3441 (149:113) Native American Literature	3 s.h.
Native Americans as original farmers of 46% of the world's table vegetables; examination of food as a cultural artifact (e.g., chocolate, tobacco); food as a primary way in which human beings express their identities; environmental, material, and linguistic differences that shape unique food cultures among Native peoples across the Western Hemisphere; close analysis of indigenous foods, rituals, and gender roles associated with them; how colonization transformed Native American, European, and African American cultures. Same as AMST:2290 (045:087), HIST:2290 (16A:087).		English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as ENGL:3441 (008:153).	
AINS:2700 (149:060) Sacred World of Native Americans	3 s.h.	AINS:3554 (149:154) Native Histories and Endurance in the Greater Midwest	3 s.h.
GE: Values, Society, and Diversity. Same as RELS:2700 (032:060).		Indigenous histories in the Great Lakes region; colonization and decolonization as ongoing processes rather than historic events.	
AINS:2999 (149:099) Powwow Culture and History	3 s.h.	AINS:3555 (149:155) Exploring American Icons: Cowboys, Indians, Bikers	3 s.h.
Service learning experience working on the American Indian powwow at The University of Iowa; academic study of history and culture of Native American powwows.		Cowboys, Indians, and bikers as cultural icons from historic to contemporary times; examination of ideologies that circulate within and through these three groups as part of expressions of American identities.	
Upper-Level Undergraduate and Graduate		AINS:4000 (149:199) Special Topics: American Indian and Native Studies	arr.
AINS:3002 (149:102) Introduction to American Indian History and Policy	3 s.h.	American Indians and other indigenous peoples; concepts, problems, issues.	
Same as HIST:3002 (16A:110).		AINS:4095 (149:195) Directed Cultural Experience	arr.
AINS:3110 (149:121) Health of Indigenous Peoples	3 s.h.	In-depth American Indian cultural experience, usually study or volunteer work, under supervision of an AINSP faculty member.	
Health problems and services for indigenous populations worldwide, from perspective of Fourth World postcolonial politics. Prerequisites: ANTH:1101 (113:003). Same as ANTH:3110 (113:121), GHS:3110 (152:121).		AINS:4270 (149:161) Colonial North America, ca. 1600-1775	3 s.h.
AINS:3211 (149:115) Native North America I: Precontact-1789	3 s.h.	Introduction to major themes in colonial American history prior to the American Revolution. Same as HIST:4270 (16A:161).	
Same as HIST:3211 (16A:115).		AINS:4272 (149:163) Native Americans in the Age of Empires, ca. 1500-1815	3 s.h.
AINS:3212 (149:116) Native North America II: 1789-Present	3 s.h.	Overview of major issues in Native American history during the period of European Imperialism in North America. Recommendations: junior or senior standing. Same as HIST:4272 (16A:163).	
Same as HIST:3212 (16A:116).		AINS:4289 (149:160) The Atlantic World c. 1450-1850	3 s.h.

Interactions between peoples of Europe, Africa, and the Americas between the 15th and mid-19th centuries, interconnected system of exchange that defied national and imperial boundaries; encounters between Native Americans, Africans, and Europeans in different parts of the Americas; forced and voluntary resettlement of Africans and Europeans overseas; development of plantation slave societies; biological consequences of transatlantic contact; circulation of people, goods, and ideas; development of creole societies; era of revolutions; abolition of slavery. Same as HIST:4289 (16W:160).

AINS:4502 (149:107) History of Mexico 3 s.h.

Mexican history since the eve of the Spanish invasion, with focus on the national period; may include ethnic groups, conquest and demographic disaster, native survival, labor and migration, social protest and rebellions, nationhood, regional differences, religions, popular culture, economic growth and distribution, state building, international relations; survey. Same as HIST:4502 (16W:107).

AINS:4560 (149:158) Native American Women and Religious Change 3 s.h.

Native women's diverse experiences and their roles in native societies, examined through contact experiences between native and nonnative peoples; changes in women's roles in context of interactions between native people, missionaries, European colonists, and Americans; approaches to re-imagining women's early contact roles presented in cultural narratives, archaeology, history, ethnography, and missionary records. Same as GWSS:4560 (131:159), RELS:4920 (032:158).

AINS:4990 (149:197) Independent Study arr.

Graduate

AINS:6099 (149:299) Independent Study Project arr.

Completion of a significant scholarly project that addresses the scope, goals, and ongoing development of American Indian and native studies as an academic field; findings presented on campus (e.g., AINSP steering committee or in association with an AINSP-sponsored event) or at an academic conference.

AINS:6620 (149:238) Readings in Native American Literatures 3 s.h.

Same as ENGL:6620 (008:238).

AINS:8593 (149:178) Federal Indian Law 3 s.h.

Specialized body of law that allocates power and authority in Indian country and has grown up around Native American peoples and their reservations; sovereignty arrangements, jurisdiction, federal Indian policy, tribal self-government. Same as LAW:8593 (091:303).

American Sign Language

Director, Division of World Languages, Literatures, and Cultures

- Russell Ganim

Director, undergraduate studies

- AmyRuth McGraw

Affiliated faculty

- Douglas Baynton (History), Rebecca Furland (World Languages, Literatures, and Cultures), Freeman Harper (World Languages, Literatures, and Cultures), AmyRuth McGraw (World Languages, Literatures, and Cultures), Kelly Neppi (World Languages, Literatures, and Cultures), Timothy Sheets (World Languages, Literatures, and Cultures), Robert Vizzini (World Languages, Literatures, and Cultures)

Undergraduate minor: American Sign Language

Undergraduate certificate: American Sign Language and Deaf Studies

Web site: <http://clas.uiowa.edu/dwllc/asl>

The American Sign Language Program offers two undergraduate programs of study. It also offers a number of courses open to all students. They include a four-semester course sequence in American Sign Language (ASL), courses for teacher licensure (see "Hearing Impaired Endorsement for Teachers" below), and courses on fingerspelling, deaf culture, ASL literature, ASL interpreting, and other topics. The four-course ASL sequence satisfies the World Languages requirement of the General Education Program (see "Language for General Education" below). Classroom instruction is supplemented by video materials and interactive software in the Language Media Center.

The American Sign Language Program is one of the academic units in the Division of World Languages, Literatures, and Cultures (p. 235).

HEARING IMPAIRED ENDORSEMENT FOR TEACHERS

The American Sign Language Program offers courses that fulfill requirements for the Hearing Impaired Endorsement offered by the College of Education. The University of Iowa currently is the only institution in Iowa that offers this endorsement program. Holders of the endorsement are authorized to serve deaf and hard-of-hearing students from birth to age 21. The program is open to undergraduate and graduate students; applicants must hold or be in the process of completing requirements for an elementary or secondary teaching license. Contact the College of Education Office of Education Services to learn more.

Undergraduate Programs of Study

- Certificate in American Sign Language and Deaf Studies
- Minor in American Sign Language

Certificate

The Certificate in American Sign Language and Deaf Studies requires 34 s.h. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript; it confirms for potential employers and prospective graduate schools that the student has specialized knowledge in the field.

Students may earn the Certificate in American Sign Language and Deaf Studies or the minor in American Sign Language, but not both.

The certificate program teaches students about the history, culture, and language of the American deaf community. It is interdisciplinary, permitting students to link study in two or more disciplines into an organized investigation of a language and culture. Through their study of American Sign Language, students learn a language that is semantically and grammatically very different from their own and that operates in a different sensory channel. They also encounter a rich and complex culture, including a rapidly growing literature recorded on film and videotape since the early 20th century.

Certificate requirements include the four-course American Sign Language sequence (16 s.h.) or demonstration of equivalent proficiency; 6 s.h. of core courses; and 12 s.h. of focused electives in two or more disciplines.

Students may use each course required for the certificate to satisfy only one certificate requirement. But they may use a course to satisfy a certificate requirement as well as a requirement for a major or for a minor in another discipline. Courses used to satisfy certificate requirements may not be taken pass/nonpass.

A maximum of 6 s.h. of transfer credit may be accepted toward certificate requirements, with the approval of the American Sign Language and deaf studies advisor.

Students must declare their intention to pursue the certificate with the American Sign Language and deaf studies advisor. They also must submit a plan of study.

The Certificate in American Sign Language and Deaf Studies requires the following course work.

LANGUAGE SEQUENCE

Certificate students must complete the following sequence or be able to demonstrate equivalent proficiency. Students must demonstrate 75 percent proficiency in the expressive and receptive elements of each course in order to register for the next course in the sequence.

ASL:1001 (158:011) American Sign Language I	4 s.h.
ASL:1002 (158:012) American Sign Language II	4 s.h.
ASL:2001 (158:013) American Sign Language III	4 s.h.
ASL:2002 (158:014) American Sign Language IV	4 s.h.

CORE COURSES

Students complete at least two of these (minimum of 6 s.h.):

ASL:3100 (158:111) American Sign Language Conversation	3 s.h.
ASL:3200 (158:101) Topics in Deaf Studies	3 s.h.
ASL:3300 (158:102) American Deaf Culture	3 s.h.
ASL:3400 (158:104) Issues in ASL and Deaf Studies	3 s.h.
ASL:3500 (158:105) Deafness in the Media	3 s.h.
ASL:3600 (158:103) American Sign Language Literature	3 s.h.
ASL:4201 (158:100)/HIST:4201 (16A:104) History of the American Deaf Community	3-4 s.h.
ASLE:2500 (158:106) Introduction to ASL Interpreting	3 s.h.
ASLE:3905 (158:110)/EDTL:3905 (07U:110) Teaching Deaf and Hard of Hearing Students	3-4 s.h.

FOCUSED ELECTIVES

Students earn a total of at least 12 s.h. in courses chosen from the lists below. They must choose courses from at least two different disciplines.

American Studies

AMST:1010 (045:001) Understanding American Cultures	3 s.h.
AMST:2025 (045:025) Diversity and American Identities	3 s.h.

Anthropology

ANTH:1040 (113:045) Language Rights	3 s.h.
ANTH:1401 (113:014) Language, Culture, and Communication	3 s.h.

Communication Sciences and Disorders

CSD:3117 (003:117) Psychology of Language	3 s.h.
CSD:3118 (003:118) Language Acquisition	1-3 s.h.
CSD:3185 (003:185) Hearing Loss and Audiometry	3 s.h.

English

ENGL:3190 (08P:182) Language and Learning	2-3 s.h.
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History

HIST:4201 (16A:104)/ASL:4201 (158:100) History of the American Deaf Community	3-4 s.h.
HIST:4203 (16A:106) Disability in American History	3 s.h.

Linguistics

LING:1010 (103:011) Language and Society	3 s.h.
LING:1020 (103:020) Introduction to the Study of Language	3 s.h.
LING:1040 (103:045) Language Rights	3 s.h.
LING:1060 (103:055) Languages of the World	3 s.h.
LING:3001 (103:100) Introduction to Linguistics	3 s.h.
LING:3030 (103:156) Child Language-Linguistic Perspectives	3 s.h.
LING:3100 (103:150) Language and Gender	3 s.h.
LING:3117 (103:172) Psychology of Language	3 s.h.
LING:3118 (103:176) Language Acquisition	1-3 s.h.
LING:3670 (103:137) Language Processes	3 s.h.

LING:4080 (103:157) Linguistic Theory and Second Language Acquisition	3 s.h.
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Psychology

PSY:3085 (031:122) Language Development	3 s.h.
PSY:3670 (031:137) Language Processes	3 s.h.

Second Language Acquisition

SLA:3401 (164:140) Language Development	3 s.h.
SLA:4080 (164:157) Linguistic Theory and Second Language Acquisition	3 s.h.

Social Work

SSW:3847 (042:147) Discrimination, Oppression, and Diversity	3 s.h.
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Special Education

EDTL:3382 (07S:182) Language and Learning	2-3 s.h.
EDTL:3905 (07U:110) Teaching Deaf and Hard of Hearing Students	3-4 s.h.
EDTL:3933 (07U:133) The Culturally Different in Diverse Settings	3 s.h.
EDTL:4900 (07U:100) Foundations of Special Education (requires admission to Teacher Education Program)	3 s.h.
EDTL:4940 (07U:140) Characteristics of Disabilities	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.

Minor

The minor in American Sign Language requires 15 s.h. of ASL course work, including 12 s.h. in courses numbered 3000 or above taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. The minor must include ASL:2002 (158:014) American Sign Language IV or demonstrated equivalent proficiency. Students may count a maximum of one course taught in English toward the minor, ASL:4201 (158:100) History of the American Deaf Community or ASLE:3905 (158:110) Teaching Deaf and Hard of Hearing Students, and must enroll in the 4 s.h. option with discussion conducted in ASL. Course ASLE:2500 (158:106) Introduction to ASL Interpreting does not count toward the minor.

Students may earn the minor in American Sign Language or the Certificate in American Sign Language and Deaf Studies, but not both.

Language for General Education

The following four-course sequence satisfies the World Languages requirement of the College of Liberal Arts and Sciences General Education Program (p. 323). Students must demonstrate 75 percent proficiency in the expressive and receptive elements of each course in order to register for the next course in the sequence.

ASL:1001 (158:011) American Sign Language I	4 s.h.
ASL:1002 (158:012) American Sign Language II	4 s.h.
ASL:2001 (158:013) American Sign Language III	4 s.h.

ASL:2002 (158:014) American Sign Language IV 4 s.h.

Improvement of receptive and expressive conversational ASL skills through small group discussion, class presentations. Taught in American Sign Language. Corequisites: ASL:2002 (158:014), if not taken as a prerequisite.

Courses

Lower-Level Undergraduate

ASL:1001 (158:011) American Sign Language I 4 s.h.

Conversational skills, basic grammar of ASL; introduction to the ASL cultural community through readings, videos. Taught in American Sign Language. First in a four-semester sequence. GE: World Languages First Level Proficiency.

ASL:1002 (158:012) American Sign Language II 4 s.h.

Continuation of ASL:1001 (158:011); emphasis on ASL grammar and syntax; focus on culture through readings, videos. Taught in American Sign Language. Prerequisites: ASL:1001 (158:011). GE: World Languages Second Level Proficiency.

ASL:1101 (158:015) Fingerspelling and Numbers I 1 s.h.

Development of expressive and receptive American Sign Language fingerspelling, loan sign, and number skills based on word, phrase, and number recognition. Taught in American Sign Language. Prerequisites: ASL:1001 (158:011).

ASL:1102 (158:016) Fingerspelling and Numbers II 1 s.h.

Development of expressive and receptive American Sign Language fingerspelling, loan sign, and number skills based on word, phrase, and number recognition. Taught in American Sign Language. Prerequisites: ASL:1101 (158:015).

ASL:2001 (158:013) American Sign Language III 4 s.h.

Continuation of ASL:1002 (158:012); emphasis on ASL grammar and syntax; focus on culture through readings, videos. Taught in American Sign Language. Prerequisites: ASL:1002 (158:012). GE: World Languages Second Level Proficiency.

ASL:2002 (158:014) American Sign Language IV 4 s.h.

Continuation of ASL:2001 (158:013). Taught in American Sign Language. Prerequisites: ASL:2001 (158:013). GE: World Languages Fourth Level Proficiency.

ASLE:2500 (158:106) Introduction to ASL Interpreting 3 s.h.

Introduction to signed language interpreting; history and current nature of the field, available opportunities, certification, training, ethics. Taught in spoken English. Corequisites: ASL:1002 (158:012).

Upper-Level Undergraduate and Graduate

ASL:3100 (158:111) American Sign Language Conversation 3 s.h.

ASL:3200 (158:101) Topics in Deaf Studies 3 s.h.

Current topics in deaf studies; skill development in communicative fluency in ASL. Taught in American Sign Language. Corequisites: ASL:2002 (158:014), if not taken as a prerequisite.

ASL:3300 (158:102) American Deaf Culture 3 s.h.

Cultural practices, beliefs, values of the American deaf community. Taught in American Sign Language. Corequisites: ASL:2002 (158:014), if not taken as a prerequisite.

ASL:3400 (158:104) Issues in ASL and Deaf Studies 3 s.h.

Current issues in American Sign Language and the American deaf community, such as linguistics, culture, literacy. Corequisites: ASL:2002 (158:014), if not taken as a prerequisite.

ASL:3500 (158:105) Deafness in the Media 3 s.h.

Exploration of the construct of deafness through mainstream media (e.g., commercial television, movies, fictional and nonfictional literature in print and on the Internet); various ways deaf people are constructed and presented for hearing audiences from the past 20 years. Taught in American Sign Language. Prerequisites: ASL:2002 (158:014).

ASL:3600 (158:103) American Sign Language Literature 3 s.h.

Introduction to the world of ASL literature, as recorded on videotape or film and in live performance; traditional folklore, storytelling, poetry, drama, oratory, jokes, and nonfiction narrative; analysis of genres in their social and cultural contexts as expressions of deaf experience; how historical and current issues in deaf culture are represented in literary form. Taught in American Sign Language. Corequisites: ASL:2002 (158:014), if not taken as a prerequisite.

ASL:3800 (158:108) Independent Study arr.

An American Sign Language/deaf studies topic; individual study.

ASL:4201 (158:100) History of the American Deaf Community 3-4 s.h.

Creation of a distinct language and culture of deaf people in America during the 19th and 20th centuries. Taught in English and/or American Sign Language. Requirements: or 4 s.h. option - concurrent enrollment in ASL:2002 (158:014), if not taken as a prerequisite. Same as HIST:4201 (16A:104).

ASLE:3905 (158:110) Teaching Deaf and Hard of Hearing Students 3-4 s.h.

Issues in deaf education; management techniques, communication strategies, teaching strategies, instructional materials, hands-on activities, assessments, parent involvement; use of technology, ethnic and cultural diversity, classroom management, pre-reading techniques, literacy development, educational program options. Taught in English and/or American Sign Language. Requirements: for 4 s.h. option — concurrent enrollment in ASL:2002 (158:014), if not taken as a prerequisite. Same as ECTL:3905 (07U:110).

American Studies

Interim chair

- Susan Birrell

Professors

- Susan Birrell (American Studies/Gender, Women's, and Sexuality Studies), Kim Marra (American Studies/Theatre Arts), Horace A. Porter (F. Wendell Miller Professor; English/American Studies), Lauren Rabinovitz (American Studies/Cinematic Arts)

Associate professors

- Lafayette Adams (English/American Studies), Catriona Parratt, Laura Rigal (English/American Studies), Deborah Whaley (American Studies/African American Studies), Nicholas Yablon

Assistant professors

- Thomas Oates (American Studies/Journalism and Mass Communication), Travis Vogan (Journalism and Mass Communication/American Studies)

Lecturer

- Nikolas Dickerson

Professors emeriti

- Richard P. Horwitz, John Raeburn

Undergraduate majors: American studies (B.A.); sport studies (B.A.)

Undergraduate minors: American studies; sport studies

Graduate degrees: M.A. in American studies; Ph.D. in American Studies (optional sport studies subtrack)

Web site: <http://clas.uiowa.edu/american-studies/>

The Department of American Studies provides an interdisciplinary introduction to American culture, past and present. It helps students acquire a broad familiarity with the dynamics of cultural experience and explore aspects of life in the United States, such as sport, popular and fine arts, institutions, values, gender and ethnic relations, artifacts, and the everyday life of a diverse citizenry.

The department offers undergraduate programs of study in American studies and in sport studies as well as graduate programs of study in American studies, with a sport studies subtrack available in the Ph.D.

The department also is the administrative home of the American Indian and Native Studies Program, which offers an undergraduate certificate and minor and a graduate certificate; see American Indian and Native Studies (p. 36) in the Catalog.

Undergraduate Programs of Study

- Major in American studies (Bachelor of Arts)
- Major in sport studies (Bachelor of Arts)
- Minor in American studies
- Minor in sport studies

Bachelor of Arts: American Studies

The Bachelor of Arts with a major in American Studies requires a minimum of 120 s.h., including 36 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). At least 24 s.h. for the major must be earned at The University of Iowa.

The major in American studies stresses broad training in cultural analysis and communication. Although it offers no explicit vocational training, the program provides preparation for careers in business, education, government, journalism, or social service; for advanced study in the humanities, the social sciences, theology, or business; or for professional study in law or medicine. American studies students may arrange internships through the University's Pomerantz Career Center.

A distinctive feature of the American studies major is the opportunity to develop broad training in cultural analysis as well as emphasis of particular interests within the study of American culture. With the help of their American studies advisors, students may elect to pursue one of five focus areas within American studies, or they may create an individual plan of study. Each focus area allows students to group courses in American studies and other departments around a specific interdisciplinary theme, topic, or set of social issues; see "American Studies Focus Areas" below.

Shortly after declaring the major, a student should meet with his or her faculty advisor to explore the range of course work available and to begin shaping an individual plan of study. By the student's second term in the major, the student and advisor should have agreed upon a plan of study and focus area for completing the requirements for the major.

The major in American Studies usually requires the following 12 courses.

AMST:1010 (045:001) Understanding American Cultures	3 s.h.
AMST:2000 (045:020) Approaches to American Studies	3 s.h.
AMST:2025 (045:025) Diversity and American Identities	3 s.h.
AMST:3090 (045:090) Seminar in American Cultural Studies	3 s.h.
Two additional American studies courses numbered 3000 or above	6 s.h.
Two additional American studies core courses (any level)	6 s.h.
Special interest focus area: four courses in American studies and/or other departments	12 s.h.

American Studies Focus Areas

Students should consult regularly with the Department of American Studies about courses offered by American studies and other departments that count toward each focus area. A maximum of two courses from a single department outside American studies may be counted toward a single focus area.

ETHNIC STUDIES, DIVERSITY, AND DIFFERENCES

Students choose this focus to develop interdisciplinary understanding of an individual ethnic and/or racial group (e.g., Latino/a studies, Jewish-American studies) or to examine broadly gender, race, sexuality, social class, region, national origins, and age in the United States. Emphasis is on the historic emergence of categories of social difference, especially as revealed in cultural practices and artifacts, geography and cityscapes, leisure, and popular expression.

AMERICAN ARTS, LITERATURE, AND POPULAR CULTURE

Students who choose this focus examine artistic creations to discover how they are shaped by cultural preconceptions, norms, and standards, and how in turn these expressive forms affect ongoing developments in cultural life. Emphasis is on skills in the formal analysis of artistic artifacts, historical inquiry, and cultural contextualization.

AMERICAN SOCIETY, POLITICS, AND EVERYDAY LIFE

Students who choose this focus consider the dynamics of social change, the emergence and fate of political movements, and the forms and practice of everyday life in America. The area encompasses the tradition of revolution in America, the effects of technological and economic change, and the roles of the family, workplace, and community from the colonial era to the digital age.

THE POLITICS OF NATURE: ENVIRONMENT, SUSTAINABILITY, AND LANDSCAPE

Students who choose this focus explore how Americans from pre-Columbian times to the present have shaped and regarded the natural environment. Topics might include the perception of wilderness in early America; the relationship of Native American peoples to the land; the impact of industrialization and urban growth on the environment; the emergence of a cult of nature; the treatment and representation of animals; the mass production, distribution, and consumption of food; and the growing movement for sustainability in agriculture, architecture, urban planning, and individual lifestyles.

SPORT AND POPULAR AMUSEMENT

Students who choose this focus examine the various sports, recreational activities, and popular amusements enjoyed in the United States from colonial and early America to the present. They examine the relationship between work and play, the role of technology and the media, the commercialization of sport, and the politics of gender, race, class, sexuality, and disability.

INDIVIDUALLY DESIGNED FOCUS AREAS

Individually designed focus areas may concentrate on an interdisciplinary topic, theme, group of people, or time period. Students who wish to design their own interdisciplinary focus area should consult with their American studies advisor for appropriate courses.

Bachelor of Arts: Sport Studies

The Bachelor of Arts with a major in sport studies requires a minimum of 120 s.h., including 45 s.h. of work for the major (30 s.h. in sport studies and 15 s.h. in an outside

specialization area or a minor). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). At least 24 s.h. of credit for the major must be earned at The University of Iowa.

The sports studies major examines sport in its historical and contemporary cultural contexts. Course work provides students with the critical skills necessary to understand the cultural significance of sport as it relates to the media, the economy, the political system, and the educational system. A focus on the race, class, and gender differences in the sport experience is central to the major.

Many students use their experience in the program to prepare for graduate school. For others, the required second concentration area or minor serves as an introduction to careers in a number of fields, such as sport journalism, sport management, or coaching.

The major in sport studies requires the following course work.

SPORT STUDIES FOUNDATION

Students should complete the foundation courses as early as possible.

Both of these:

AMST:1010 (045:001) Understanding American Cultures	3 s.h.
SPST:1074 (028:074) Inequality in American Sport	3 s.h.

SPORT STUDIES CORE

Students must complete one course from each of the following four content areas (total of 12 s.h.).

Diversity in sport—one of these:

SPST:2078 (028:078) Women, Sport, and Culture	3 s.h.
SPST:2079 (028:079) Race and Ethnicity in Sport	3 s.h.

International dimensions—one of these:

SPST:3176 (028:176) Sport and Nationalism	3 s.h.
SPST:3177 (028:177) Sport in the Western World	3 s.h.

Contemporary sport in America—one of these:

SPST:3175 (028:175) Sport and the Media	3 s.h.
SPST:3179 (028:188) American Sport Since 1900	3 s.h.

History of sport and leisure in America—one of these:

SPST:3174 (028:179) The American Vacation	3 s.h.
SPST:3178 (028:178) American Sport to 1900	3 s.h.

ELECTIVES

Students must complete at least 12 s.h. of approved elective courses; the department suggests courses from the following list. Students also may include courses from the sport studies core (above) that they have not already taken.

AMST:1065 (045:065) Disney in America	3 s.h.
AMST:2000 (045:020) Approaches to American Studies	3 s.h.

AMST:2052 (045:052) Fairs and Amusement Parks	3 s.h.
CLSA:1875 (20E:075) Ancient Sports and Leisure	3 s.h.
ECON:3690 (06E:165) Sports Economics	3 s.h.
ENR:4450 (06T:151) Professional Sports Management	3 s.h.
HHP:2150 (027:035) Stress Management	3 s.h.
HHP:2500 (027:076) Psychological Aspects of Sport and Physical Activity	3 s.h.
JMC:1200 (019:091) Media History and Culture	3 s.h.
JMC:3125 (019:154) Media and Consumers	3 s.h.
JMC:3160 (019:164) Images and Society	3 s.h.
SOC:2810 (034:066) Social Inequality	3 s.h.
SPST:2081 (028:180) Theory and Ethics of Coaching	3 s.h.
SPST:2084 (028:084)/AMST:2084 (045:084) Sport and Film	3 s.h.
SPST:3171 (028:171) Baseball in America	3 s.h.
SPST:3193 (028:193) Independent Study	arr.
SPST:4900 (028:198) Topics in Sport Studies	1-3 s.h.
SPST:4999 (028:194) Honors Project	1-3 s.h.

OUTSIDE CONCENTRATION AREA OR MINOR

All sport studies students must complete 15 s.h. of course work in an allied field of concentration outside the major (e.g., American studies; journalism and mass communication; business; gender, women's, and sexuality studies). Work for the concentration must include 6 s.h. earned in courses numbered 3000 or above or in courses that are designated advanced by the department or program that offers them. Concentration area courses may not be taken pass/nonpass.

Students select their allied field of concentration in consultation with their advisor, and they must have their advisor's written approval for the area.

Students also may satisfy the concentration requirement by earning a second major or a minor in another discipline. Students who satisfy the requirement in this way are held responsible for ensuring that they have fulfilled the requirements for the second major or the minor.

B.A. with Coaching Authorization or Endorsement

Students may prepare for coaching by completing additional course work that also qualifies them for a coaching authorization from the State of Iowa. The following courses are recommended.

APEP:2030 (027:057) Basic Athletic Training	3 s.h.
HHP:1100 (027:053) Human Anatomy	3 s.h.
HHP:3300 (027:117) Human Growth and Motor Development	3 s.h.
SPST:2081 (028:180) Theory and Ethics of Coaching	3 s.h.

Students who successfully complete the requirements for the coaching authorization must submit an application to the Iowa Board of Educational Examiners. For more information, visit Coaching Authorization FAQs on the board's web site.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A.: American Studies

Before the fifth semester begins: declaration of the major and discussion of a plan of study with an American studies advisor

Before the seventh semester begins: at least six courses from the plan of study and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least nine courses from the plan of study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A.: Sport Studies

Before the fifth semester begins: declaration of the major

Before the sixth semester begins: area of specialization determined

Before the seventh semester begins: at least six sport studies courses and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least eight sport studies courses

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in American studies or sport studies have the opportunity to graduate with honors in the major and to pursue special interests through individual, in-depth research.

Honors students carry out a research project. Working under the guidance of an undergraduate advisor, each student defines a research project and then makes a project proposal, ideally by the end of the junior year. The student completes the project under the guidance of a supervising faculty member. American studies honors students register for up to 6 s.h. in AMST:4999 (045:095) Honors Project. Sport studies honors students register for up to 3 s.h. in SPST:4999 (028:194) Honors Project.

Contact the American studies honors advisor for more information about honors in either major.

Honors students in either major must be members of the University's honors program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University of Iowa Honors Program.

Minor: American Studies

The minor in American studies requires a minimum of 15 s.h. in American studies courses, including 12 s.h. in courses considered advanced for the minor taken at The University of Iowa (courses numbered above AMST:1010 (045:001) are considered advanced for the minor). Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students interested in earning the American studies minor should consult with one of the department's faculty members.

Minor: Sport Studies

The minor in sport studies requires a minimum of 15 s.h. in University of Iowa sport studies courses (prefix SPST), including at least 6 s.h. in courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students select courses for the minor according to their interests and the recommendation of the undergraduate coordinator.

Certificate in American Indian and Native Studies

The Department of American Studies administers the American Indian and Native Studies Program, which offers a certificate for undergraduate and graduate students and a minor for undergraduates; see American Indian and Native Studies (p. 36) in the Catalog.

Graduate Programs of Study

- Master of Arts in American studies (with or without thesis)
- Doctor of Philosophy in American studies (optional sport studies subtrack)

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Master of Arts

The Master of Arts program in American studies requires a minimum of 36 s.h. of graduate credit. The degree generally is offered without thesis; students must petition the director of graduate studies for permission to pursue the thesis option.

Each M.A. student designs an interdisciplinary field of concentration in consultation with his or her American studies advisor.

The M.A. in American studies requires the following work.

AMST:5000 (045:200) Theory and Practice of American Studies I	3 s.h.
AMST:5001 (045:201) Theory and Practice in American Studies II	3 s.h.
Two graduate seminars in American studies	6 s.h.
Five courses in the interdisciplinary field of concentration	15 s.h.

Electives

9 s.h.

M.A. portfolio

Each student must complete an M.A. portfolio, which includes a research paper, faculty evaluations for all courses taken during the student's first full year of graduate study, and a self-evaluation essay.

The research paper is a graduate seminar paper that demonstrates the student's skills as a research scholar and writer and represents his or her strongest work. The paper should be 25-30 pages, including a bibliography.

The self-evaluation essay summarizes the American studies methods and materials that have shaped the student's interdisciplinary work in the field and states how the master's degree work in American studies has contributed to, challenged, or complicated the student's goals and ambitions beyond the degree.

Students assemble the M.A. portfolio under the guidance of their advisors and should submit it no later than December 1 of their third semester in residency. The portfolio is evaluated on a satisfactory/unsatisfactory (S/U) basis by a three-person American studies faculty committee. Students whose portfolio receives a U may resubmit the portfolio during their fourth semester of residency.

For students who wish to continue their education with doctoral study, the M.A. portfolio serves as the application for admission to the Ph.D. program in American studies. The department informs applicants whether they have been accepted into the Ph.D. program by the end of the fall semester in which they submit their M.A. portfolio; admission is contingent upon successful completion of the M.A. during the student's fourth semester of residency.

Doctor of Philosophy

The Doctor of Philosophy program in American studies requires a minimum of 72 s.h. of graduate credit. Students may focus in American studies or choose the sport studies subtrack.

Each student works with his or her faculty advisor to map out a coherent plan of study that reflects the student's particular interests. Students are permitted considerable flexibility in constructing their study plan, but they must meet certain basic requirements, which include foundation courses, area foundation courses, two interdisciplinary fields of concentration, a research skills course, elective course work, and a dissertation.

The two fields of concentration may be defined to correspond with the student's strongest intellectual interests, but they must be interdisciplinary in concept and multidisciplinary in scope. Each must include course work from more than one of the University's departments and programs. The two concentration areas may, and usually should, have an intellectual relationship with each other.

Students are expected to address the cultural diversity of American life in their course work and reading.

The Doctor of Philosophy requires the following work. Some course requirements are different for American studies and sports studies.

COURSE WORK**Required Foundation Courses**

All students complete the required foundation courses and should take them as early as possible.

AMST:5000 (045:200) Theory and Practice of American Studies I	3 s.h.
AMST:5001 (045:201) Theory and Practice in American Studies II	3 s.h.

Area Foundation Courses

American studies students:

Two American studies graduate seminars	6 s.h.
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Sport studies students:

SPST:5002 (028:202) Critical Theories for Sport	3 s.h.
SPST:6074 (028:374) Seminar in Sport History	3 s.h.

First Field of Concentration

American studies students:

Courses in an interdisciplinary field with a historical concentration, designed with the advisor and approved by the department's Plan of Study Committee	18 s.h.
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Sport studies students:

Courses on sport in cultural and historical contexts selected with the advisor and approved by the department's Plan of Study Committee	18 s.h.
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Second Field of Concentration

American studies students:

Courses in an interdisciplinary field designed with the advisor and approved by the department's Plan of Study Committee	18 s.h.
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Sport studies students:

Courses in an interdisciplinary field designed with the advisor and approved by the department's Plan of Study Committee; may be a second field in sport studies or a field outside sport studies	18 s.h.
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Research Skills

American studies students:

AMST:7085 (045:550) Dissertation Writing Workshop (taken three times)	3 s.h.
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Sport studies students:

SPST:7070 (028:295) Sport Studies Workshop (may be repeated)	1 s.h.
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Additional Requirements

American studies and sport studies students:

Dissertation work (AMST:7090 (045:600) Ph.D. Thesis) and electives	21 s.h.
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ADMISSION TO PH.D. CANDIDACY

Admission to Ph.D. candidacy signifies that the department judges the doctoral student qualified to take the comprehensive examination. Doctoral students advance

to Ph.D. candidacy based on a review conducted during their second year in the Ph.D. program (typically during fall semester); the review assesses the student's readiness to complete his or her studies through the comprehensive examination and the dissertation, which is an original work of scholarship. In addition to judging the student's readiness for Ph.D. candidacy, the review provides a progress report on the student's work and a tentative prognosis for future prospects in the field.

COMPREHENSIVE EXAMINATION

The comprehensive examination comprises three written exams and one oral exam.

The first exam is taken under the supervision of an American studies faculty member, who also chairs the comprehensive examination. The candidate takes a timed, take-home written exam of no less than four hours and no longer than two days; the exam details the candidate's approach to American studies (methods and models), including his or her position and critical engagement with models of American studies scholarship.

The remaining two written exams explore the candidate's major fields; these are at least four hours long and may be given on a take-home basis at the examiner's discretion.

The oral exam covers material from the written exams.

DISSERTATION

The final requirement for the Ph.D. in American studies is the dissertation, a substantive book-length manuscript that involves interdisciplinary research and analysis and that represents an original contribution to knowledge. All Ph.D. dissertations must be approved by a committee of five faculty members, including at least two from the Department of American Studies.

Internships

Qualified graduate students in American studies can arrange internships with a number of local agencies, including the State Historical Society of Iowa, the Division of Historic Preservation, the University of Iowa Museum of Art, the Iowa Humanities Board, Bruce Moore, the Herbert Hoover Presidential Library and Museum, and the Putnam Museum. With special permission, candidates conducting research during such on-the-job training may receive academic credit through AMST:7994 (045:320) Independent Study. Other internships with social agencies, government, or business also may be arranged.

Courses**American Studies, Lower-Level Undergraduate**

AMST:1010 (045:001) Understanding American Cultures 3 s.h.

The United States in historical, contemporary, and transnational perspective; social and cultural diversity and conflict in American life; debates on concepts of America, the American Dream, national culture, citizenship. GE: Values, Society, and Diversity.

AMST:1030 (045:030) Introduction to African American Culture 3 s.h.

Interdisciplinary look at Black culture in the United States through significant contributions of the humanities (music, art, literature, drama, philosophy) to development of Black culture. GE: Values, Society, and Diversity. Same as AFAM:1020 (129:061).

AMST:1049 (045:049) Introduction to American Indian and Native Studies 3 s.h.

Themes and methodologies in the study of American Indians and other indigenous peoples; approaches from anthropology, history, law, literature, other disciplines. Offered fall semesters. GE: Values, Society, and Diversity. Same as AINS:1049 (149:049).

AMST:1050 (045:005) American Issues 3 s.h.

Representative issues: radio and American culture; cultural history of the Civil War era; American history, literature, culture.

AMST:1060 (045:060) Sex and Popular Culture in the Postwar U.S. 3 s.h.

Critical and historical introduction to representation of human sexuality in American popular culture from World War II to the present. GE: Values, Society, and Diversity. Same as GWSS:1060 (131:061), ENGL:1410 (008:003).

AMST:1065 (045:065) Disney in America 3 s.h.

How Walt Disney Corporation has influenced American cultural values, ideals, and experiences through its evolution from an animation company in the 1920s, to a theme park company and television producer in the 1950s, to a media conglomerate today; the corporation's national importance, Hollywood's contributions to the Depression and World War II, postwar urban and community planning, America's changing leisure behavior, advertising and childhood, modern business history, and exportation of American culture. Same as CINE:1632 (048:062).

AMST:1074 (045:074) Inequality in American Sport 3 s.h.

Cultural meanings of sport in contemporary U.S. culture; American dream as promoted, challenged in sport; sport experiences, inclusion, and exclusion as affected by gender and sexuality, race and ethnicity, social class, age, physical ability/disability, and nationalism. GE: Values, Society, and Diversity. Same as SPST:1074 (028:074), GWSS:1074 (131:074).

AMST:1075 (045:075) American Popular Music 3 s.h.

AMST:1080 (045:080) American Political Humor 3 s.h.

How political humor reflects and influences American attitudes regarding government institutions, elected officials, the democratic process; how humor works; examples from Revolutionary War present and from varied media, including cartoons, fiction, film, television, the Internet.

AMST:1154 (045:050) Food in America 3 s.h.

Cultural significance of production, distribution, and consumption of food in the United States. GE: Values, Society, and Diversity.

AMST:2000 (045:020) Approaches to American Studies 3 s.h.

Variety of historic and contemporary sources, such as literature, law, photography, painting, film, TV, music, fashions, environments, events of everyday life. Prerequisites: AMST:1010 (045:001).

AMST:2025 (045:025) Diversity and American Identities 3 s.h.

History and variety of American identities, examined through citizenship, culture, social stratification; conflict and commonalities among groups according to race, ethnicity, gender, class, sexuality; how art, literature, music, film, photography, and other cultural artifacts represent diversity of identities.

AMST:2052 (045:052) Fairs and Amusement Parks 3 s.h.

Nineteenth- and twentieth-century international expositions, amusement parks, and theme parks as cultural events of U.S. self-definition.

AMST:2084 (045:084) Sport and Film 3 s.h.

Sport films as means of exploring contemporary ideas about sport in the U.S.; focus on narrative structure, characterization, historical, and political contexts; formal aspects of film analysis (e.g., editing, lighting, cinematography). Same as SPST:2084 (028:084).

AMST:2085 (045:085) Native American Material Culture 3 s.h.

Overview of American collectors and collections of Indian objects, prehistoric to contemporary. Same as AINS:2085 (149:085).

AMST:2165 (045:105) Native Peoples of North America 3 s.h.

History, culture of American Indian peoples; emphasis on North America. GE: Values, Society, and Diversity. Same as ANTH:2165 (113:110), AINS:2165 (149:110).

AMST:2290 (045:087) Food and Culture in Indian Country 3 s.h.

Native Americans as original farmers of 46% of the world's table vegetables; examination of food as a cultural artifact (e.g., chocolate, tobacco); food as a primary way in which human beings express their identities; environmental, material, and linguistic differences that shape unique food cultures among Native peoples across the Western Hemisphere; close analysis of indigenous foods, rituals, and gender roles associated with them; how colonization transformed Native American, European, and African American cultures. Same as AINS:2290 (149:087), HIST:2290 (16A:087).

AMST:2500 (045:053) U.S. Cinema and Culture 3 s.h.

Representation of race, ethnicity, class, gender, and sexuality in Hollywood movies. Same as CINE:2654 (048:054).

American Studies, Upper-Level Undergraduate and Graduate

AMST:3039 (045:139) Reading the West 3 s.h.

How race, gender, and class shape cross-cultural encounter and imperial expansion on regional frontiers; how frontiers are represented in literature, art, and film.

AMST:3045 (045:145) Immigration and American Culture 3 s.h.

Immigrants and immigrant communities.

AMST:3047 (045:147) American Disasters 3 s.h.

Fault lines of American society and culture as exposed during catastrophe; history of American disaster investigated through methods from cultural history, visual theory, sociology, and media studies; varied disasters 1800 to present, including those involving cities (Chicago fire, San Francisco earthquake, Chicago heat wave), transportation (Titanic, Challenger, Columbia), and environment (Union Carbide and Bhopal, Exxon Valdez); causes of catastrophes; how Americans react and are drawn to catastrophe (e.g., disaster films, jokes); related topics, including technology, urbanism, race, class, apocalyptic religion, journalism, popular culture.

AMST:3050 (045:150) Topics in American Cultural Studies 3 s.h.

Special topics in American history, literature, culture.

AMST:3051 (045:151) American Business Cultures 3 s.h.

Historical and contemporary records of business and corporate experiences as part of American life and thought, including representations of business in American novels, movies, history, autobiography; emphasis on questions of relationships between gender, ethnicity, class, and sexuality and corporate identities.

AMST:3053 (045:153) The Civil Rights Movement 3 s.h.

History of the American civil rights movement. Same as AFAM:3053 (129:153).

AMST:3060 (045:160) American Cityscapes 3 s.h.

Changing conventions in representation of American cities between the 1830s and 1930s; fiction and nonfiction, visual and audiovisual culture.

AMST:3063 (045:163) American Ruins 3 s.h.

Emergence and development of American fascination with ruins, from indigenous to urban-industrial remains; actual ruins and depiction of imagined ruins in art, literature, cinema.

AMST:3065 (045:165) The Culture of Nature 3 s.h.

How ideas of "the natural" and "the cultural" underpin beliefs, laws, and social practices; relationship between these two concepts; construction of notions of a natural world; idea of landscape and nature as a resource to be used, appreciated, articulated, or enjoyed; focus on analysis of relationships to animals.

AMST:3067 (045:167) Reading and Writing the History of the Environment 3 s.h.

Culture and society bind human communities to the natural world that supports them; local landforms and waterways in Iowa have shapen, and been shaped by, human uses and meanings; the past inheres in present-day struggles over land and water use, see local landscapes historically; deploy skills of environmental history to understand the historical and cultural roots of present-day conflicts over land use and appreciate how beliefs, rituals, recreational practices, and technologies attach human beings to places in which they live.

AMST:3090 (045:090) Seminar in American Cultural Studies 3 s.h.

Interdisciplinary perspectives on a single theme or period. Prerequisites: AMST:1010 (045:001).

AMST:3130 (045:126) Black American Cinema 3 s.h.

Major historical and cultural movements in Black cinema; independent and early Hollywood films, animation, Blaxploitation, the Black Renaissance, Black auteurs (e.g., Spike Lee, Julie Dash), hip-hop cinema, womanist films, 21st-century developments in film (e.g., theatre to film adaptations of Tyler Perry), new media's effect on film and cinema; particular attention given to gender, sexualities, region, ethnicity, and class. Same as AFAM:3130 (129:126).

AMST:3135 (045:135) The Social Construction of Whiteness 3 s.h.

Whiteness as a socially constructed racial category with material effects in everyday life; race as a category with salience in determining public policy, forming identities, and shaping people's actions; interdisciplinary approach using social history, philosophy, science, law, literature, autobiography, film, and the expressive arts.

AMST:3148 (045:148) American Monuments 3 s.h.

How Americans enshrine certain memories in form of public monuments; why Americans began building large-scale monuments in 19th century (Bunker Hill, Washington Monument); subsequent monuments to wars, Indian massacres, the Confederacy, the civil rights movements; recent trends, including counter-monuments (9/11 memorial), spontaneous and temporary monuments, and online memorials; roles monuments play in American society, why they attract so much controversy, how some become sites for popular protests or for depositing artifacts, and how they compare with those in other countries (Holocaust memorials in Germany).

AMST:3162 (045:162) Drugs in American Popular Culture 3 s.h.

History of alcohol and other drugs in the United States from pre-Columbian times to present; production and distribution of alcohol and drugs; efforts by the state to regulate or prohibit them; rise of temperance movement; social history of alcohol and drug consumption within various (sub)cultures and periods; role in constructing racial, ethnic, class, gender, and sexual identities; exploration of these themes in novels, film, songs, and other cultural texts.

- AMST:3171 (045:171) Baseball in America** 3 s.h.
Forces that influenced political, economic, and social development of professional baseball in the United States; rise of major league baseball, its relationship to the minor leagues, and development of organized baseball industry. Same as SPST:3171 (028:171).
- AMST:3174 (045:174) The American Vacation** 3 s.h.
Development of the Idea of vacation from upper-class origins to acceptance as part of middle- and working-class life; Niagara Falls, Saratoga Springs, the Catskills, Atlantic City, Idlewild, Coney Island, national parks of the American West, Chicago World's Fair, Gettysburg, Disneyland; how vacation experiences and meanings are shaped by social class, race, gender, age; growth of leisure time, labor legislation, proper use of leisure time, tourism, vacations as social rituals, golden age of family vacations. Same as SPST:3174 (028:179).
- AMST:3178 (045:178) American Sport to 1900** 3 s.h.
Growth and institutionalization of sport from colonial times to 1900. Same as SPST:3178 (028:178).
- AMST:3179 (045:188) American Sport Since 1900** 3 s.h.
Historic development of sport in the United States since 1900; economic forces, professionalization, growth of media. Same as SPST:3179 (028:188).
- AMST:3195 (045:195) American Cultures and American Photography** 3 s.h.
Introduction to visual, cultural, and historical frameworks to view and interpret photographs as material artifacts.
- AMST:3198 (045:187) New Media and the Future of Sport** 3 s.h.
Emergence and significance of Internet blogs, social media, convergence journalism, video games, and fantasy sports; economic, regulatory, and cultural forces that shape new media sport journalism and entertainment. Same as SPST:3198 (028:187), JMC:3135 (019:143).
- AMST:3400 (045:102) Black Popular Music** 3 s.h.
History and expressive culture of people of African descent living in America through popular music forms; historical time span between the 17th and 21st centuries; poetry, music, cultural analysis, film, and art as sources for the study of Black music; genres covered include spirituals and gospel, blues, jazz, rock, rhythm and blues, Afropunk, alternative and neo soul, and hip-hop. Recommendations: AFAM:1020 (129:061) and AMST:1030 (045:030). Same as AFAM:3400 (129:102).
- AMST:3480 (045:123) American Literature and History** 3 s.h.
Examination of fictional histories (novels about history), their relationship to historical interpretation. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:3480 (008:123).
- AMST:3994 (045:100) Independent Study** arr.
- AMST:4283 (045:173) U.S. Women's History as the History of Human Rights** 3-4 s.h.
History of human rights in the United States traced through the perspective of women; aspects of women's experience (social, political, intellectual) related to fundamental human rights—right to a nationality, right to life, liberty and personal security, right to freedom of movement, right to take part in the government of their country, right to own property; these and other rights specified by the United Nations in the Universal Declaration of Human Rights, 1948; different history of men and women enjoying these rights; how human rights have been constructed and experienced in the United States from the era of colonial settlement to present. Same as HIST:4283 (16A:173), GWSS:4283 (131:173), HRTS:4283 (216:173).
- AMST:4401 (045:118) American Women Playwrights: 1776-Present** 3 s.h.
How women in the United States have expressed themselves in theatre since 1776; diversity of voices in works by African American, Asian American, Latina, Native American, European American, lesbian playwrights; female-authored drama and production in relation to concurrent male-authored traditions and socioeconomic, political, cultural phenomena. Same as THTR:4401 (049:118).
- AMST:4999 (045:095) Honors Project** arr.
Independent interdisciplinary research, writing.
- ## American Studies, Graduate
- AMST:5000 (045:200) Theory and Practice of American Studies I** 3 s.h.
Theories, methods, cases in culture studies; emphasis on social science approaches. Requirements: American studies graduate standing.
- AMST:5001 (045:201) Theory and Practice in American Studies II** 3 s.h.
Requirements: American studies graduate standing.
- AMST:5002 (045:202) Critical Theories for Sport** 3 s.h.
Exploration and application of critical theories to contemporary sport; feminism, Marxism, critical race theory, whiteness studies, queer theory, postcolonial theory, postmodernism, and poststructuralism. Same as SPST:5002 (028:202).
- AMST:6030 (045:230) Seminar: Performing Arts in American Culture** 3 s.h.
American theater, dance, music, and performance.
- AMST:6050 (045:250) Seminar: Topics in American Studies** 3 s.h.
American cultural history; urbanization, mass media, pluralism, assimilation.
- AMST:6058 (045:258) Seminar: Technology and American Culture** 3 s.h.
- AMST:6070 (045:298) Seminar: Topics in Sport Studies** 1-3 s.h.

Special topics on sport in historical or contemporary contexts. Same as SPST:6070 (028:298).

AMST:6078 (045:278) Seminar: Women in Sport 3 s.h.

Women's sport involvement in historical and/or contemporary contexts; focus on social class, religion, race, ethnicity, sexuality, medical opinion, economic considerations, political events, and educational philosophies that have influenced women's participation. Same as GWSS:6710 (131:254), SPST:6078 (028:278).

AMST:6080 (045:300) American Film and American Culture 3 s.h.

Relationships between film and culture as developed in a particular approach, period, subject. Same as CINE:6080 (048:300).

AMST:6099 (045:299) American Studies Proseminar 1-2 s.h.

Intensive reading on American cultural analysis topics; may include screenings, field trips, guest speakers, special events.

AMST:6276 (045:276) Sport in U.S. Culture 3 s.h.

Sport as a significant cultural form in the United States; focus on role of sport in cultural reproduction; institutional relationships between sport and politics, economy, education, and media. Same as SPST:6276 (028:276).

AMST:7077 (045:296) Sport Studies Workshop 1 s.h.

Development of individual research projects for group discussion. Requirements: graduate standing in American studies or sport studies. Same as SPST:7070 (028:295).

AMST:7080 (045:450) M.A. Thesis 0-6 s.h.

AMST:7085 (045:550) Dissertation Writing Workshop 1 s.h.

Dissertation preparatory work with peer and faculty critiques, including preparation of a prospectus, research activities, and chapter writing. Requirements: American studies graduate standing with postcomprehensive examination status.

AMST:7090 (045:600) Ph.D. Thesis arr.

AMST:7994 (045:320) Independent Study arr.

Sport Studies, Lower-Level Undergraduate

SPST:1000 (028:029) First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

SPST:1074 (028:074) Inequality in American Sport 3 s.h.

Cultural meanings of sport in contemporary U.S. culture; American dream as promoted, challenged in sport; sport experiences, inclusion, and exclusion as affected by gender and sexuality, race and ethnicity, social class, age, physical ability/disability, and nationalism. GE: Values, Society, and Diversity. Same as AMST:1074 (045:074), GWSS:1074 (131:074).

SPST:2077 (028:073) Sport and Religion in America 3 s.h.

Sport as a religion; religiosity in sports; examination of religion and sport as connected in important ways in American society. Same as RELS:2877 (032:077).

SPST:2078 (028:078) Women, Sport, and Culture 3 s.h.

Feminist analysis of girls' and women's sports experiences, including reproduction of gender through sport, recent changes in women's intercollegiate athletics, media representations of women's sport, feminist critiques, alternatives to sport. Same as GWSS:2078 (131:078).

SPST:2079 (028:079) Race and Ethnicity in Sport 3 s.h.

Structural and ideological barriers to racial and ethnic equality in sport, with focus on African American sport experiences; historical and contemporary issues, media representations. Same as AFAM:2079 (129:079).

SPST:2081 (028:180) Theory and Ethics of Coaching 3 s.h.

Philosophical bases, ethical issues; theoretical, practical applications.

SPST:2084 (028:084) Sport and Film 3 s.h.

Sport films as means of exploring contemporary ideas about sport in the U.S.; focus on narrative structure, characterization, historical, and political contexts; formal aspects of film analysis (e.g., editing, lighting, cinematography). Same as AMST:2084 (045:084).

Sport Studies, Upper-Level Undergraduate and Graduate

SPST:3171 (028:171) Baseball in America 3 s.h.

Forces that influenced political, economic, and social development of professional baseball in the United States; rise of major league baseball, its relationship to the minor leagues, and development of organized baseball industry. Same as AMST:3171 (045:171).

SPST:3172 (028:184) Football in America 3 s.h.

Forces that influenced political, economic, and cultural development of college and professional football in the United States; rise of the National Football League and its relationship to college football and commercial media interests.

SPST:3174 (028:179) The American Vacation 3 s.h.

Development of the Idea of vacation from upper-class origins to acceptance as part of middle- and working-class life; Niagara Falls, Saratoga Springs, the Catskills, Atlantic City, Idlewild, Coney Island, national parks of the American West, Chicago World's Fair, Gettysburg, Disneyland; how vacation experiences and meanings are shaped by social class, race, gender, age; growth of leisure time, labor legislation, proper use of leisure time, tourism, vacations as social rituals, golden age of family vacations. Same as AMST:3174 (045:174).

SPST:3175 (028:175) Sport and the Media 3 s.h.

Examination of sport and media's intimate relationship; aesthetic, cultural, political, economic, and industrial factors that shape it.

SPST:3176 (028:176) Sport and Nationalism 3 s.h.

Role of sport in the phenomenon of nationalism; selected theories; case studies on Ireland, Australia, British West Indies, Cold War U.S., fascist Europe.

SPST:3177 (028:177) Sport in the Western World 3 s.h.

Development of Western sport; relation to social, political, economic, intellectual factors.

SPST:3178 (028:178) American Sport to 1900 3 s.h.

Growth and institutionalization of sport from colonial times to 1900. Same as AMST:3178 (045:178).

SPST:3179 (028:188) American Sport Since 1900 3 s.h.

Historic development of sport in the United States since 1900; economic forces, professionalization, growth of media. Same as AMST:3179 (045:188).

SPST:3180 (028:183) Classics of Sports Journalism: From Jack London to Grantland 3 s.h.

Historical examples of celebrated works of sports journalism; focus on long-form texts. Same as JMC:3190 (019:144).

SPST:3181 (028:123) The Business of Sport Communication 3 s.h.

Critical and practical approach to understanding contemporary sports media and business practices that mark it; focus on sports media industries and institutions; branding, marketing, demographic, public relations, and promotional factors that shape content. Same as JMC:3181 (019:145).

SPST:3193 (028:193) Independent Study arr.

Problem in a specific area.

SPST:3198 (028:187) New Media and the Future of Sport 3 s.h.

Emergence and significance of Internet blogs, social media, convergence journalism, video games, and fantasy sports; economic, regulatory, and cultural forces that shape new media sport journalism and entertainment. Same as AMST:3198 (045:187), JMC:3135 (019:143).

SPST:4900 (028:198) Topics in Sport Studies 1-3 s.h.

Special topics on sport in historical or contemporary contexts.

SPST:4950 (028:191) Sport Studies Internship 3 s.h.

Application of classroom concepts in practical settings; individualized experience arranged by student in consultation with advisor. Requirements: minimum g.p.a. of 2.50 and completion of 85 s.h.

SPST:4999 (028:194) Honors Project 1-3 s.h.

Sport Studies, Graduate

SPST:5002 (028:202) Critical Theories for Sport 3 s.h.

Exploration and application of critical theories to contemporary sport; feminism, Marxism, critical race theory, whiteness studies, queer theory, postcolonial theory, postmodernism, and poststructuralism. Same as AMST:5002 (045:202).

SPST:6010 (028:257) Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as SLIS:6430 (021:263), MGMT:9150 (06J:247), LAW:8751 (091:320), HMP:6360 (174:247), SSW:6247 (042:247), URP:6278 (102:278), MUSM:6010 (024:247), RELS:6070 (032:227).

SPST:6020 (028:258) Nonprofit Organizational Effectiveness II 3 s.h.

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Requirements: for LAW:8752 (091:322) — LAW:8751 (091:320); for HMP:6365 (174:248) — HMP:6360 (174:247) or MGMT:9150 (06J:247) or MUSM:6010 (024:247). Same as MGMT:9160 (06J:248), LAW:8752 (091:322), SLIS:6435 (021:265), SSW:6248 (042:248), HMP:6365 (174:248), URP:6279 (102:279), MUSM:6020 (024:248), RELS:6075 (032:228).

SPST:6070 (028:298) Seminar: Topics in Sport Studies 1-3 s.h.

Special topics on sport in historical or contemporary contexts. Same as AMST:6070 (045:298).

SPST:6072 (028:378) Seminar in Cultural Studies of Sport 3 s.h.

Current theoretical debates in sport studies; applications of critical cultural studies theories to critical analysis of sport.

SPST:6074 (028:374) Seminar in Sport History 3 s.h.

Topics in sport history; theoretical and methodological issues.

SPST:6078 (028:278) Seminar: Women in Sport 3 s.h.

Women's sport involvement in historical and/or contemporary contexts; focus on social class, religion, race, ethnicity, sexuality, medical opinion, economic considerations, political events, and educational philosophies that have influenced women's participation. Same as GWSS:6710 (131:254), AMST:6078 (045:278).

SPST:6276 (028:276) Sport in U.S. Culture 3 s.h.

Sport as a significant cultural form in the United States; focus on role of sport in cultural reproduction; institutional relationships between sport and politics, economy, education, and media. Same as AMST:6276 (045:276).

SPST:7070 (028:295) Sport Studies Workshop 1 s.h.

Development of individual research projects for group discussion. Requirements: graduate standing in American studies or sport studies. Same as AMST:7077 (045:296).

SPST:7080 (028:398) Thesis: M.A. 1-6 s.h.

SPST:7090 (028:399) Thesis: Ph.D. arr.

SPST:7940 (028:299) Independent Study arr.

Anthropology

Chair

- James Enloe

Professors

- Michael Chibnik, Russell Ciochon (Pediatric Dentistry/Anthropology), James Enloe, Robert Franciscus, Ellen Lewin (Gender, Women's, and Sexuality Studies/Anthropology), Sonia Ryang, Toni Tripp Reimer (Anthropology/Nursing)

Associate professors

- Margaret Beck, Laura Graham, Matthew E. Hill, Meena R. Khandelwal (Gender, Women's, and Sexuality Studies/International Programs/Anthropology), Katina Lillios, Erica Prussing (Anthropology/Community and Behavioral Health), Scott Schnell, Christian Simon (Anthropology/Internal Medicine), Glenn Storey (Anthropology/Classics)

Assistant professors

- Elana Buch, Andrew Kitchen, Emily Wentzell

Adjunct associate professor

- Kevin Kelly

Adjunct assistant professors

- John Doershuk, Nathan Holton, Rachel Horner Brackett, Stephen C. Lensink, Dongwang Liu, Melody K. Pope

Adjunct instructor

- Joe A. Artz

Professors emeriti

- Melanie Dreher, E. Paul Durrenberger, Mac Marshall, Margery Wolf

Associate professor emeritus

- Douglas Midgett

Undergraduate major: anthropology (B.A., B.S.)

Undergraduate minor: anthropology

Graduate degrees: M.A. in anthropology; Ph.D. in anthropology

Web site: <http://clas.uiowa.edu/anthropology/>

Anthropology is the comparative study of peoples and cultures past and present. The discipline's four major subfields—cultural anthropology, biological anthropology, linguistic anthropology, and archaeology—have important connections to other social sciences, physical and biological sciences, and to the arts and humanities.

Anthropology provides a framework for understanding the relation of human beings to their natural environment and to the social and cultural worlds they create and inhabit. The field provides insight into biological and sociocultural evolution and includes a focus on economic, social, and political organizations, symbolic systems, and social systems. Comparative studies of these and other aspects of past and present cultures yield information on regularities and differences.

In addition to offering undergraduate and graduate degree programs, the Department of Anthropology administers the University's Museum Studies (p. 485) Program, which offers an undergraduate certificate.

Undergraduate Programs of Study

- Major in anthropology (Bachelor of Arts, Bachelor of Science)
- Minor in anthropology

The major in anthropology prepares individuals for advanced training or careers in anthropology, allied fields, and professional programs. Students who complete an anthropology major gain special understanding of human relations and expertise for jobs involving international or cross-cultural work, cultural resource management, and social and ethnic diversity in the United States.

Upon graduation, anthropology majors embark on careers in government, international affairs, conservation, economic development, public health, cultural resource management, urban and regional planning, social work, museum work, and education. Many go on to help resolve contemporary world problems by working with international or domestic organizations such as Americorps, the Peace Corps, and Teach for America. Some pursue graduate study in anthropology or related social sciences while others earn degrees in business, law, or the health sciences.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts with a major in anthropology requires a minimum of 120 s.h., including 33 s.h. of work for the major. The Bachelor of Science with a major in anthropology requires a minimum of 120 s.h., including 39 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The B.A. is designed to offer a comprehensive overview of anthropology's four main subfields and the broadest possible cross-cultural background. The B.S. is appropriate for students with interests in any of anthropology's subfields; it offers enhanced opportunities to gain experience and develop skills in research methods and scientific reasoning.

B.A. and B.S. students may choose to complete one of four specializations: gender and culture, cultural resource and heritage management, environmental anthropology, or medical anthropology. B.S. students also have the option of completing a track, anthropology for the health professions. See "Optional Undergraduate Specializations and Track" below.

All undergraduates majoring in anthropology, including transfer students, must earn a minimum of 15 s.h. for the major at The University of Iowa. Students may apply credit earned at approved field schools offered by other institutions toward the major, with Department of Anthropology approval.

Students who declare anthropology as their major when they are admitted to the College of Liberal Arts and Sciences are advised at the Academic Advising Center until they have earned 24 s.h. Students who have earned more than 24 s.h. are advised by the departmental undergraduate advisor.

The major in anthropology requires the following course work.

Common Requirements (B.A. and B.S.)

All students (B.A. and B.S.) must complete 11 courses from the lists below: five introductory courses, one course in archaeology or biological anthropology, one course in sociocultural or linguistic anthropology, one course in area studies, and three electives. Several courses are listed in more than one of these categories; students may not select the same course from more than one category.

Introductory courses—all of these:

ANTH:1001 (113:050) Issues in Anthropology	3 s.h.
ANTH:1101 (113:003) Cultural Anthropology	3 s.h.
ANTH:1201 (113:012) Introduction to Prehistory	3 s.h.
ANTH:1301 (113:013) Human Origins	3 s.h.
ANTH:1401 (113:014) Language, Culture, and Communication	3 s.h.

Archaeology or biological anthropology (area or topical)—one of these:

ANTH:2205 (113:168) Archaeological Methods	3 s.h.
ANTH:2216 (113:157) Foodways and Cuisine in the Past	3 s.h.
ANTH:2220 (113:163) Archaeology of Mesoamerica	3 s.h.
ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
ANTH:2290 (113:162) Practicum in Archaeology	arr.
ANTH:3205 (113:161) Prehistoric People of the Ice Age	3 s.h.
ANTH:3206 (113:174) Seminar: Taphonomy	3 s.h.
ANTH:3207 (113:158) Animal Bones in Archaeology	3 s.h.
ANTH:3235 (113:197) The Stuff of Lives: Archaeology of the Material World	3 s.h.
ANTH:3237 (113:124) Politics of the Archaeological Past	3 s.h.
ANTH:3238 (113:130) Archaeology of the Iberian Peninsula	3 s.h.
ANTH:3239 (113:150) Tribes and Chiefdoms of Ancient Europe	3 s.h.
ANTH:3240 (113:170) Cultural Resources Management Archaeology: Practice and Practicalities	3 s.h.
ANTH:3241 (113:169) Lithic Analysis in Archaeology	3 s.h.
ANTH:3242 (113:188) Archaeology of the Middle East—Prehistory and Early History	3 s.h.
ANTH:3243 (113:195) Midwestern Archaeology	3 s.h.
ANTH:3255 (113:160) Introduction to Archaeological Ceramics	3 s.h.
ANTH:3256 (113:173) Household Archaeology and Anthropology	3 s.h.
ANTH:3257 (113:167) North American Archaeology	3 s.h.
ANTH:3258 (113:159) Southwestern Archaeology	3 s.h.
ANTH:3260 (113:179) Pleistocene Peopling of the Americas	3 s.h.

ANTH:3261 (113:111) Our Life With Dogs: The Anthropological Study of Animals in Human Societies	3 s.h.
ANTH:3265 (113:181) Archaeology of the Great Plains	3 s.h.
ANTH:3275 (113:196) The Archaeology of Ancient Egypt	3 s.h.
ANTH:3276 (113:192) Greek Archaeology and Ethnohistory	3 s.h.
ANTH:3277 (113:194) Roman Archaeology	3 s.h.
ANTH:3282 (113:126) Animals, Culture, and Food	3 s.h.
ANTH:3283 (113:187) Cultures in Collision	3 s.h.
ANTH:3290 (113:193) Special Topics in Archaeology	3 s.h.
ANTH:3295 (113:199) Field Research in Archaeology	arr.
ANTH:3305 (213:190) Human Osteology	3 s.h.
ANTH:3306 (213:115) The Neanderthal Enigma	3 s.h.
ANTH:3307 (213:116) Modern Human Origins	3 s.h.
ANTH:3308 (213:165) Human Variation	3 s.h.
ANTH:3310 (213:188) Primate Behavior and Ecology	3 s.h.
ANTH:3322 (213:170) Primate Evolutionary Biology	3 s.h.
ANTH:3325 (213:151) Human Evolutionary Genetics	3 s.h.
ANTH:3326 (213:153) Infectious Disease and Human Evolution	3 s.h.
ANTH:3327 (213:154) Genes, Culture, and Human Diversity	3 s.h.
ANTH:3328 (213:155) Molecular Genetics of Human Disease	3 s.h.
ANTH:3330 (213:187) Human Evolution in Africa and Eurasia	3 s.h.
ANTH:4205 (113:164) Rise of Ancient Civilization	3 s.h.
ANTH:4315 (213:169) Human Evolutionary Anatomy	3 s.h.
ANTH:4620 (113:189) Approaches to Geoarchaeology	3 s.h.

Sociocultural or linguistic anthropology—one of these:

ANTH:2101 (113:137) The Anthropology of Love	3 s.h.
ANTH:2102 (113:108) Anthropology of Marriage and Family	3 s.h.
ANTH:2136 (113:116) Urban Anthropology	3 s.h.
ANTH:2150 (113:115) Transnational Feminism	3 s.h.
ANTH:2181 (113:147) The Anthropology of Aging	3 s.h.
ANTH:3101 (113:112) Anthropology of Sexuality	3 s.h.
ANTH:3102 (113:185) Medical Anthropology	3 s.h.
ANTH:3103 (113:143) Environment and Culture	3 s.h.
ANTH:3107 (113:109) Literature and Anthropology	3 s.h.
ANTH:3109 (113:135) Psychological Anthropology	3 s.h.

ANTH:3110 (113:121) Health of Indigenous Peoples	3 s.h.	ANTH:3257 (113:167) North American Archaeology	3 s.h.
ANTH:3112 (113:114) Environmentalisms	3 s.h.	ANTH:3258 (113:159) Southwestern Archaeology	3 s.h.
ANTH:3113 (113:145) Religion and Healing	3 s.h.	ANTH:3265 (113:181) Archaeology of the Great Plains	3 s.h.
ANTH:3114 (113:142) Anthropology of Religion	3 s.h.	ANTH:3275 (113:196) The Archaeology of Ancient Egypt	3 s.h.
ANTH:3116 (113:156) Fictionalized Ethnography in Literature and Film	3 s.h.	ANTH:3276 (113:192) Greek Archaeology and Ethnohistory	3 s.h.
ANTH:3117 (113:136) Using Ethnographic Methods	3 s.h.	ANTH:3277 (113:194) Roman Archaeology	3 s.h.
ANTH:3118 (113:140) Politics of Reproduction	3 s.h.	ANTH:3306 (213:115) The Neanderthal Enigma	3 s.h.
ANTH:3119 (113:154) Anthropology of Sexual Minorities	3 s.h.	ANTH:3330 (213:187) Human Evolution in Africa and Eurasia	3 s.h.
ANTH:3127 (113:146) Anthropology of Death	3 s.h.	ANTH:4700 (113:132) Latin American Studies Seminar	3 s.h.
ANTH:3130 (113:104) Cultural Politics	3 s.h.		
ANTH:3131 (113:117) Anthropology and Human Rights	3 s.h.	Electives:	
ANTH:3133 (113:122) Anthropology of Race	3 s.h.	Three elective courses numbered 2000 or above	
ANTH:3135 (113:155) Key Debates in Sociocultural Anthropology	3 s.h.	Anthropology electives offer many options, including courses dealing with environment and culture, expressive culture (art, verbal arts, literature, music, and dance), gender and sexuality, human evolution, human osteology, human prehistory, identity, language and culture, medical anthropology, molecular genetics, primatology, psychological anthropology, religion and ritual, and urban anthropology. Department faculty members offer area studies courses that focus on Latin America, Europe, Japan, South Asia, and Native North America.	
ANTH:3140 (113:141) Feminist Anthropology	3 s.h.	Additional Bachelor of Arts Requirements	
ANTH:3141 (113:182) Women, Health, and Healing	3 s.h.	Bachelor of Arts students are strongly encouraged to take courses and participate in archaeological field and laboratory research, biological anthropology laboratory research, ethnographic research methods in sociocultural anthropology, and multimedia research in linguistic anthropology.	
ANTH:3151 (113:151) The Anthropology of the Beginnings and Ends of Life	3 s.h.	Additional Bachelor of Science Requirements	
ANTH:3152 (113:152) Anthropology of Caregiving and Health	3 s.h.	Bachelor of Science students must fulfill additional requirements in the following three areas.	
ANTH:3300 (113:105) Mothers and Motherhood	3 s.h.	Quantitative, mathematical, or formal reasoning tool	
ANTH:3415 (113:171) Multimedia Ethnography	3 s.h.	Directed laboratory or field research	
ANTH:4130 (113:139) Religion and Environmental Ethics	3 s.h.	Allied topical course work	
ANTH:4140 (113:133) The Anthropology of Women's Health	3 s.h.	QUANTITATIVE, MATHEMATICAL, OR FORMAL REASONING TOOL (B.S.)	
Area studies—one of these:		Bachelor of Science students must complete one course (a minimum of 3 s.h.) in statistics, computing, logic, and/or mathematics in addition to the course they take to fulfill the General Education Program's Quantitative and Formal Reasoning requirement. The department accepts the following courses to fulfill the tool requirement. Students who would like to use other courses should consult their advisors.	
ANTH:2108 (113:107) Gendering India	3 s.h.	One of these:	
ANTH:2110 (113:131) Latin American Economy and Society	3 s.h.	COMM:1117 (036:017) Theory and Practice of Argument	4 s.h.
ANTH:2165 (113:110) Native Peoples of North America	3 s.h.		
ANTH:2175 (113:125) Japanese Society and Culture	3 s.h.		
ANTH:2182 (113:092) African Peoples and Cultures	3 s.h.		
ANTH:2183 (113:093) Asia and Globalization: Anthropological Approach	3 s.h.		
ANTH:2220 (113:163) Archaeology of Mesoamerica	3 s.h.		
ANTH:3108 (113:118) North Korea and Totalitarianism	3 s.h.		
ANTH:3111 (113:119) Health in Mexico	3 s.h.		
ANTH:3121 (113:127) Love and Kinship in South Asia	3 s.h.		
ANTH:3142 (113:128) American Cultures	3 s.h.		
ANTH:3238 (113:130) Archaeology of the Iberian Peninsula	3 s.h.		
ANTH:3239 (113:150) Tribes and Chiefdoms of Ancient Europe	3 s.h.		
ANTH:3242 (113:188) Archaeology of the Middle East—Prehistory and Early History	3 s.h.		

CS:1110 (22C:005) Introduction to Computer Science	3 s.h.
CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
HONR:1650 (143:080) Honors Seminar in Quantitative and Formal Reasoning	3 s.h.
LING:1050 (103:013) Language and Formal Reasoning	3 s.h.
MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.
MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.
PHIL:1636 (026:036) Principles of Reasoning: Argument and Debate	3 s.h.
STAT:1010 (22S:002) Statistics and Society	3 s.h.
STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

DIRECTED LABORATORY OR FIELD RESEARCH (B.S.)

Bachelor of Science students complete an approved directed research requirement (minimum of 3 s.h.) consisting of one of the following.

Laboratory research: a laboratory practicum in anthropology research labs or independent, faculty-guided, laboratory research, including use of the collections of the Office of the State Archaeologist.

Field research project: faculty-advised projects involving the collection of primary archaeological, biological, ethnographic, and/or linguistic data in a fieldwork setting.

A University of Iowa field archaeological school program or approved equivalent.

An approved internship; internships typically involve work in cultural resource management firms, museums, and public health research or education projects; to receive research credit for an internship, students must make a final report to their faculty advisor, summarizing the work accomplished or presenting materials that document the nature of the work.

ALLIED TOPICAL FIELD (B.S.)

Bachelor of Science students complete a topical concentration in one of the following allied fields: biology, chemistry, computer science, earth and environmental sciences, economics, geographical and sustainability sciences, global health studies, health and human physiology, linguistics, mathematics, psychology, science education, sport studies, or statistics and actuarial science. Minors (or at least five courses) in other fields, chosen in consultation with the student's advisor, also may be applied toward this requirement.

Optional Undergraduate Specializations and Track (B.A. and B.S.)

All students majoring in anthropology have the option of adding a particular focus to their study plan by completing a specialization. B.A. students may choose one of four optional specializations: gender and culture, cultural resource and heritage management, environmental anthropology, or medical anthropology. B.S. students may choose one of the four specializations or an optional track, anthropology for the health professions.

The optional specializations and track reflect broad issues bridging subfields in and outside of anthropology. Completion of a specialization area or the track indicates the acquisition of considerable expertise and is noted on the student's transcript.

The optional specializations and track each require 15 s.h. (five courses). By selecting courses carefully, students majoring in anthropology can complete a specialization or the track without adding to the semester hours required for graduation.

GENDER AND CULTURE SPECIALIZATION (B.A. AND B.S.)

Anthropological research regarding gender and sexuality has grown dramatically in recent years, enhancing and drawing from other theoretical and methodological approaches in anthropology. This research contributes a cross-cultural perspective to discussion surrounding these fundamental aspects of human experience, both in academia and in public life.

The gender and culture specialization requires 15 s.h. (five courses) chosen from the following list. Each course provides an integrated overview of essential theoretical and topical issues in the field.

Five of these:

ANTH:2101 (113:137) The Anthropology of Love	3 s.h.
ANTH:2102 (113:108) Anthropology of Marriage and Family	3 s.h.
ANTH:2108 (113:107) Gendering India	3 s.h.
ANTH:3101 (113:112) Anthropology of Sexuality	3 s.h.
ANTH:3118 (113:140) Politics of Reproduction	3 s.h.
ANTH:3119 (113:154) Anthropology of Sexual Minorities	3 s.h.
ANTH:3121 (113:127) Love and Kinship in South Asia	3 s.h.
ANTH:3140 (113:141) Feminist Anthropology	3 s.h.
ANTH:3141 (113:182) Women, Health, and Healing	3 s.h.
ANTH:3300 (113:105) Mothers and Motherhood	3 s.h.
ANTH:4140 (113:133) The Anthropology of Women's Health	3 s.h.

CULTURAL RESOURCE AND HERITAGE MANAGEMENT SPECIALIZATION (B.A. AND B.S.)

In North America and throughout much of the rest of the world, modern land use continually threatens evidence of past land use. Most archaeological excavations are

conducted as cultural resource management (CRM), so it is essential that all researchers who work with archaeological data and individuals committed to site preservation have a basic understanding of CRM. Students who choose this emphasis learn about the field and about how to address related ethical issues as well as technical and theoretical challenges.

The cultural resource and heritage management emphasis requires 15 s.h. (five courses): a fundamental overview course, two area electives, a technical/practical elective, and a field school course. Students may use some of these courses to satisfy requirements for the major, such as the course in archaeology and the electives.

Overview—this course:

ANTH:3240 (113:170) Cultural Resources Management Archaeology: Practice and Practicalities	3 s.h.
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Area electives—two of these (or one of these and one other Department of Anthropology area course):

ANTH:2165 (113:110) Native Peoples of North America	3 s.h.
ANTH:3257 (113:167) North American Archaeology	3 s.h.
ANTH:3258 (113:159) Southwestern Archaeology	3 s.h.
ANTH:3260 (113:179) Pleistocene Peopling of the Americas	3 s.h.
ANTH:3265 (113:181) Archaeology of the Great Plains	3 s.h.

Technical/practical elective—one of these:

ANTH:2205 (113:168) Archaeological Methods	3 s.h.
ANTH:2290 (113:162) Practicum in Archaeology	arr.
ANTH:3207 (113:158) Animal Bones in Archaeology	3 s.h.
ANTH:3221 (113:190) Beyond the Map: Introduction to Geographic Information Systems (GIS) in Anthropology	3 s.h.
ANTH:3237 (113:124) Politics of the Archaeological Past	3 s.h.
ANTH:3255 (113:160) Introduction to Archaeological Ceramics	3 s.h.
ANTH:3256 (113:173) Household Archaeology and Anthropology	3 s.h.
ANTH:3305 (213:190) Human Osteology	3 s.h.
ANTH:4620 (113:189) Approaches to Geoarchaeology	3 s.h.

Field school—one of these:

ANTH:3295 (113:199) Field Research in Archaeology	arr.
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An equivalent course from another university

ENVIRONMENTAL ANTHROPOLOGY SPECIALIZATION (B.A. AND B.S.)

The interaction between humans and the environments they inhabit has long been a central issue in anthropology, and environmental degradation is a worldwide concern today. Pollution, loss of biodiversity, and global warming recognize no political boundaries, but attitudes and behaviors involving the natural environment vary

widely from culture to culture. The understanding and incorporation of these varied perspectives are vital to the development and successful use of workable solutions.

The environmental anthropology specialization requires 15 s.h. (five courses): two theory courses, which deal primarily with human-environmental interactions; and three area or topical electives, which deal in part with environment, ecology, and subsistence technologies. The following are sample courses in each area (courses must be numbered 2000 or above).

Theory courses:

ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
ANTH:3103 (113:143) Environment and Culture	3 s.h.
ANTH:3112 (113:114) Environmentalisms	3 s.h.
ANTH:4130 (113:139) Religion and Environmental Ethics	3 s.h.

Area or topical electives:

ANTH:2110 (113:131) Latin American Economy and Society	3 s.h.
ANTH:2175 (113:125) Japanese Society and Culture	3 s.h.
ANTH:2216 (113:157) Foodways and Cuisine in the Past	3 s.h.
ANTH:3205 (113:161) Prehistoric People of the Ice Age	3 s.h.
ANTH:3207 (113:158) Animal Bones in Archaeology	3 s.h.
ANTH:3238 (113:130) Archaeology of the Iberian Peninsula	3 s.h.
ANTH:3239 (113:150) Tribes and Chiefdoms of Ancient Europe	3 s.h.
ANTH:3265 (113:181) Archaeology of the Great Plains	3 s.h.
ANTH:3275 (113:196) The Archaeology of Ancient Egypt	3 s.h.
ANTH:3282 (113:126) Animals, Culture, and Food	3 s.h.
ANTH:3283 (113:187) Cultures in Collision	3 s.h.
ANTH:4205 (113:164) Rise of Ancient Civilization	3 s.h.
ANTH:4620 (113:189) Approaches to Geoarchaeology	3 s.h.
ANTH:6205 (113:178) Hunter-Gatherer Ethnoarchaeology	3 s.h.

MEDICAL ANTHROPOLOGY SPECIALIZATION (B.A. AND B.S.)

Human experiences of sickness and suffering are universal yet profoundly shaped by cultural and historical contexts. Medical anthropology explores cultural and biological diversity in sickness, health, and healing through approaches that include examining individual experiences of disrupted well-being, considering how biological and cultural factors interact to promote health or produce sickness, analyzing political-economic causes of health inequalities, and applying research to improve health research and services in an increasingly global world. Course work in medical anthropology helps students prepare for a range of health professions and social services careers and for work in diverse settings that

increasingly include nongovernmental organizations devoted to improving health.

The medical anthropology specialization requires 15 s.h. (five courses): one overview course and four electives that focus on particular topics.

Overview—this course:

ANTH:3102 (113:185) Medical Anthropology	3 s.h.
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Electives—four of these:

ANTH:2181 (113:147) The Anthropology of Aging	3 s.h.
ANTH:2320 (213:090) Anthropological Perspectives on Human Infectious Disease: Origins and Evolution	3 s.h.
ANTH:3101 (113:112) Anthropology of Sexuality	3 s.h.
ANTH:3110 (113:121) Health of Indigenous Peoples	3 s.h.
ANTH:3111 (113:119) Health in Mexico	3 s.h.
ANTH:3118 (113:140) Politics of Reproduction	3 s.h.
ANTH:3141 (113:182) Women, Health, and Healing	3 s.h.
ANTH:3151 (113:151) The Anthropology of the Beginnings and Ends of Life	3 s.h.
ANTH:3152 (113:152) Anthropology of Caregiving and Health	3 s.h.
ANTH:3326 (213:153) Infectious Disease and Human Evolution	3 s.h.
ANTH:4140 (113:133) The Anthropology of Women's Health	3 s.h.

ANTHROPOLOGY FOR THE HEALTH PROFESSIONS TRACK (B.S.)

Health professionals are increasingly called upon to recognize how sociocultural and biological factors intersect to produce experiences of health, sickness, and healing. The anthropology for the health professions track is rooted in anthropology's holistic approach to understanding the human condition. It provides a comprehensive education in the biological and social bases for human health. Students in the track develop understanding of cultural and biological variation in health and sickness. They also examine how and why particular therapeutic interventions may be more or less effective when translated into different cultural settings and disease ecologies.

The track enables students entering the health professions to distinguish themselves when they apply to graduate and professional programs. It also may help them prepare for the Medical College Admission Test (MCAT). Learn more by visiting [Optional Undergraduate Specializations on the Department of Anthropology web site](#).

The anthropology for the health professions track requires 15 s.h. (five courses), including a required overview course and four additional track courses chosen from the list below. Most courses in the list fulfill the anthropology major's common requirements for courses in archaeology or biological anthropology, in sociocultural or linguistic anthropology, and electives; and ANTH:3111 (113:119) Health in Mexico counts toward the major's area studies requirement. By choosing courses carefully, students may complete the track without adding to the semester hours required for graduation.

Overview—this course:

ANTH:2164 (113:091) Culture and Healing for Future Health Professionals	3 s.h.
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Four of these (12 s.h.):

ANTH:2181 (113:147) The Anthropology of Aging	3 s.h.
ANTH:2320 (213:090) Anthropological Perspectives on Human Infectious Disease: Origins and Evolution	3 s.h.
ANTH:3101 (113:112) Anthropology of Sexuality	3 s.h.
ANTH:3102 (113:185) Medical Anthropology	3 s.h.
ANTH:3110 (113:121) Health of Indigenous Peoples	3 s.h.
ANTH:3111 (113:119) Health in Mexico	3 s.h.
ANTH:3118 (113:140) Politics of Reproduction	3 s.h.
ANTH:3141 (113:182) Women, Health, and Healing	3 s.h.
ANTH:3151 (113:151) The Anthropology of the Beginnings and Ends of Life	3 s.h.
ANTH:3152 (113:152) Anthropology of Caregiving and Health	3 s.h.
ANTH:3305 (213:190) Human Osteology	3 s.h.
ANTH:3308 (213:165) Human Variation	3 s.h.
ANTH:3325 (213:151) Human Evolutionary Genetics	3 s.h.
ANTH:3326 (213:153) Infectious Disease and Human Evolution	3 s.h.
ANTH:4140 (113:133) The Anthropology of Women's Health	3 s.h.

B.A. or B.S. with Teacher Licensure

Anthropology majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Bachelor of Arts

Before the fifth semester begins: at least two courses in the major

Before the seventh semester begins: at least seven courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Before the third semester begins: at least one anthropology course or other course in the major

Before the fifth semester begins: at least four anthropology courses or other courses in the major, one course in the topical field, and one course for the quantitative or formal reasoning tool requirement

Before the seventh semester begins: at least seven courses in the major, three courses in the topical field, the second quantitative or formal reasoning tool course, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least nine courses in the major, including the directed research requirement, and four courses in the topical field

During the eighth semester: enrollment in all remaining course work in the major (including the topical field), all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in anthropology have the opportunity to graduate with honors in the major. Departmental honors students must have a g.p.a. of at least 3.50 in anthropology. To graduate with honors in the major, they must conduct an independent research project that culminates in a 30-50 page thesis. The project includes completion of 6 s.h. divided between ANTH:4995 (113:186) Honors Research Seminar (offered only in fall semesters) and ANTH:4996 (113:176) Honors Research, typically taken the next semester. Honors students also must take one of their anthropology courses at the graduate level.

Students working toward a B.S. may count their directed research project or laboratory practicum toward the requirements for graduation with honors, but fulfilling the research requirement for the B.S. does not by itself fulfill the honors research requirement. Students must work with their honors thesis advisor to structure their research so that it meets the added requirements of honors work.

Contact the department's director of undergraduate studies to learn more about honors in anthropology.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in anthropology requires a minimum of 15 s.h. in anthropology courses, including 12 s.h. in University of Iowa Department of Anthropology courses numbered 2000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Courses for the minor may not be taken pass/nonpass.

Students may create a focus for the minor by completing a specialization area; see "Optional Undergraduate Specializations and Track" above.

Certificate in Museum Studies

The Department of Anthropology administers the University's Museum Studies Program, which offers an undergraduate certificate; see Museum Studies (p. 485) in the Catalog.

Graduate Programs of Study

- Master of Arts in anthropology
- Doctor of Philosophy in anthropology

Graduate study in anthropology is open to individuals with varied undergraduate majors and training backgrounds. Students normally are admitted directly to the Ph.D. program; once they complete requirements for the M.A., their committees recommend whether or not they should continue to work toward the Ph.D.

Graduate students become competent in the discipline's four major subfields: sociocultural anthropology, linguistic anthropology, archaeology, and biological anthropology. Ph.D. students develop professional specialization for independent research and teaching in one of the subfields and may elect to pursue a concentration in feminist anthropology or paleoanthropology. Students also may choose to earn a terminal M.A. with a focus on cultural resource management—archaeology (CRM), which prepares them for a professional career in that field.

Master of Arts

The Master of Arts program in anthropology requires 30-36 s.h. of graduate credit, depending on the student's previous anthropological training. Students may count a maximum of 9 s.h. earned in courses outside anthropology toward the M.A. in anthropology. The degree normally is awarded to students after two years in the graduate program.

Master's degree students who choose to focus on cultural resource management—archaeology (CRM) normally do not go on to earn a Ph.D. in anthropology.

During the first semester of the M.A. program, students are advised by the director of graduate studies. By the end of the second semester, they must select an advisor and begin forming an M.A. committee. In consultation with the committee, the student develops a research project and writes an M.A. paper. The committee must approve the M.A. paper by the end of the fourth semester of study. The student also presents the paper publicly. As an alternative to the M.A. paper, students may choose to write a formal M.A. thesis, which must follow the Graduate College thesis guidelines. Students must submit a final copy of their M.A. thesis or paper to the department.

Master's degree students who intend to earn a doctorate should consider taking ANTH:5110 (113:210) Anthropological Data Analysis or another statistics course during their M.A. study.

GENERAL COURSE WORK

M.A. students must complete core seminars in at least three of four subfields (total of 9 s.h.). They choose core seminars from the following.

ANTH:5101 (113:240) Seminar Sociocultural Anthropology	3 s.h.
ANTH:5201 (113:268) Seminar: Archaeological Theory and Method	3 s.h.

ANTH:5301 (213:285) Seminar: Biological Anthropology	3 s.h.
ANTH:5401 (113:271) Seminar: Linguistic Anthropology	3 s.h.

ELECTIVES

In consultation with the advisor and committee members, each student selects additional course work to complete the remaining semester hours required for the M.A. Elective work may include courses in other disciplines, directed study, or up to 6 s.h. of M.A. thesis credit for students who choose the thesis option.

Doctor of Philosophy

The Doctor of Philosophy program in anthropology requires a minimum of 72 s.h. of graduate credit. The Ph.D. balances the general anthropological competence obtained at the M.A. level with professional specialization and competence for independent research and teaching in one of four subfields: sociocultural anthropology, linguistic anthropology, archaeology, and biological anthropology.

Ph.D. students also may elect to pursue a concentration in feminist anthropology or paleoanthropology; see "Graduate Concentrations" below.

REQUIRED COURSE WORK

Students may count a maximum of 18 s.h. earned in non-anthropology courses toward the 72 s.h. required for the Ph.D., including the maximum of 9 s.h. that may be counted toward the master's degree. They may count a maximum of 9 s.h. of independent study courses beyond the master's degree toward the Ph.D.

All doctoral students are required to take ANTH:5110 (113:210) Anthropological Data Analysis or another statistics course within the first three years of graduate study, preferably during the M.A. program (first two years).

Students must take at least one theory course beyond the course they took to fulfill the master's degree requirements in their specialization subfield. This course should be chosen from one of the following lists.

Sociocultural Anthropology

ANTH:5101 (113:240) Seminar Sociocultural Anthropology	3 s.h.
ANTH:6107 (113:250) Seminar: Ritual and Performance	3 s.h.
ANTH:6117 (113:251) Seminar: Resistance in Theory and Practice	3 s.h.
ANTH:6410 (113:244) Seminar: Semiotics	3 s.h.

Most graduate seminars offered in the feminist anthropology concentration also may be used to fulfill this requirement (see "Feminist Anthropology Concentration" below).

Linguistic Anthropology

ANTH:5401 (113:271) Seminar: Linguistic Anthropology	3 s.h.
ANTH:6410 (113:244) Seminar: Semiotics	3 s.h.
ANTH:6415 (113:273) Seminar: Language, Gender, and Sexuality	3 s.h.

Archaeology

ANTH:3206 (113:174) Seminar: Taphonomy	3 s.h.
ANTH:4205 (113:164) Rise of Ancient Civilization	3 s.h.
ANTH:5201 (113:268) Seminar: Archaeological Theory and Method	3 s.h.
ANTH:6205 (113:178) Hunter-Gatherer Ethnoarchaeology	3 s.h.
ANTH:6230 (113:258) Seminar: Zooarchaeology	3 s.h.

Biological Anthropology

ANTH:3308 (213:165) Human Variation	3 s.h.
ANTH:3310 (213:188) Primate Behavior and Ecology	3 s.h.
ANTH:3322 (213:170) Primate Evolutionary Biology	3 s.h.
ANTH:3325 (213:151) Human Evolutionary Genetics	3 s.h.
ANTH:3330 (213:187) Human Evolution in Africa and Eurasia	3 s.h.
ANTH:4315 (213:169) Human Evolutionary Anatomy	3 s.h.
ANTH:5301 (213:285) Seminar: Biological Anthropology	3 s.h.
ANTH:6505 (213:288) Seminar: Paleoanthropology	3 s.h.

Ph.D. COMPREHENSIVE PROCESS

The comprehensive process consists of preparing and defending a research prospectus and writing comprehensive essays. According to individual needs and in consultation with his or her committee, each student selects the order of completing these two tasks. Successful completion of both tasks advances the student to Ph.D. candidacy.

To remain in good academic standing, students must complete the comprehensive process by the end of their third year in the program. Students who do not adhere to this timeline are placed on departmental probation.

Working closely with his or her committee, each student drafts a research prospectus for the program of dissertation research and defends that prospectus before the Ph.D. committee. The defense is open to students and faculty. A copy of the student's dissertation prospectus must be made available in the department office one week before the defense.

Each student must write two comprehensive essays, which must be of publishable quality. One essay must concern the student's geographical area of specialization; the other must deal with his or her primary topical area. In some fields (e.g., biological anthropology), a geographical area may not be relevant. The essays are responses to questions the committee prepares in consultation with the student.

Comprehensive essays should demonstrate analysis, evaluation, synthesis, and control of a body of information (knowledge and comprehension). They should critique a major problem or debate (application and analysis), and they should develop a position on an issue and provide an explanation or theoretical justification for the position (evaluation and synthesis).

Doctoral students who have completed the comprehensive examination process are encouraged to enroll in

ANTH:7501 (113:382) Dissertation Writing Seminar to enhance timely progress on their dissertations.

DISSERTATION

All Ph.D. candidates are required to carry out original anthropological research. Students typically conduct dissertation research after defending their research prospectus and writing comprehensive essays. Dissertations usually are based on fieldwork. Some are based on data from archival collections, laboratory projects, collections, or other source materials.

Graduate Concentrations

In addition to their required course work in the four Ph.D. subfields, students may complete a concentration in feminist anthropology or paleoanthropology. Each concentration reflects broad issues bridging subfields in and outside of anthropology.

Completion of a concentration indicates substantial expertise. It is recognized as a department credential and may be added to a student's curriculum vitae.

FEMINIST ANTHROPOLOGY CONCENTRATION

The feminist anthropology concentration offers broad training in a growing specialization area that enhances and draws from other theoretical approaches in anthropology. Graduate students in anthropology and other disciplines may explore particular aspects of the field by taking feminist anthropology courses.

Course work in the concentration emphasizes feminist perspectives, theories, methods, and analytic techniques in anthropology. It improves students' academic job prospects in anthropology and other fields, especially women's studies and gender studies. It also helps students prepare for careers in applied or public anthropology.

Feminist anthropology students take 15 s.h. of course work in the concentration in addition to their regular core requirements. The 15 s.h. should be divided between graduate seminars and elective courses as noted below.

Concentration courses may fulfill requirements for graduate electives in anthropology.

The following list of approved courses is subject to change; contact the Department of Anthropology for updates. Students may petition to count other courses in anthropology or other disciplines toward the concentration, if the courses or the students' work in them includes significant relevant content. Petitions are reviewed by the feminist anthropology faculty.

Graduate Seminars

Students complete at least two of these (minimum of 6 s.h.) and may count additional graduate seminar courses as elective credit.

ANTH:5120 (113:222) Reading Transnational Feminist Theory	3 s.h.
ANTH:6125 (113:221) Seminar: Feminist Ethnography	3 s.h.
ANTH:6310 (113:290) Anthropology of Science, Technology, and Gender	3 s.h.
ANTH:6415 (113:273) Seminar: Language, Gender, and Sexuality	3 s.h.

Electives

Students must earn a minimum of 9 s.h. in electives and may count extra credit earned in graduate seminars toward the elective requirement.

ANTH:2108 (113:107) Gendering India	3 s.h.
ANTH:3118 (113:140) Politics of Reproduction	3 s.h.
ANTH:3119 (113:154) Anthropology of Sexual Minorities	3 s.h.
ANTH:3140 (113:141) Feminist Anthropology	3 s.h.
ANTH:3141 (113:182) Women, Health, and Healing	3 s.h.
ANTH:3300 (113:105) Mothers and Motherhood	3 s.h.
ANTH:4140 (113:133) The Anthropology of Women's Health	3 s.h.

PALEOANTHROPOLOGY CONCENTRATION

The paleoanthropology concentration offers broad training that combines archaeology and biological anthropology, two traditional subfields of anthropology important in understanding the biocultural factors that have been critical in human evolution. The concentration combines course work in both biological and archaeological anthropology, complementing the specialized training that students from either subfield receive in their own specialization. Paleoanthropology courses emphasize integration of biological and cultural factors in the evolution of hominid species up to and including modern humans. They encompass primate and human evolutionary anatomy, technology and subsistence in Paleolithic archaeology, and modern human hunter-gatherers.

Paleoanthropology students take 15 s.h. of course work in the concentration in addition to their regular core requirements. The 15 s.h. should be divided between graduate seminars and elective courses as noted below.

Students may choose core seminars to fulfill requirements for both the M.A. general course work and the paleoanthropology concentration.

The following list of approved courses is subject to change; contact the Department of Anthropology for updates. Students may petition to count other courses in anthropology or other disciplines toward the concentration, if the courses or the students' work in them includes significant relevant content. Petitions are reviewed by the paleoanthropology faculty.

Graduate Seminars

All of these (9 s.h.):

ANTH:5201 (113:268) Seminar: Archaeological Theory and Method	3 s.h.
ANTH:5301 (213:285) Seminar: Biological Anthropology	3 s.h.
ANTH:6505 (213:288) Seminar: Paleoanthropology	3 s.h.

Electives

At least two of these (6 s.h. minimum):

ANTH:3260 (113:179) Pleistocene Peopling of the Americas	3 s.h.
ANTH:3305 (213:190) Human Osteology	3 s.h.
ANTH:3322 (213:170) Primate Evolutionary Biology	3 s.h.

ANTH:3325 (213:151) Human Evolutionary Genetics	3 s.h.
ANTH:3330 (213:187) Human Evolution in Africa and Eurasia	3 s.h.
ANTH:4315 (213:169) Human Evolutionary Anatomy	3 s.h.
ANTH:6205 (113:178) Hunter-Gatherer Ethnoarchaeology	3 s.h.
ANTH:6230 (113:258) Seminar: Zooarchaeology	3 s.h.

Admission

Applicants for admission to the graduate program in anthropology are considered regardless of their undergraduate major or previous field of training. Students without previous training in anthropology may be expected to perform additional work necessary to achieve competence expected for their degree objective.

Students normally are admitted directly to the Ph.D. program. Students without an M.A. in anthropology devote the first two years of the Ph.D. program to fulfilling the M.A. requirements. After those requirements are completed, the student's committee recommends to the faculty whether the student should continue to work toward the Ph.D.

Students with an M.A. in anthropology from another institution may proceed directly into a Ph.D. program organized around their special research interests.

Applicants for admission to the graduate program must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants must submit the following:

- a completed University application form;
- transcripts of all previous undergraduate and graduate work;
- three letters of recommendation from individuals competent to judge the applicant's potential for graduate training;
- Graduate Record Examination (GRE) scores;
- at least one written example of previous work (for example, a term paper).

Applicants whose first or official language is not English and whose previous academic degrees were not earned at an English-language institution must submit scores on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

Applicants with an M.A. from another university must submit a copy of their master's thesis; applicants who earned an M.A. without thesis or whose thesis is not yet complete should submit written copies of three papers completed in graduate school.

Financial Support

Financial assistance, usually in the form of teaching and research assistantships, may be offered to doctoral and potential doctoral students in good standing for up to four years. Students making satisfactory and timely progress through the graduate program are in good standing. Eligibility for financial aid is reduced after two years in

the M.A. program, after two years in the Ph.D. program, or after one year of postdoctoral fieldwork or research enrollment. The amount and types of aid depend on departmental needs.

Students are notified in writing of a provisional financial award before the semester or summer session for which the award has been granted. Although awards are made before the end of the previous semester, each award is contingent upon satisfactory completion of that semester's work by the awardee.

Archaeological Field Research

Under the direction of University archaeologists, students acquire skills in data recovery and interpretive techniques. Opportunities are available for students to participate in archaeological field research in France, the Netherlands, Portugal, Sicily, the U.S. Southwest, or at various sites in the U.S. Midwest. Occasional fieldwork in East and Southeast Asia is available to graduate students in the paleoanthropology research program.

Resources, Facilities

The department has access to the Iowa Archaeological Collections through the Office of the State Archaeologist and maintains its own archaeological collections (midwestern prehistoric and historical and comparative faunal material).

The department maintains a documented human osteology teaching collection amassed by the University of Iowa Carver College of Medicine and the Department of Anatomy and Cell Biology, and it holds a substantial documented human osteology research collection originally from Stanford University's medical school that is maintained jointly with the Office of the State Archaeologist.

Individual faculty members maintain field laboratories and conduct research outside the United States, maintaining ties with research institutions in foreign countries, including the Laboratoire d'Ethnologie Préhistorique at Pincevent, France; the Centre de Recherches Archéologiques at Verberie, France; the National Museum of Ethnology, Japan; the Institute of Technology Bandung (ITB), Indonesia; the Gemeente Nijmegen, Bureau Archeologie, Nijmegen, the Netherlands; and the Deutsches Archäologisches Institut of Madrid, Spain.

The department also has well-equipped laboratories for the study of archaeology, biological anthropology, a state-of-the-art multimedia linguistic anthropology laboratory, and a GIS/quantitative analysis laboratory.

The University is a charter member of the Human Relations Area Files (HRAF), an extensively annotated set of source materials on the peoples of the world—their environments, behavioral patterns, social lives, and cultures. Through HRAF and other library resources, anthropology students have access to source materials on more than 400 different cultures.

The University's exchange programs for Iowa students provide opportunities and some scholarships for study abroad.

Faculty

Members of the anthropology faculty have studied and lived in Africa, Asia, the Caribbean, Europe, Mexico and Central America, Pacific Islands, South America, and the United States. Recent field research has been conducted in Belgium, Brazil, Cameroon, China, Czech Republic, Ecuador, Fiji, France, Greece, Honduras, India, Indonesia, Italy, Japan, Mexico, Myanmar (formerly Burma), Namibia, the Netherlands, New Zealand, Peru, Philippines, Portugal, Russia, the Gambia, the United States, and Vietnam.

Current faculty interests include patterns of political and economic development of emerging nations; the trade in Mexican folk art, material culture, human rights; indigenous movements; visual culture and indigenous media; gender and the cultural politics surrounding sobriety in native North America; lesbian and gay families in the United States; the cultural production of scientific knowledge about racial/ethnic infant mortality disparities in U.S. public health; power, memory, and social inequality in ancient Iberia; language and gender; expressive culture and performance in the Brazilian Amazon; language and social justice; colonial linguistics, cultural politics of language, religion, and ethnicity; spiritual tourism in India; community and conflict, ritualization, localized religion, and environmentalism in Japan; ethnic minorities in Japan; diasporas, love, and romantic relations, culture, and totalitarianism in North Korea; paleoanthropological investigations of Pleistocene karst caves in China and northern Vietnam; geological and paleoanthropological field surveys of the Plio-Pleistocene Sangiran Dome, in Java; Neanderthal craniofacial form, function, and evolutionary history; anatomical modernity and the origins of modern humans; historical archaeology of Iowa; primate evolutionary history; faunal and spatial analyses from Paleolithic sites in France, middle Stone Age adaptations in Namibia; regional interaction and migration in late-prehistoric North America; peopling of the Americas; human impacts on the environment in North America.

Courses

General Anthropology, Lower-Level Undergraduate

ANTH:1000 (113:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g. films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

ANTH:1001 (113:050) Issues in Anthropology 3 s.h.
In-depth exploration of methodological and theoretical issues in contemporary anthropology; emphasis on critical reading of primary texts.

ANTH:1003 (113:062) Anthropology of Violence 3 s.h.
Sources and manifestations of violence; violence in varied contexts—war, genocide, colonialism, state violence, terrorism, domestic violence; anthropological perspective considering structural, economic, and symbolic violence.

ANTH:1005 (113:064) The Evolution of Human Sex 3 s.h.

How evolution has shaped our sexual behavior; patterns of mate choice, parental behavior, social organization, cooperation, and conflict as responses to selection pressure; sexual selection, reproductive strategies, mate choice, sex roles and practices.

ANTH:1006 (113:065) Anthropology, Science Fiction, and Fantasy 3 s.h.

Connections between anthropology and science fiction and fantasy; science fiction and fantasy films and literature surveyed and examined in light of scholarly essays on anthropological concepts such as human evolution, race, gender, the anthropological *other*.

ANTH:1007 (113:066) The Anthropology of Virtual Worlds 3 s.h.

How virtual reality intertwines with social existence; anthropological exploration of virtual worlds, from checking e-mail to setting up bar crawls on Facebook; forms of virtual identity, how virtual life affects language.

ANTH:1008 (113:067) Anthropology of Immigration 3 s.h.

Anthropological study of movements of people, goods, ideas around the world, drawing upon recent theory and ethnographic examples; topics include citizenship, family/parenting, gender, labor, economy, religion.

ANTH:1009 (113:068) Anthropology of Childhood: The Production of Human Beings in the Contemporary World 3 s.h.

Examination of biological, social, historic, economic, and political aspects of childhood in the contemporary world from an anthropological perspective. Recommendations: introductory anthropology course.

ANTH:1040 (113:045) Language Rights 3 s.h.

Language minorities and linguistic human rights in the United States and worldwide; language and identity, culture, power; case studies of language rights deprivation. GE: International and Global Issues. Same as LING:1040 (103:045).

ANTH:1046 (113:046) People and the Environment: Technology, Culture, and Social Justice 3 s.h.

How resources, commodities, people, and ideas cross borders; examination of globalization through issues of technology, social justice, environment; perspectives from anthropology, gender studies, geography, energy science, and development. GE: International and Global Issues. Same as GWSS:1046 (131:046), GEOG:1046 (044:046).

ANTH:1061 (113:041) Origins of Life in the Universe (Part 2) 4 s.h.

Fundamental questions (How old is the universe? What is the nature of life? How has life evolved on Earth? What are our human origins? Are there other habitable planets in the universe?) that revolve around understanding origins from different perspectives (i.e., astronomy, physics, geoscience, biology, chemistry, anthropology); work with faculty from several departments to investigate these questions; inquiry-based activities to build success in critical thinking, teamwork, and effective written and oral communication; second of a two-part sequence. Prerequisites: ASTR:1060 (029:040) or BIOL:1060 (002:050) or EES:1060 (012:045). Recommendations: first-year or sophomore standing. GE: Natural Sciences with Lab. Same as ASTR:1061 (029:041), BIOL:1061 (002:051), EES:1061 (012:046).

ANTH:1101 (113:003) Cultural Anthropology 3 s.h.

Comparative study of culture, social organization. GE: Social Sciences; Values, Society, and Diversity. Same as IS:1101 (187:008).

ANTH:1201 (113:012) Introduction to Prehistory 3 s.h.

Data, theories of evolution of human cultures from end of Pleistocene to emergence of complex societies; emphasis on prehistoric cultural information from world areas from which relatively complete sequences are available. GE: Historical Perspectives.

ANTH:1301 (113:013) Human Origins 3 s.h.

Processes, products of human evolution from perspectives of heredity and genetics, evolutionary theory, human biological characteristics, fossil record, artifactual evidence, biocultural behaviors. GE: Natural Sciences without Lab.

ANTH:1305 (113:060) Forensic Anthropology and CSI 3 s.h.

Role and range of techniques used in forensic anthropology; how analysis of skeletal and nonskeletal remains is used in crime scene investigation; case studies.

ANTH:1310 (113:081) Human Genetics in the Twenty-First Century 3 s.h.

Analysis of human genes and genomes; genetic basis of simple and complex traits; genetic aspects of cancer; paleogenomics and tracing human migrations with DNA. GE: Natural Sciences without Lab. Same as BIOL:1311 (002:081).

ANTH:1401 (113:014) Language, Culture, and Communication 3 s.h.

Human language in context of animal communication; development, acquisition of language; biological base; language as a linguistic system in cultural social context. GE: Social Sciences.

ANTH:2009 (113:075) Individual Study 1-3 s.h.

Readings in area or subdivision of anthropology in which student has had basic course work.

ANTH:2100 (113:010) Anthropology and Contemporary World Problems 3 s.h.

Selected world problems from an anthropological perspective; current dilemmas and those faced by diverse human groups in recent times and distant past. GE: International and Global Issues; Social Sciences.

ANTH:2164 (113:091) Culture and Healing for Future Health Professionals 3 s.h.

Health professions increasingly focused on how to best provide health care to culturally diverse populations; introduction to key cultural and social influences on sickness and healing; worldwide examples. Same as GHS:2164 (152:091).

ANTH:2320 (213:090) Anthropological Perspectives on Human Infectious Disease: Origins and Evolution 3 s.h.

Origin and evolution of important infectious diseases in human history; biological evolution of infectious agents and biocultural responses to emerging infectious diseases; primary focus on viruses and bacteria; selected world problems from an anthropological perspective; current dilemmas and those faced by diverse human groups in recent times and distant past. Same as GHS:2320 (152:090).

General Anthropology, Upper-Level Undergraduate and Graduate

ANTH:3001 (113:103) Introduction to Museum Studies 3 s.h.

Overview of museum history, function, philosophy, collection, and curatorial practices; governance and funding issues; exhibition evaluation and audience studies; examples from Museum of Art, Museum of Natural History, Old Capitol Museum, and Medical Museum. GE: Social Sciences. Same as EDTL:3001 (07S:112), SIED:3001 (097:115), MUSM:3001 (024:102).

ANTH:3005 (113:148) Special Topics in Anthropology 2-3 s.h.

Problems, concepts involved in comparing and contrasting behavior and ideas of different cultures.

ANTH:3010 (113:149) Special Topics in Anthropology 2-3 s.h.

Problems, concepts involved in comparing and contrasting behavior and ideas of different cultures.

ANTH:3123 (113:120) Economic Anthropology 3 s.h.

Overview of classic and contemporary research in subfield of economic anthropology; historical approach to key debates in economic anthropology; contemporary ethnographic examples. Prerequisites: ANTH:1101 (113:003).

ANTH:3221 (113:190) Beyond the Map: Introduction to Geographic Information Systems (GIS) in Anthropology 3 s.h.

Software environment for managing, visualizing, and analyzing spatial relationships in anthropology; mapmaking tool; spatial organization of material culture.

General Anthropology, Graduate

ANTH:5001 (113:235) Graduate Teaching Proseminar 1 s.h.

Graduate student teaching skills: developing course guidelines, leading discussion, grading, review sessions, dealing with problem students and complaints; development of syllabi and teaching portfolios; mentoring of less-experienced teaching assistants.

ANTH:5005 (113:236) Responsible Conduct of Research in Anthropology 1 s.h.

Up-to-date documents in all subfields of anthropology regarding ethical research; CITI certification (which also qualifies as part of IRB application); key debates and current problems faced by anthropology in area of ethical and responsible research.

ANTH:5110 (113:210) Anthropological Data Analysis 3 s.h.

Quantitative procedures for analyzing field data, library materials; elementary statistics, introduction to computers.

ANTH:7109 (113:209) Research Design and Proposal Writing 3 s.h.

Anthropological research design; preparation of proposals for fieldwork or laboratory analysis.

ANTH:7501 (113:382) Dissertation Writing Seminar 2 s.h.

Organization of dissertation, setting and meeting deadlines, writing a chapter, and workshopping drafts; seminar group work and consultation with advisors; completion and revision of at least one dissertation chapter; for anthropology graduate students who are beginning, or about to begin, their dissertation writing process. Requirements: anthropology graduate student who passed comprehensive exams (prospectus and essays).

Area Studies, Lower-Level Undergraduate

ANTH:2108 (113:107) Gendering India 3 s.h.

Aspects of Indian culture, including nation, family, sexuality, work, and religion, through the lens of gender; Hindu India, differences in region, caste, and class. Same as GWSS:2108 (131:107).

ANTH:2110 (113:131) Latin American Economy and Society 3 s.h.

Development, present structure of Latin American economy and society; emphasis on rural regions in context of national development; focus on area as a whole. GE: International and Global Issues.

ANTH:2165 (113:110) Native Peoples of North America 3 s.h.

History, culture of American Indian peoples; emphasis on North America. GE: Values, Society, and Diversity. Same as AINS:2165 (149:110), AMST:2165 (045:105).

ANTH:2175 (113:125) Japanese Society and Culture 3 s.h.

Cultural anthropology of Japan, including historical tradition, religious ethos, social organization, human ecology, educational and political institutions; emphasis on how these aspects relate to and influence one another. GE: Values, Society, and Diversity. Same as JPNS:2175 (39J:125).

ANTH:2182 (113:092) African Peoples and Cultures 3 s.h.

How African people have navigated a changing world in their everyday lives, from slave trade in West Africa to HIV/AIDS epidemic in Southern Africa; focus on precolonial, colonial, and postcolonial Africa with emphasis on how particular groups of people have adapted to changing social, political, and economic influences; historical overview of recent and current peoples and cultures in Africa.

ANTH:2183 (113:093) Asia and Globalization: Anthropological Approach 3 s.h.

Asia as a melting pot of diverse cultures, where flow of goods, ideas, and humans is very intense; ethnographic studies on diverse cultures in Asia.

Area Studies, Upper-Level Undergraduate and Graduate

ANTH:3108 (113:118) North Korea and Totalitarianism 3 s.h.

North Korea viewed as a human society, rather than a global security threat, through examination of the nation's culture and politics.

ANTH:3111 (113:119) Health in Mexico 3 s.h.

Use of anthropological perspectives to examine disease, healing systems, and ideas about health and the body in Mexico and its diaspora; relationships between structural conditions and historical and political transformations; ideas about gender and race; chronic and acute disease in Mexico; conquest and disease; racialized bodies; sexual health; biomedicine; shamanism; immigration and health; pollution and narcoviolence; readings in English. Same as GHS:3040 (152:119).

ANTH:3121 (113:127) Love and Kinship in South Asia 3 s.h.

Anthropological understandings of love in India and the region of South Asia more broadly; emphasis on contemporary society; filial and motherly love, arranged marriage and romantic love, devotional and artistic expressions, love between siblings. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010) or GWSS:1001 (131:010) or GWSS:1002 (131:055). Same as GWSS:3121 (131:127).

ANTH:3142 (113:128) American Cultures 3 s.h.

How anthropology has understood the diversity of non-indigenous cultures in the United States; history of anthropological engagement with the United States; racial/ethnic formations, immigration, class variations, health, sexuality, and gender. Prerequisites: ANTH:1101 (113:003).

ANTH:4700 (113:132) Latin American Studies Seminar 3 s.h.

Interdisciplinary approach. Taught in English.
 Recommendations: Spanish or Portuguese sufficient for background readings. Same as SPAN:4900 (035:176), PORT:4700 (038:176), LAS:4700 (130:176), HIST:4504 (16W:109), CL:4700 (218:153).

Sociocultural Anthropology, Lower-Level Undergraduate

ANTH:2101 (113:137) The Anthropology of Love 3 s.h.

The culturally diverse concept and practice of love as seen through cross-cultural and interdisciplinary texts on romantic and other forms of love.

ANTH:2102 (113:108) Anthropology of Marriage and Family 3 s.h.

Classic anthropological theories of kinship and marriage, including topics such as cousin marriage and incest; recent work on new reproductive technologies and transnational marriage. Same as GWSS:2102 (131:108).

ANTH:2136 (113:116) Urban Anthropology 3 s.h.

Cross-cultural approach to urban anthropology; urbanizing processes, migration and adaptation, aspects of class and ethnicity in urban settings, urban economic relations. GE: International and Global Issues; Social Sciences.

ANTH:2150 (113:115) Transnational Feminism 3 s.h.

Introduction to feminist perspectives from U.S. and non-U.S. contexts; how geopolitics shapes understanding of familiar feminist issues (e.g., reproduction, cultural practices, sexualities, poverty); emphasis on global south regions. Same as GWSS:2150 (131:149).

ANTH:2181 (113:147) The Anthropology of Aging 3 s.h.

Comparative anthropological perspective on aging; ethnographies from diverse contexts used to examine intersections of kinship, religion, health, and medicine in later life. Same as ASP:2181 (153:181), GHS:2181 (152:147).

ANTH:2184 (113:094) Chinese Science and Medicine 3 s.h.

Introduction to human impact of Chinese science and medicine; sociocultural approach to examine sociocultural and political contexts within which various forms of science/medicine were practiced and understood across Chinese history.

ANTH:2185 (113:095) Introduction to Contemporary China 3 s.h.

Introduction to complexity and diversity of contemporary China and its ongoing transformations; exploration of what has been written about China, how Chinese culture has been written by scholars.

Sociocultural Anthropology, Upper-Level Undergraduate and Graduate

ANTH:3101 (113:112) Anthropology of Sexuality 3 s.h.

Practice, definition, and regulation of sex in different cultures and times; use of anthropological tools, including cross-cultural comparison and social constructionist analysis; how social and historical forces shape sex; how a range of topics relate to sexuality, including science, love, work, globalization, ethnicity, health, aging, pornography, and deviance; focus on ways that dynamics (i.e., class, race, gender norms) shape people's culturally- and historically-specific ways of having and thinking about sex. Same as GWSS:3101 (131:112).

ANTH:3102 (113:185) Medical Anthropology 3 s.h.

Major theoretical, methodological approaches; international health and development; biomedicine as a cultural system; ethnomedicine; anthropology and AIDS, human reproduction, epidemiology, ethnopsychiatry. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010). Same as GHS:3102 (152:185), CBH:5125 (172:173).

ANTH:3103 (113:143) Environment and Culture 3 s.h.

Individual and group responses to scarcities of natural resources such as land, water, food. Requirements: ANTH:1101 (113:003) or ANTH:2100 (113:010) or graduate standing.

ANTH:3107 (113:109) Literature and Anthropology 3 s.h.

Topics vary. Same as ENGL:3107 (008:151), CL:3107 (218:151).

ANTH:3109 (113:135) Psychological Anthropology 3 s.h.

Cultural diversity in constructions of self, mind, and emotion; religious experience, altered states of consciousness, behavioral disorders. Prerequisites: ANTH:1101 (113:003).

ANTH:3110 (113:121) Health of Indigenous Peoples 3 s.h.

Health problems and services for indigenous populations worldwide, from perspective of Fourth World postcolonial politics. Prerequisites: ANTH:1101 (113:003). Same as AINS:3110 (149:121), GHS:3110 (152:121).

ANTH:3112 (113:114) Environmentalisms 3 s.h.

Alternative ways of conceptualizing the environment drawn from the ethnographic record worldwide; culturally constructed images of nature and their expression through daily activity and communicative media; inspiration for environmental activism; why such movements emerge, techniques they employ, factors that contribute to their success or failure. Prerequisites: ANTH:1101 (113:003).

ANTH:3113 (113:145) Religion and Healing 3 s.h.

Historical evidence of religious healing in Christian, Hindu, Buddhist, Native American, and Shaman traditions. Same as RELS:3580 (032:180), GHS:3113 (152:145).

ANTH:3114 (113:142) Anthropology of Religion 3 s.h.

Approaches; religious roles; shamanism, witchcraft, curing; mythology; place of religion in social and cultural change. Same as RELS:3714 (032:165).

ANTH:3116 (113:156) Fictionalized Ethnography in Literature and Film 3 s.h.

Evaluation of fictional narratives as sources of ethnographic information, instructive and revealing depictions of other societies and cultures; culturally specific themes through storylines, creative works as cultural artifacts in presentations of differing perspectives and concerns from the authors' personal experiences.

ANTH:3117 (113:136) Using Ethnographic Methods 3 s.h.

Ethnography, holistic, qualitative research in cultural context for anthropological and related research and careers involving interpersonal interaction; multiple ethnographic methods and their rationales. Recommendations: desire to interact with others, and prior course work in fields that employ ethnographic or qualitative research (social sciences, social work, nursing, public health).

ANTH:3118 (113:140) Politics of Reproduction 3 s.h.

Debates over women's reproductive experience, including its medicalization. Same as GWSS:3118 (131:144).

ANTH:3119 (113:154) Anthropology of Sexual Minorities 3 s.h.

Ethnographic studies of sexual minorities and anthropological approaches to lesbian, gay, bisexual, and transgendered persons and communities; behavior, identity, performativity, kinship, globalization, the HIV/AIDS pandemic. Requirements: junior, senior, or graduate standing. Same as GWSS:3119 (131:154).

ANTH:3127 (113:146) Anthropology of Death 3 s.h.

How anthropologists and archaeologists study death, dying, mortuary rituals, and notions of the afterlife in contemporary North America and in different places and times. Requirements: ANTH:1101 (113:003) or ANTH:1201 (113:012) or graduate standing.

ANTH:3130 (113:104) Cultural Politics 3 s.h.

Cultural politics involved in cultural representation; varied forms of cultural performance and display; social and power relationships between producers, consumers, represented subjects. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010).

ANTH:3131 (113:117) Anthropology and Human Rights 3 s.h.

Complex history and evolving relationship of anthropology and international human rights discourses; concept deployment of culture and rights in human rights ideas, practice, discourse, and as a form of global law. Prerequisites: ANTH:1101 (113:003) or ANTH:1201 (113:012) or ANTH:1301 (113:013) or ANTH:1401 (113:014).

ANTH:3133 (113:122) Anthropology of Race 3 s.h.

Anthropological perspectives on race: history of race in anthropology; social, cultural, and political dimensions of race; intersections with gender; biology of human diversity. Recommendations: introductory course in social sciences.

ANTH:3135 (113:155) Key Debates in Sociocultural Anthropology 3 s.h.

Historical overview of sociocultural anthropological theories, exploration of key moments of critical reflections, and e-assessment of discipline; highly recommended for anthropology majors with sociocultural emphasis. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010). Recommendations: anthropology major.

ANTH:3140 (113:141) Feminist Anthropology 3 s.h.

Development and evolution of feminist critiques in cultural anthropology; readings from early studies by women ethnographers, classic writings that sought to give women cross-cultural visibility, recent experimental texts. Same as GWSS:3140 (131:141).

ANTH:3141 (113:182) Women, Health, and Healing 3 s.h.

Women's experience as recipients and providers of health care; intersection of race, class, cultural variation, and women's health; reproductive and nonreproductive health concerns. Same as GWSS:3141 (131:143).

ANTH:3150 (113:123) Asian Diasporas in North America 3 s.h.

Examination of dynamics behind group identity and diverse expressions group identity (namely ethnicity); comparing and contrasting varied experiences of Asian diasporas in North America.

ANTH:3151 (113:151) The Anthropology of the Beginnings and Ends of Life 3 s.h.

Examination of diverse understandings of birth and death, drawing on anthropological analysis of personhood, kinship, ritual, and medicine; how social inequality and new technologies shape human experience at life's margins. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010). Same as ASP:3151 (153:151), GHS:3151 (152:156).

ANTH:3152 (113:152) Anthropology of Caregiving and Health 3 s.h.

Diverse understandings and practices of care around the world; focus on relationships between caregiving practices and health across the life course. Same as ASP:3152 (153:152), GHS:3152 (152:149).

ANTH:3300 (113:105) Mothers and Motherhood 3 s.h.

Treatment of motherhood; role of motherhood and devaluation of social status. Same as GWSS:3300 (131:142).

ANTH:4130 (113:139) Religion and Environmental Ethics 3 s.h.

How humans conceptualize the biophysical environment through religious beliefs and practices; how images of the environment influence people's activities, how they are used by grassroots environmental movements. Requirements: junior or senior standing. Same as RELS:4730 (032:130).

ANTH:4140 (113:133) The Anthropology of Women's Health 3 s.h.

How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology, public health. Prerequisites: ANTH:1101 (113:003). Same as CBH:5140 (172:133), GWSS:4140 (131:133).

Sociocultural Anthropology, Graduate

ANTH:5101 (113:240) Seminar Sociocultural Anthropology 3 s.h.

Social institutions in the world's societies; problems in theory, method, interpretation. Requirements: graduate standing or undergraduate anthropology honors standing.

ANTH:5120 (113:222) Reading Transnational Feminist Theory 3 s.h.

Issues in transnational feminist scholarship, including colonialism, globalization, the nation-state, religion, cultural traditions, and human rights, in global and U.S. domestic contexts; interdisciplinary readings with focus on anthropology, other social sciences. Same as GWSS:5120 (131:222).

ANTH:5130 (113:242) Food, Culture, and Social Theory 3 s.h.

Comparative and ethnographic approach to study of food and eating; intersections between social roles and meanings of food, political economies of food, and impact of food on bodies and well-being.

ANTH:6107 (113:250) Seminar: Ritual and Performance 3 s.h.

Approaches to comparative study of ritual in religious and secular contexts.

ANTH:6115 (113:202) Ethnographic Field Methods 3 s.h.

Basic data-gathering techniques for field research in sociocultural anthropology. Same as CBH:6115 (172:202).

ANTH:6117 (113:251) Seminar: Resistance in Theory and Practice 3 s.h.

Various forms of political resistance, some bold and dramatic (peasant rebellions), others more subtle and mundane (dissimulation, false compliance, pilfering); some resistance is symbolic (millenarian movements, rituals of conflict, status reversal); learning to recognize and attend to more subtle forms.

ANTH:6125 (113:221) Seminar: Feminist Ethnography 3 s.h.

Feminist critiques of traditional ethnographies; informed by contemporary feminisms. Same as GWSS:6125 (131:245).

ANTH:6141 (113:274) Medical Anthropology and Social Theory 3 s.h.

How medical anthropology has both responded and contributed to key theoretical developments in recent decades, such as discourse/narrative analysis, practice theory, feminist theory, postcolonial theory, science and technology studies.

ANTH:6310 (113:290) Anthropology of Science, Technology, and Gender 3 s.h.

Science and technology done in particular social and structural contexts; theoretical approaches for understanding cultures of science and social uses of technology; focus on gender-related aspects of real world cases. Recommendations: graduate standing in any discipline with interest in understanding cultural context of scientific practice. Same as GWSS:6310 (131:290).

ANTH:6632 (113:248) Crossing Borders Proseminar arr.

Same as HIST:6632 (016:244), POLI:6632 (030:243), GEOG:6632 (044:287), GRMN:6632 (013:260), SPAN:6903 (035:271), CINE:6632 (048:244).

ANTH:6635 (113:247) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).

Archaeology, Lower-Level Undergraduate

ANTH:2205 (113:168) Archaeological Methods 3 s.h.

Current theoretical approaches, methods used to investigate the past; site formation processes, taphonomy, sampling and research design, typology and seriation, subsistence-settlement reconstruction, cultural evolution. Prerequisites: ANTH:1201 (113:012).

ANTH:2216 (113:157) Foodways and Cuisine in the Past 3 s.h.

Anthropological and archaeological perspective on cuisine; present-day links between food and culture; past cuisines viewed through written documents and archaeological data; histories of different foods.

ANTH:2220 (113:163) Archaeology of Mesoamerica 3 s.h.

Archaeological data related to the evolution of civilization in Mesoamerica; sequence from hunter-gatherers to A.D. 1519; emphasis on Central Mexico, Maya area, Oaxaca.

ANTH:2261 (113:113) Human Impacts on the Environment 3 s.h.

Long-term patterns of human-environment interactions surveyed through archaeological case studies; varied scales of human impacts, including animal extinction, habitat destruction, agricultural practices, urban growth, state-level societies. GE: International and Global Issues; Social Sciences.

ANTH:2290 (113:162) Practicum in Archaeology arr.

Intensive, hands-on examination of a wide range of materials recently recovered from archaeological sites; pottery, lithics (stone tools and related items), plant remains, animal bones; for students with strong archaeological interests or archaeological field experience.

Archaeology, Upper-Level Undergraduate and Graduate**ANTH:3205 (113:161) Prehistoric People of the Ice Age** 3 s.h.

Hominid occupation of Old World during Pleistocene; hominid fossils, artifacts, settlement patterns, climatic reconstruction, evolutionary processes; survey and evaluation. Prerequisites: ANTH:1201 (113:012) and ANTH:2205 (113:168).

ANTH:3206 (113:174) Seminar: Taphonomy 3 s.h.

Taphonomy (study of fossil record in paleontology and archaeology); processes for accumulation, modification, and deposition of remains in prehistory; instruction by archaeologist and paleontologist. Requirements: graduate standing. Same as EES:3206 (012:174).

ANTH:3207 (113:158) Animal Bones in Archaeology 3 s.h.

Use of faunal material in interpretation of archaeological remains, including skeletal anatomy, identification, taphonomy, determination of age and sex, seasonality, quantification, sampling, breakage and cutmarks, interpretations; laboratory sessions. Prerequisites: ANTH:1201 (113:012).

ANTH:3235 (113:197) The Stuff of Lives: Archaeology of the Material World 3 s.h.

Ways that archaeologists and anthropologists have approached their studies of the material world and the relationship between material culture and economics, social structure, and symbolism. Prerequisites: ANTH:1101 (113:003) or ANTH:1201 (113:012).

ANTH:3237 (113:124) Politics of the Archaeological Past 3 s.h.

How control over management of material remains of the ancient past, and representations of that past, intersect with the identity of diverse groups, including archaeologists, indigenous peoples, national governments, collectors, ethnic minorities and majorities, museum curators; struggles for control of the archaeological past at different scales (artifacts, skeletal remains, sites, imagery, narratives) and in different regions of the world. Same as MUSM:3237 (024:124).

ANTH:3238 (113:130) Archaeology of the Iberian Peninsula 3 s.h.

Introduction to archaeology of the Iberian Peninsula, from earliest human occupation through period of Romanization.

ANTH:3239 (113:150) Tribes and Chiefdoms of Ancient Europe 3 s.h.

Archaeology of European societies between the Mesolithic and Iron Age; how ideas about Europe's prehistoric past have been used for political purposes. Requirements: ANTH:1201 (113:012) or graduate standing.

ANTH:3240 (113:170) Cultural Resources Management Archaeology: Practice and Practicalities 3 s.h.

Cultural Resources Management (CRM) archaeology as the largest sector of archaeological research in the United States in terms of employment, funding, and field- and lab-related activity; investigate the past, navigate the complexities of compliance requirements from federal, state, and local regulations concerning historic preservation; introduction to the legal, procedural, and practical foundations of CRM archaeology; prepare students for employment by acquisition of skills from project planning through dissemination of results. Prerequisites: ANTH:1201 (113:012). Recommendations: completion of other anthropology, geography, history, or Native American studies courses.

ANTH:3241 (113:169) Lithic Analysis in Archaeology 3 s.h.

Archaeological issues examined and addressed with lithic data; use of lithic data to study the past, specific techniques applied. Requirements: ANTH:1201 (113:012) or graduate standing.

ANTH:3242 (113:188) Archaeology of the Middle East—Prehistory and Early History 3 s.h.

Overview of prehistoric and early historic archaeology of the Middle East; questions that underpin archaeological narrative for the region from its initial peopling through city-states and imperial formations. Recommendations: introduction to archaeology.

ANTH:3243 (113:195) Midwestern Archaeology 3 s.h.

Comparison of cultural adaptations utilizing regional archaeological data to develop an understanding of Midwestern lifeways through time; how prehistoric peoples relate to their modern descendants in the Midwest. Recommendations: introduction to prehistory.

ANTH:3255 (113:160) Introduction to Archaeological Ceramics 3 s.h.

Basic analytical techniques for archaeological ceramics, applied primarily to ceramics from midwestern and western North America; raw materials, manufacture, decoration and style, craft specialization, use, and discard. Prerequisites: ANTH:1201 (113:012).

ANTH:3256 (113:173) Household Archaeology and Anthropology 3 s.h.

Structure and activities of households today and in the past; what households tell us about the larger culture; how intangible aspects of households are studied through material remains. Prerequisites: ANTH:1101 (113:003) or ANTH:1201 (113:012) or ANTH:1301 (113:013) or ANTH:1401 (113:014) or ANTH:2100 (113:010).

ANTH:3257 (113:167) North American Archaeology 3 s.h.

Prehistoric cultural development north of Mexico from initial occupation to European contact and conquest; emphasis on dynamics of culture change. Same as AINS:3257 (149:167).

ANTH:3258 (113:159) Southwestern Archaeology 3 s.h.

Anthropological overview of prehistoric cultures of the American Southwest; emphasis on understanding archaeological arguments concerning major processes in the past. Same as AINS:3258 (149:159).

ANTH:3260 (113:179) Pleistocene Peopling of the Americas 3 s.h.

Major themes in earliest human settlement of the Americas, including human mobility, subsistence, technology, human impacts on the environment.

ANTH:3261 (113:111) Our Life With Dogs: The Anthropological Study of Animals in Human Societies 3 s.h.

Intricate connections between dogs and our social, economic, political, and spiritual lives; human relationships with dogs that extend back at least 16,000 years; process of dog domestication; roles dogs play in human ideology and past economies; modern interactions with dogs.

ANTH:3265 (113:181) Archaeology of the Great Plains 3 s.h.

Contrasting lifeways, diets, and technologies that humans used to survive on North America's Great Plains, from Ice Age hunter-gatherers to Euroamerican homesteaders.

ANTH:3275 (113:196) The Archaeology of Ancient Egypt 3 s.h.

Introduction to the archaeology of ancient Egypt from predynastic times to Roman Egypt, including monumental architecture; patterns of everyday life; social, economic, and demographic considerations; history of archaeology in Egypt. Same as CLSA:3596 (20E:196).

ANTH:3276 (113:192) Greek Archaeology and Ethnohistory 3 s.h.

Archaeology and ethnology of the Greek world, from end of Bronze Age to late Roman Empire; sociocultural processes that influence development and persistence of Greek civilization. Same as CLSA:3235 (20E:118).

ANTH:3277 (113:194) Roman Archaeology 3 s.h.

Archaeology and ethnology of Roman civilization from Iron Age eighth-century occupation of the Palatine Hill to the end of the Roman empire in the West, A.D. 476. Prerequisites: ANTH:1201 (113:012) or ANTH:1301 (113:013). Same as CLSA:3240 (20E:119).

ANTH:3282 (113:126) Animals, Culture, and Food 3 s.h.

The varied roles animals have played in human society through time; impact of humans on animal populations, ethical aspects of animals' roles in modern societies.

ANTH:3283 (113:187) Cultures in Collision 3 s.h.
Survey of archaeological evidence for differences in human interactions between two or more cultural groups; issues such as ethnicity, war, economy, repression, multiethnic communities.

ANTH:3290 (113:193) Special Topics in Archaeology 3 s.h.

ANTH:3295 (113:199) Field Research in Archaeology arr.

Beginning skills in site surveying and excavation, lab work, record keeping at nearby prehistoric sites.

ANTH:4205 (113:164) Rise of Ancient Civilization 3 s.h.

Cultural evolution in Old World, New World; emphasis on developments from pre-agricultural societies to appearance of urban civilizations; focus on Mesoamerica, Central Andes, Near East, Egypt, Indus Valley, China.

ANTH:4620 (113:189) Approaches to Geoarchaeology 3 s.h.

Geoarchaeology as multidisciplinary contextual framework for human paleoecology; natural processes that create the archaeological record, approaches to reconstructing landscapes of the past as a context for archaeological deposits; weekend field trip. Prerequisites: EES:3360 (012:136) or EES:4720 (012:172) or ANTH:3205 (113:161) or ANTH:4205 (113:164). Same as EES:4620 (012:185).

Archaeology, Graduate

ANTH:5201 (113:268) Seminar: Archaeological Theory and Method 3 s.h.

Development, current status of theory, method in Americanist archaeology. Requirements: graduate standing or undergraduate anthropology honors standing.

ANTH:6205 (113:178) Hunter-Gatherer Ethnoarchaeology 3 s.h.

Variability in adaptations of hunter-gatherers on a global scale; emphasis on subsistence, mobility, social organization; archaeological record of prehistoric hunter-gatherers interpreted through study of modern societies. Requirements: graduate standing.

ANTH:6230 (113:258) Seminar: Zooarchaeology 3 s.h.

Interpretation of faunal material in archaeology; intensive survey of classic and recent literature on taphonomy, skeletal anatomy, population parameters, seasonality, quantification and sampling, butchering patterns, ethnoarchaeology, social and economic inferences. Prerequisites: ANTH:3207 (113:158).

Biological Anthropology, Lower-Level Undergraduate

ANTH:2390 (213:195) Laboratory Methods in Biological Anthropology arr.

Specimen preparation, cataloging, moulding and casting, photography, computer analyses, library research.

Biological Anthropology, Upper-Level Undergraduate and Graduate

ANTH:3305 (213:190) Human Osteology 3 s.h.

The human skeletal system; normal and pathologic variation; skeletal measurement and analysis with application to paleoanthropology, forensic, and archaeological investigations.

ANTH:3306 (213:115) The Neanderthal Enigma 3 s.h.

Survey of Neanderthals as the most widely known, yet enigmatic, fossil human lineage; history of discoveries; current interpretations of Neanderthal's origins, anatomy and behavior, relationship to today's people, extinction.

ANTH:3307 (213:116) Modern Human Origins 3 s.h.

Current data and theories regarding the emergence of *Homo sapiens*; how human anatomical modernity is defined and recognized in the fossil record; competing models for modern humans' emergence—multiregional evolution, out of Africa, the assimilation model; interpretation of recent developments and discoveries in the human fossil record; contemporary contributions from genetics, developmental biology, evolutionary ecology, paleodemography.

ANTH:3308 (213:165) Human Variation 3 s.h.

Range and patterning of biological diversity in contemporary human populations; past and present attempts to organize and explain human genetic, morphological variation in light of recent data, theory.

ANTH:3310 (213:188) Primate Behavior and Ecology 3 s.h.

Systematics, anatomy, behavior, and ecology of living non-human primates; emphasis on adaptations and interactions of free-ranging primates as related to ecological constraints and conservation strategies.

ANTH:3322 (213:170) Primate Evolutionary Biology 3 s.h.

Principles of evolution, systematics, and biogeography; application to origin and diversification of primate order; emphasis on fossil evidence and biomolecular studies for phylogenetic interpretations.

ANTH:3325 (213:151) Human Evolutionary Genetics 3 s.h.

Application of molecular methods and theory to biological anthropology; how recent advances in genetics have provided insight into the evolution of human and nonhuman primates. Prerequisites: ANTH:1301 (113:013).

ANTH:3326 (213:153) Infectious Disease and Human Evolution 3 s.h.

Infectious disease as a central and important role in evolution of modern humans; impact of important infectious diseases on human history through primary literature. Recommendations: evolutionary theory background or interest. Same as GHS:3326 (152:157).

ANTH:3327 (213:154) Genes, Culture, and Human Diversity 3 s.h.

New perspectives in evolutionary theory on the origin of human biology and cultural diversity; principles borrowed from evolutionary thinking that provide insight into how cultures change, basis of human institutions, and gene-culture coevolution.

ANTH:3328 (213:155) Molecular Genetics of Human Disease 3 s.h.

Disease as an unfortunate, but unavoidable, aspect of human condition; genetic nature of disease that reveals origins of inherited disease; variation of disease across the globe. Recommendations: biology or genetics course to provide substantial background knowledge.

ANTH:3330 (213:187) Human Evolution in Africa and Eurasia 3 s.h.

Examination of human evolutionary past from early fossil apes to origin and diversification of hominin family and appearance of modern humans; emphasis on human evolution in Africa and dispersal through Eurasia.

ANTH:4315 (213:169) Human Evolutionary Anatomy 3 s.h.

Interpretation of skeletal remains as the basis for reconstructing forms, adaptations, lifestyles of prehistoric humans; body size, musculature, stance, activity patterns, brain size, and sexual dimorphism. Prerequisites: ANTH:3305 (213:190).

Biological Anthropology, Graduate

ANTH:5301 (213:285) Seminar: Biological Anthropology 3 s.h.

Physical anthropology, including heredity and genetics, evolutionary theory, human biological characteristics, primate and human fossil record, primate behavior and ecology, human adaptations. Requirements: graduate standing or undergraduate anthropology honors standing.

ANTH:6505 (213:288) Seminar: Paleoanthropology 3 s.h.

Current understandings of biocultural processes and events underlying Pleistocene human evolution; cross-disciplinary approach combining human paleontology and Paleolithic archaeology. Requirements: graduate standing or undergraduate honors standing or advanced undergraduate standing.

Linguistic Anthropology, Upper-Level Undergraduate and Graduate

ANTH:3415 (113:171) Multimedia Ethnography 3 s.h.

Skills and tools for using multimedia technologies in ethnographic research and presentations; students conduct research projects using audio and video recording equipment and develop media-based presentations; ethnographic emphasis on contextually situated social interaction. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010).

Linguistic Anthropology, Graduate

ANTH:5401 (113:271) Seminar: Linguistic Anthropology 3 s.h.

Fundamental concepts and methods employed in the anthropological study of language; principal areas of current research. Requirements: graduate standing or undergraduate anthropology honors standing.

ANTH:6410 (113:244) Seminar: Semiotics 3 s.h.

Piercian semiotic and Saussurean semiological conceptual frameworks; focus on anthropological, linguistic issues.

ANTH:6415 (113:273) Seminar: Language, Gender, and Sexuality 3 s.h.

Role of language and discourse in cultural constructions of gender identities and relations, including domination and subordination; theoretical perspective and methodological approaches that have shaped thought on the language/gender nexus. Same as GWSS:6415 (131:273), LING:6415 (103:221).

Individual Reading and Research, Upper-Level Undergraduate and Graduate

ANTH:3015 (113:183) Independent Study arr.

ANTH:4995 (113:186) Honors Research Seminar 2-4 s.h.

Preparation for writing honors thesis, including project conception and research, proposal writing, oral and written presentations of student research. Corequisites: ANTH:4996 (113:176) if not taken as a prerequisite. Requirements: honors standing in anthropology.

ANTH:4996 (113:176) Honors Research 2-4 s.h.
Project chosen in consultation with honors advisor.

Individual Reading and Research, Graduate

ANTH:6005 (113:383) Independent Study: Anthropology arr.

ANTH:6010 (113:384) Research: Anthropology arr.

ANTH:6015 (113:385) Thesis arr.

Art and Art History

Director

- John Beldon Scott

Professors

- Craig E. Adcock, Robert Bork, Chunghi Choo, John Dilg, Robert Glasgow, Ab Gratama, Sue E. Hettmansperger, Dorothy Johnson, Anita Jung, Joni L. Kinsey, Steve McGuire, Christopher Roy, John Beldon Scott, James Snitzer, Margaret Stratton, Wallace J. Tomasini, Kee-ho Yuen

Associate professors

- Isabel Barbuzza, Ronald M. Cohen, Monica Correia, Bradley Dicharry, David O. Dunlap, Laurel Farrin, Julie Hochstrasser, Brenda Longfellow, Barbara Mooney, Robert Rorex, Susan Chrysler White, Rachel Williams, Jon Winet

Assistant professors

- Björn Anderson, Peter Chanthanakone, Sarah Kanouse, Jeff Rich, Mathew Rude

Lecturer

- Vinicius Rebello Lima

Adjunct assistant professor

- Sean O'Harrow

Professors emeriti

- Keith Achepohl, Hans Breder, Richard De Puma, Peter Feldstein, Stephen Foster, Charles Hindes, Hung-shu Hu, Bunny McBride, Virginia Myers, Joseph Patrick, Howard Rogovin, Julius Schmidt, George Walker

Undergraduate majors: art (B.A., B.F.A.); art history (B.A.)

Undergraduate minors: art; art history

Graduate degrees: M.A. in art; M.F.A. in art; M.A. in art history; Ph.D. in art history

Web site: <http://www.art.uiowa.edu/>

The School of Art and Art History provides a creative, multidisciplinary environment for students of the studio arts and the history of art. Established in 1936, the school is firmly grounded in the College of Liberal Arts and Sciences. It encourages interaction among its diverse faculty as well as collaboration with related disciplines across campus.

Iowa's art and art history graduates enjoy success as practicing professional artists, professors of art history, teachers, museum directors and curators, theater designers, commercial designers, and art administrators.

The University of Iowa is restoring and replacing School of Art and Art History facilities that were damaged or destroyed by Iowa River flooding during summer 2008. Art Building West has reopened and once again houses the school's main office. Visit the School of Art and Art History web site and ISIS for information about studio, office, and classroom sites.

Studio Art

The studio art program is based on the idea that the philosophical issues of society that are questioned and interpreted by artists are the basis for an artist's work.

The diversity of concept and style among School of Art and Art History faculty members encourages students to seek and work toward a keen understanding of themselves as individuals capable of making their own personal statements as part of the philosophical continuum in art's history.

Studying the broad contexts in which art is made, understood, and used by society prepares studio art students to continue work in an academic setting as well as in museums, galleries, and a multiplicity of other venues. Graduate students are especially encouraged to examine the contexts of visual and verbal issues central to their own work and that of their contemporaries.

Undergraduate and graduate students select their major and minor studio art disciplines from ceramics, graphic design, three-dimensional (3-D) design, drawing, intermedia, jewelry and metal arts, painting, photography, printmaking, and sculpture.

Art History

Art history, a broad intellectual discipline, is central to the humanities. Diverse approaches characterize the school's art history faculty, who have interdisciplinary ties within and beyond the University. Their primary mission is to help students develop skills for exploring issues and problems central to the history of art as a whole as well as to its specialized areas. Because the major in art history stresses the development of critical visual thinking and analytical writing, it prepares students for graduate work in art history and for other professional fields as well.

Undergraduate Programs of Study

- Major in art (Bachelor of Arts, Bachelor of Fine Arts)
- Major in art history (Bachelor of Arts)
- Minor in art
- Minor in art history

Students interested in teaching art in elementary and/or secondary schools may apply to the Art Education Program; see "B.A. and B.F.A. with Teacher Licensure" below.

Students majoring in art begin their study as Bachelor of Arts students and may apply for admission to the B.F.A. program in a process called "clearance," usually during their third year; see "Bachelor of Arts: Art" and "Bachelor of Fine Arts: Art" below.

Bachelor of Arts: Art

The Bachelor of Arts with a major in art requires a minimum of 120 s.h., including at least 39 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in art for the B.A. provides a foundation in art history as well as an understanding of the formal traditions and contemporary practices in studio art. Students take courses in the school's studio art programs, including ceramics, graphic design, three-dimensional (3-D) design, drawing, intermedia, jewelry and metal arts, painting, photography, printmaking, and sculpture.

Bachelor of Arts students majoring in art may count a maximum of 56 s.h. earned in art and art history courses toward the degree; they must earn at least 64 s.h. of credit in courses outside the School of Art and Art History in order to graduate.

B.A. students with a double major in the school (e.g., a major in art and a major in art history) or a major and a minor in the school (e.g., a major in art and a minor in art history) must earn at least 56 s.h. of credit in courses outside the School of Art and Art History in order to graduate.

Students majoring in art begin their study in the Bachelor of Arts program. Those interested in pursuing concentrated work in a specific studio art discipline may apply for admission to the Bachelor of Fine Arts program through a process called "clearance," in which the faculty evaluates the student's readiness for B.F.A. study. Clearance usually takes place during the third year, but it may be conducted earlier or later, depending on the student's readiness.

The major in art for the Bachelor of Arts requires the following course work. Not all courses are offered every semester, including required courses. When planning their course work, students should consult their advisors and ISIS to determine when specific courses will be offered.

ART HISTORY

Two of these:

ARTH:1040 (01H:002) Arts of Africa	3 s.h.
ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I	3 s.h.
ARTH:1060 (01H:006) From Mona Lisa to Modernism: Survey of Western Art II	3 s.h.
ARTH:1070 (01H:016) Asian Art and Culture	3 s.h.

Additional art history courses:

Two art history courses not in the list above, excluding ARTH:1000 (01H:029), ARTH:1080 (01H:007), and ARTH:2975 (01H:099)	6 s.h.
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FOUNDATIONAL STUDIO ART

Both of these, taken before the 3-D and 2-D studio art courses:

ARTS:1510 (01A:003) Basic Drawing	3 s.h.
ARTS:1520 (01A:004) Design Fundamentals	3 s.h.

STUDIO ART 3-D COURSES

Two of these:

CERM:2010 (01C:060) Exploring Forms in Clay I	3 s.h.
INTM:2710 (01J:090) Intermedia I	3 s.h.
MTLS:2910 (01G:084) Introduction to Jewelry and Metal Arts	3 s.h.
SCLP:2810 (01N:015) Undergraduate Sculpture I	3 s.h.
TDSN:2210 (01T:021) Problems in 3-D Design I: Form and Structure	3 s.h.

STUDIO ART 2-D COURSES

Two of these:

DRAW:2310 (01F:007) Life Drawing I	3 s.h.
DSGN:2110 (01D:090) Graphic Design I	3 s.h.

PHTO:2510 (01L:036) Beginning Digital Photography	3 s.h.
PNTG:2410 (01K:009) Painting I	3 s.h.
PRNT:2610 (01M:011) Introduction to Printmaking	3 s.h.

UPPER-LEVEL STUDIO ART COURSES

Students must take two upper-level studio art courses. They may take both upper-level courses in the same studio art discipline or one upper-level course in each of two disciplines.

For studio art, any course beyond the introductory course in the discipline is considered upper-level. Introductory courses include CERM:2010 (01C:060) Exploring Forms in Clay I, DSGN:2110 (01D:090) Graphic Design I, DRAW:2310 (01F:007) Life Drawing I, MTL:2910 (01G:084) Introduction to Jewelry and Metal Arts, INTM:2710 (01J:090) Intermedia I, PNTG:2410 (01K:009) Painting I, PHTO:2510 (01L:036) Beginning Digital Photography, PRNT:2610 (01M:011) Introduction to Printmaking, SCLP:2810 (01N:015) Undergraduate Sculpture I, and TDSN:2210 (01T:021) Problems in 3-D Design I: Form and Structure.

REQUIRED ELECTIVES

School of Art and Art History elective courses must bring the total credit for the major in art to a minimum of 39 s.h.

Transfer Students

Transfer students should contact the undergraduate academic advisors for information about transfer portfolio review and specific course work that satisfies the requirements of the art major for the Bachelor of Arts. Students may count a maximum of 12 s.h. of approved transfer credit toward the B.A. major in art.

Study Abroad

Students who wish to study abroad must meet with the undergraduate advisor before they depart in order to confirm approval of the courses they plan to take.

Students who take studio art courses abroad must bring their artwork back to campus and must present it in a portfolio review, which determines whether the work satisfies a requirement for their major. The portfolio review is not required if the study abroad course was taught by a School of Art and Art History faculty member who gave the student a grade for the course.

Students who plan to take art history courses abroad must present the course syllabus to their advisor well in advance of their departure. The head of the art history program determines whether the study abroad course is equivalent to a course required for the major; if it is, the student is credited with fulfilling the requirement once he or she completes the course with a passing grade.

Bachelor of Fine Arts: Art

The Bachelor of Fine Arts with a major in art requires a minimum of 120 s.h., including 62 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in art for the B.F.A. provides a foundation in art history as well as an understanding of the formal traditions

and contemporary practices in studio art. It also includes a concentration in studio art.

B.F.A. students select one studio art discipline, choosing from ceramics, graphic design, three-dimensional (3-D) design, drawing, intermedia, jewelry and metal arts, painting, photography, printmaking, and sculpture. They may not select bookbinding, calligraphy, or papermaking as their studio art discipline. Although students may choose only one B.F.A. discipline, they gain exposure to other studio areas through the B.F.A. program of study.

Bachelor of Fine Arts students majoring in art may count a maximum of 62 s.h. earned in art and art history courses toward the degree; they must earn at least 58 s.h. of credit in courses outside the School of Art and Art History in order to graduate.

Students majoring in art begin their study in the Bachelor of Arts program. They may apply to the Bachelor of Fine Arts program after consulting with the faculty in the studio discipline of their choice. Students are admitted to the B.F.A. program through a process called "clearance," which is conducted once each semester; they must be admitted to the B.F.A. program at least one semester before they graduate. Students who wish to enter the B.F.A. program should consult the faculty in their major studio art discipline for information about the required portfolio review.

In order to sit for B.F.A. clearance, students must have completed:

the two studio art foundation courses ARTS:1510 (01A:003) and ARTS:1520 (01A:004);

one introductory course in the B.F.A. studio art discipline; and

two upper-level courses in the B.F.A. studio art discipline (students may be enrolled in the two upper-level courses when they sit for clearance).

For studio art, any course beyond the introductory course in the discipline is considered upper-level. Introductory courses include CERM:2010 (01C:060) Exploring Forms in Clay I, DSGN:2110 (01D:090) Graphic Design I, DRAW:2310 (01F:007) Life Drawing I, MTL:2910 (01G:084) Introduction to Jewelry and Metal Arts, INTM:2710 (01J:090) Intermedia I, PNTG:2410 (01K:009) Painting I, PHTO:2510 (01L:036) Beginning Digital Photography, PRNT:2610 (01M:011) Introduction to Printmaking, SCLP:2810 (01N:015) Undergraduate Sculpture I, and TDSN:2210 (01T:021) Problems in 3-D Design I: Form and Structure.

B.F.A. students complete all requirements for the B.A. major in art plus additional studio work. They also must present a show of their work through ARTS:4195 (01P:195) B.F.A. Exhibition before they graduate.

The art major for the Bachelor of Fine Arts requires the following work.

REQUIRED COURSES FOR THE BACHELOR OF ARTS

All course work required for the B.A. with a major in art; see "Bachelor of Arts: Art" above 39 s.h.

ADDITIONAL STUDIO ART FOR B.F.A. STUDENTS

All of these:

One introductory course and three upper-level courses in the student's studio art discipline

One introductory course and one upper-level course in a second studio art discipline

One introductory course and one upper-level course in a third studio art discipline

EXHIBIT

B.F.A. students must present a show of their work during the semester in which they graduate. Variations must be approved by the B.F.A. faculty advisor and academic advisors. The show must be advertised using flyers and other media. Students planning to graduate with honors in the art major may combine their honors project and their B.F.A. show. Students must meet with faculty and academic advisors to complete the required documentation before they present their show.

Transfer Students

Transfer students should contact the undergraduate academic advisors for information about transfer portfolio review and specific course work that satisfies the requirements of the art major for the Bachelor of Fine Arts. Students may count a maximum of 21 s.h. of approved transfer credit toward the B.F.A. major in art.

Study Abroad

Students who wish to study abroad must meet with the undergraduate advisor before they depart in order to confirm approval of the courses they plan to take.

Students who take studio art courses abroad must bring their artwork back to campus and present it in a portfolio review, which determines whether the work satisfies a requirement for their major. The portfolio review is not required if the study abroad course was taught by a School of Art and Art History faculty member who gave the student a grade for the course.

Students who plan to take art history courses abroad must present the course syllabus to their advisor well in advance of their departure. The head of the art history program determines whether the study abroad course is equivalent to a course required for the major; if it is, the student is credited with fulfilling the requirement once he or she completes the course with a passing grade.

Bachelor of Arts: Art History

The Bachelor of Arts with a major in art history requires a minimum of 120 s.h., including 45 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program.

Art history engages in problems of historical analysis and in interpretation of culture. The major in art history provides students with a strong liberal arts background and prepares them for competitive placement in graduate schools across the country. As students progress through the major, they become familiar with historical relationships between art objects and society, learn techniques of formal analysis, study patterns of patronage, and absorb methods for interpreting the meaning of paintings, sculptures, and architecture. In the course of their studies, art history majors develop their research abilities and writing skills.

Bachelor of Arts students majoring in art history may count a maximum of 56 s.h. earned in art and art history courses toward the degree; they must earn at least 64 s.h. of credit in courses outside the School of Art and Art History in order to graduate.

B.A. students with a double major in the school (e.g., a major in art history and a major in art) or a major and a minor in the school (e.g., a major in art history and a minor in art) must earn at least 56 s.h. of credit in courses outside the School of Art and Art History in order to graduate.

The major in art history requires the following course work.

ART HISTORY

All of these, taken before enrollment in courses numbered ARTH:2975 (01H:099) and above:

ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I	3 s.h.
ARTH:1060 (01H:006) From Mona Lisa to Modernism: Survey of Western Art II	3 s.h.
ARTH:1080 (01H:007) Writing About the Visual Arts	3 s.h.

One of these:

ARTH:1040 (01H:002) Arts of Africa	3 s.h.
ARTH:1070 (01H:016) Asian Art and Culture	3 s.h.

All of these:

ARTH:2975 (01H:099) Undergraduate Seminar in the History of Art (taken fall of junior or senior year)	3 s.h.
Three courses chosen from those numbered ARTH:2020 (01H:084) through ARTH:2920 (01H:066)	9 s.h.
Five upper-level courses chosen from those numbered ARTH:3000 (01H:100) through ARTH:4941 (01H:166)	15 s.h.

STUDIO ART

This course:

ARTS:1510 (01A:003) Basic Drawing	3 s.h.
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One of these:

ARTS:1520 (01A:004) Design Fundamentals	3 s.h.
CERM:2010 (01C:060) Exploring Forms in Clay I	3 s.h.
DRAW:2310 (01F:007) Life Drawing I	3 s.h.
MTLS:2910 (01G:084) Introduction to Jewelry and Metal Arts	3 s.h.
PNTG:2410 (01K:009) Painting I	3 s.h.
PRNT:2610 (01M:011) Introduction to Printmaking	3 s.h.
SCLP:2810 (01N:015) Undergraduate Sculpture I	3 s.h.

Transfer Students

Transfer students planning to major in art history should meet with the undergraduate advisor to discuss the requirements they may fulfill with transfer courses. Art history transfer courses must be reviewed by the head of the art history area to determine the student's placement in or exemption from required art history courses. Students

may count a maximum of 15 s.h. of approved transfer credit toward the major in art history.

Study Abroad

Students who wish to study abroad must meet with the undergraduate advisor before they depart in order to confirm approval of the courses they plan to take.

Students who plan to take art history courses abroad must present the course syllabus to their advisor well in advance of their departure. The head of the art history program determines whether the study abroad course is equivalent to a course required for the major; if it is, the student is credited with fulfilling the requirement once he or she completes the course with a passing grade.

Students who take studio art courses abroad must bring their artwork back to campus and present it in a portfolio review, which determines whether the work will satisfy a requirement for their major; the requirement is waived if the study abroad course was taught by a School of Art and Art History faculty member who gave the student a grade for the course.

B.A. and B.F.A. with Teacher Licensure

Art and art history majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the art or art history major and all requirements for graduation with a B.A. or B.F.A. degree. The TEP requires several College of Education courses and student teaching.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Contact the Office of Education Services in the College of Education for details.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A.: Art

Before the fifth semester begins: at least four courses in the major

Before the seventh semester begins: at least four more courses in the major (total of eight) and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least three more courses in the major (total of 11)

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.F.A.: Art

The Four-Year Graduation Plan is not available for the B.F.A. major in art. Students should work with their advisors to develop individual graduation plans.

B.A.: Art History

Before the fifth semester begins: at least four courses in the major

Before the seventh semester begins: at least four more courses in the major (total of eight) and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least three more courses in the major (total of 11)

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in art or in art history have the opportunity to graduate with honors in their major. Honors students in the School of Art and Art History must maintain a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.50 in their major. They also must complete an application to graduate with honors in the major.

Honors in art: In order to graduate with honors in the major, students majoring in art must complete a studio art project during the semester in which they plan to graduate. They must find a studio art faculty member willing to supervise their honors project; must display the completed project in a show; and must complete a title page, abstract, and CD of images for their project. They earn credit for the project by enrolling in ARTS:4190 (01P:190) Honors in Studio Art.

Honors in art history: In order to graduate with honors in the major, students majoring in art history must complete an honors project that includes an honors thesis during the semester in which they plan to graduate. Students have two options for completing the honors project.

Option 1: Students take two upper-level courses numbered 3000 or above, signing an honors contract with the professors to complete an extra project, such as an annotated bibliography, a supplemental paper or presentation, or a comparable project for each course. Then they enroll in a third upper-level course appropriate to their honors thesis topic, and they enroll in ARTH:3985 (01H:190) Honors Research in Art History with the same instructor (1 s.h.), for which they write an honors thesis of 5,000 to 7,000 words.

Option 2: Students research and write an honors thesis of 10,000 to 15,000 words under the direction of an art history faculty member, earning 3 s.h. of credit for the project by enrolling in ARTH:3985 (01H:190) Honors Research in Art History.

Art history students must have approval from their honors thesis advisor before they begin work on their thesis project. The thesis should conform to the Graduate College format for theses; see the Manual of Rules and Regulations of the Graduate College in the Graduate College section of the Catalog.

University honors: In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor: Art

The minor in art requires a minimum of 18 s.h. in art courses, including at least 15 s.h. earned in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may not count course work for the minor in art toward requirements for the major in art history, except ARTS:1510 (01A:003) Basic Drawing

Art courses that may be taken include ceramics, intermedia, jewelry and metalsmithing, sculpture, drawing, photography, painting, printmaking, and 3-D design. Two courses with the prefix ARTS are required and one art history course with the prefix ARTH may be included in the 18 s.h. required for the minor.

The minor in art requires the following course work.

ARTS:1510 (01A:003) Basic Drawing	3 s.h.
ARTS:1520 (01A:004) Design Fundamentals	3 s.h.
At least one introductory studio art 3-D course	
At least one introductory studio art 2-D course, except DSGN:2110 (01D:090)	
Additional introductory studio art courses or upper-level courses in the same studio art discipline(s) as the introductory 3-D and/or 2-D courses required for the minor	

Minor: Art History

The minor in art history requires a minimum of 15 s.h. in art history courses, including 12 s.h. earned in advanced courses taken at The University of Iowa. Courses numbered ARTH:2130 (01H:020) or above are considered advanced for the minor. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

Students earning a major in art and a minor in art history may not count course work for the minor in art history toward requirements for the major in art. But they may count one art history course required for the art major toward the requirements for the art history minor; they must consult with their advisors.

The minor in art history must include one survey course chosen from these:

ARTH:1040 (01H:002) Arts of Africa	3 s.h.
ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I	3 s.h.
ARTH:1060 (01H:006) From Mona Lisa to Modernism: Survey of Western Art II	3 s.h.
ARTH:1070 (01H:016) Asian Art and Culture	3 s.h.

Before registering for a course, students must complete all of the course's prerequisites.

Contact an undergraduate advisor in the School of Art and Art History for more information about how to meet the requirements for the minor.

Graduate Programs of Study

- Master of Arts in art
- Master of Fine Arts in art

- Master of Arts in art history
- Doctor of Philosophy in art history

The College of Education offers an M.A. program in art education; see Teaching and Learning (p. 814) in the Catalog.

Master of Arts: Art

The Master of Arts program in art requires a minimum of 38 s.h. of graduate credit. The degree is offered with emphases in the following studio art disciplines: ceramics, graphic design, three-dimensional (3-D) design, drawing, intermedia, jewelry and metal arts, painting, photography, printmaking, and sculpture.

M.A. students must hold a B.A. or B.F.A. in art equivalent to that offered by The University of Iowa. Undergraduate deficiencies, if any, may be made up concurrently with graduate study but do not count toward the graduate degree requirements.

The 38 s.h. of credit required for the M.A. includes at least 16 s.h. in a primary studio art emphasis; 8 s.h. in a secondary studio art emphasis chosen from one of the studio art disciplines listed above that offer at least 24 s.h. in courses; 3 s.h. in the history and theory of art, excluding readings and directed studies; and 3 s.h. in theory, history, criticism, or philosophy, earned in courses inside or outside of the school.

M.A. students undergo a division-wide review for M.A. candidacy by the faculty during their third semester in residence. All except painting and drawing students must submit a written artist's statement or M.A. thesis.

M.A. students in intermedia and 3-D design are required to write an M.A. thesis. They may earn 1 s.h. for writing a technical or substantial thesis by registering for ARTS:6000 (01A:302) M.A. Written Thesis, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward M.F.A. requirements. M.A. students in other studio art disciplines choose the M.A. thesis or nonthesis option in consultation with their area advisor.

Master of Fine Arts: Art

The Master of Fine Arts program in art requires a minimum of 60 s.h. of graduate credit. The degree is offered with thesis and with emphases in the following studio art disciplines: ceramics, graphic design, three-dimensional (3-D) design, drawing, intermedia, jewelry and metal arts, painting, photography, printmaking, and sculpture. Students must earn at least 24 s.h. of credit for the degree at The University of Iowa, including approved credit earned for the M.A. in art.

M.F.A. students must hold an M.A. in art equivalent to that offered by The University of Iowa. Transfer credit is decided by faculty review. Following completion of the M.A., students may be invited into the M.F.A. program.

The 60 s.h. of credit required for the M.F.A. includes at least 24 s.h. in a primary studio art emphasis; at least 12 s.h. in a secondary studio art emphasis selected from those listed above; 3 s.h. in art history and theory of art; and 3 s.h. in theory, history, criticism, or philosophy (if not already taken). Students must earn 8 s.h. in their primary studio art emphasis and 4 s.h. in their secondary studio art emphasis after being granted an M.A. in art.

All students must undergo an M.F.A. committee review. They also must complete a written thesis and possibly a studio thesis.

M.F.A. students may earn 1 s.h. for writing a technical or substantial thesis by registering for ARTS:7000 (01A:304) M.F.A. Written Thesis, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward M.F.A. requirements.

Master of Arts: Art History

The Master of Arts program in art history requires a minimum of 30 s.h. of graduate credit and is offered with thesis. M.A. students are expected to acquire a broad knowledge of art history and to become familiar with major periods and monuments of world art. They also become proficient scholars, receiving training in research methods and theory necessary for subsequent scholarship at the Ph.D. level.

M.A. students must maintain a g.p.a. of at least 3.50. Only one semester of academic probation is allowed. All M.A. candidates, including transfer students, must take at least 24 s.h. in residence at The University of Iowa.

M.A. students in art history must earn a grade of B or higher in semester-long courses numbered 3000 or above in five of the following 10 distribution fields: African (including Oceanic), architecture, Asian, ancient (3000 B.C.E. to 300 C.E.), medieval, Renaissance, Baroque, 18th- and 19th-century European, American (including pre-Columbian, Native American, and African American), and modern/contemporary. These courses must be taken after the B.A. is granted.

M.A. students must complete a substantial thesis that demonstrates their ability to conduct scholarly research and convey ideas in writing appropriately for the discipline and for the student's specialization field.

REQUIRED COURSES

M.A. students in art history must satisfactorily complete ARTH:6000 (01H:200) History and Methods during their first fall semester of enrollment and must register for an art history seminar in their first, second, and third semesters of enrollment.

They also must satisfactorily complete ARTH:6020 (01H:210) Art History Colloquium every semester that they are enrolled for 9 s.h. or more or are serving as teaching or research assistants. Students who are not employed as teaching or research assistants or are registered for less than 9 s.h. are strongly encouraged to attend the colloquium.

Courses outside the curriculum of the School of Art and Art History's art history division do not carry art history credit. Cross-referenced courses not taught by art history faculty members also do not carry art history credit.

DIRECTED STUDIES

Directed Studies [ARTH:6040 (01H:300)] is designed for graduate students who already have taken one or more advanced courses in a specific art history field. It provides students with an opportunity to work one-to-one with a professor to continue specific research interests developed in lecture courses or seminars, or on topics that eventually may be the subject of a thesis or dissertation. Directed Studies cannot be substituted for a lecture course already offered in the program. Students must discuss

their decision to take Directed Studies with the professor involved and have the professor's approval. The Directed Studies topic must be within the professor's range of expertise.

Students meet with their Directed Studies professor once a week. The hours of work and written assignments required for Directed Studies must be equal to a comparable regularly scheduled course. Directed Studies is not available through Guided Correspondence Study.

LANGUAGE REQUIREMENT

M.A. students must demonstrate proficiency in French or German by the end of their third semester. Proficiency is determined by a translation exam administered under the direction of the art history division. Credit earned in language courses does not count toward the degree.

M.A. COMMITTEE

The M.A. committee consists of the student's M.A. thesis advisor and two additional tenured or tenure-track faculty members in art history.

M.A. THESIS

M.A. students must complete a written thesis on a topic chosen from one of the 10 distribution fields (see "Master of Arts: Art History" above). Students register for and may count 3 s.h. of thesis credit toward graduation. Students choose an M.A. thesis advisor who specializes in their concentration field. Students who wish to concentrate in more than one field must work closely with faculty members in both fields.

FINAL EXAMINATION

The final examination constitutes an oral defense of the written M.A. thesis. The final examination meeting with the M.A. committee normally takes place toward the end of the student's last semester of course work.

Doctor of Philosophy: Art History

The Doctor of Philosophy program in art history requires a minimum of 72 s.h. of graduate credit. Ph.D. students are expected to acquire great breadth and depth of knowledge in the discipline of art history, achieve a high level of expertise in a specialized field, and demonstrate professional speaking and writing skills. The program provides them with scholarly challenges, research skills, and mentoring necessary for professional development and successful careers.

Ph.D. students must maintain a g.p.a. of at least 3.50. They may count a maximum of 38 s.h. of work completed for the M.A. toward the Ph.D., excluding credit earned in language courses. Students are allowed only one semester of academic probation.

To establish academic residency, doctoral students must be enrolled full-time (at least 9 s.h.) at The University of Iowa for two semesters beyond their first 24 s.h. of graduate study; or they must enroll for at least 6 s.h. in each of three semesters during which they hold an assistantship of one-quarter-time or more. Resident tuition is assessed for assistantship semesters and adjacent summer sessions.

Ph.D. students major in one of the following 10 distribution fields: African (including Oceanic), architecture, Asian, ancient (3000 B.C.E. to 300 C.E.), medieval, Renaissance, Baroque, 18th- and 19th-century European, American

(including pre-Columbian, Native American, and African American), and modern/contemporary. Students also minor in two fields. The first minor must be in an art history distribution field that is not contiguous with the major field; the second may be in any art history distribution field or in a relevant discipline outside of art history, subject to the faculty's approval.

Ph.D. students must complete a publishable dissertation that makes an original contribution to the art history discipline and demonstrates evidence of superior understanding of critical issues in the student's chosen specialization field.

For more detailed information, consult the Art and Art History Graduate Bulletin.

REQUIRED COURSES

Ph.D. students must satisfactorily complete ARTH:6000 (01H:200) History and Methods, even if they have completed a similar course at another institution (students who have completed the course for a master's degree or other previous work at Iowa are exempt). They must register for an art history seminar in their first three semesters of Ph.D. course work (or in their fifth, sixth, and seventh semesters of graduate study), before the Ph.D. readings course and comprehensive exam.

They also must satisfactorily complete ARTH:6020 (01H:210) Art History Colloquium every semester that they are enrolled for 9 s.h. or more or are serving as teaching or research assistants. Students who are not employed as teaching or research assistants or are registered for less than 9 s.h. are strongly encouraged to attend the colloquium.

Students may count up to 6 s.h. of credit earned for dissertation research toward the 72 s.h. required for the degree. Courses outside the curriculum of the School of Art and Art History's art history division do not carry art history credit.

DIRECTED STUDIES

Normally, a maximum of 6 s.h. earned in ARTH:6040 (01H:300) Directed Studies may be applied toward the semester-hour requirement for the Ph.D., although doctoral students may petition the art history faculty for permission to apply up to 9 s.h.

LANGUAGE REQUIREMENT

Students must demonstrate proficiency in French or German for admission to the Ph.D. program. They also must demonstrate proficiency in a second non-English language relevant to their research area by the end of their third semester of Ph.D. work or before their dissertation topic is approved. Proficiency is determined by a translation exam administered under the direction of the art history division. Credit earned in language courses does not count toward the degree.

PH.D. COMMITTEE

The Ph.D. committee consists of the student's dissertation advisor, who is responsible for the major field; two members responsible for the two minor fields; and at least two additional members. Of these five, four must be tenured or tenure-track faculty members from the art history division. One must be from outside the division and must be a member of the Graduate College faculty. When appropriate, committees may include additional members.

COMPREHENSIVE EXAMINATION

Upon completion of course requirements, the Ph.D. candidate takes three written comprehensive examinations. The major exam consists of six questions and lasts six hours; the two minor exams each consist of three questions and last three hours. The exams are taken on any three days within one week (Monday through Friday).

The scope of the comprehensive exams is determined in consultation with the candidate's degree committee supervisor and the committee members responsible for the two minor fields.

ORAL COMPREHENSIVE EXAMINATION

Within approximately two weeks of completing the three written exams, the candidate meets with his or her degree committee for the oral comprehensive examination, which concentrates on questions that arise from the written comprehensive exams.

DISSERTATION PROPOSAL

As soon as possible after completing the comprehensive examinations, the candidate submits a dissertation proposal to his or her degree committee supervisor and subsequently to the degree committee. The committee meets as a group with the candidate to discuss the dissertation proposal and to offer comments and suggestions. (The proposal must be submitted to the committee at least two weeks before the approval meeting.) The proposal includes a 1-2 page abstract, a 10-15 page précis (including a review of the state of the field), and a bibliography.

After the proposal has been approved by the committee, the candidate circulates an abstract to the entire art history faculty. He or she must give a public presentation on the dissertation topic no later than the end of the semester following the degree committee's approval. The presentation is scheduled with the head of art history.

FINAL EXAMINATION

Upon completing a dissertation, which constitutes an original scholarly contribution to the field, the candidate meets with the Ph.D. committee for an oral defense of the dissertation. The oral defense constitutes the final examination for the Ph.D. The successful completion of this examination normally marks the last stage in the candidate's fulfillment of requirements for the degree.

Admission

Prospective graduate students must meet the School of Art and Art History's admission requirements for the specific degree programs they plan to enter. Prospective students must submit application materials to the University's Office of Graduate Admissions and to the specific program they wish to enter. Program-specific application requirements and deadline dates are listed in the appropriate sections below.

All applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants to all art and art history graduate programs must submit the following to the University's Office of Graduate Admissions: a completed graduate application form (one area of interest must be specified on the form);

an official copy of all transcripts of undergraduate and/or graduate work completed by the application date; TOEFL scores (if applicable); and the required application fee. Art history applicants also must submit Graduate Record Examination (GRE) scores.

Applicants whose first or official language is not English and whose previous academic degrees were not earned at an English-language institution must score as follows on the Test of English as a Foreign Language (TOEFL): for studio art applicants, at least 81 (Internet-based); for art history applicants, at least 100 (Internet-based).

Deadline dates for submission of materials to the Office of Graduate Admissions are December 15 for art history programs and February 1 for studio art programs, for fall admission.

The Office of Graduate Admissions notifies all applicants by mail of admission decisions. Acceptance notification cannot be given over the phone by either the admissions office or the School of Art and Art History.

M.A. and M.F.A.: Art

Applications to the M.A. and M.F.A. programs in studio art, with all supporting materials and requests for financial aid, must be received by the School of Art and Art History graduate program coordinator and the Office of Graduate Admissions by February 1 for fall admission.

In addition to materials submitted to the Office of Graduate Admissions (see "Admission" above), applicants must submit the following materials to the graduate program coordinator at the School of Art and Art History: a one-page statement of purpose, official transcripts for all undergraduate and graduate work completed by the application date, three letters of recommendation assessing potential as a graduate student, application for graduate awards (if desired), and application for graduate scholarships and fellowships (if desired). They also must submit one of the following portfolios (portfolios are returned by mail only to applicants who supply return postage).

Portfolio requirements for image files: Images in the portfolios should be JPEG files in RGB format submitted on CDs or flash drives. Image size should be a maximum of 72 DPI and 1240 by 1240 pixels. File size must not exceed 1 MB. Image files must be numbered according to the order in which they are to be presented to the Admissions Committee, beginning with 01. Each portfolio must be accompanied by a list that includes each image's name, title, medium, size, approximate date of work, and the student's name and emphasis.

Portfolio contents and submission requirements are as follows.

Ceramics, 3-D design, and jewelry and metal arts: a CD or flash drive containing eight images in the primary studio art emphasis and two in a second emphasis. Submissions must conform to specifications stated under "Portfolio requirements for image files" above.

Graphic design: a PDF containing documentation of 15 to 20 projects. Applicants should include a brief description of each work, illustrated with embedded still images and supplemented by links to online media e-mailed to the graduate program coordinator. The precise number of images varies according to the nature of the work; contact the School of Art and Art History with questions.

Submissions must conform to specifications stated under "Portfolio requirements for image files" above.

Intermedia: a PDF containing documentation of 5 to 10 projects. Applicants should include a brief description of each work, illustrated with embedded still images and supplemented by links to online media e-mailed to the graduate program coordinator. The precise number of images varies according to the nature of the work; contact the School of Art and Art History with questions. Submissions must conform to specifications stated under "Portfolio requirements for image files" above.

Painting and drawing: eight images in the primary studio art emphasis and two in a second emphasis, submitted on a CD or flash drive or attached to an e-mail. Applicants who use e-mail should send their images to the graduate program coordinator. Submissions must conform to specifications stated under "Portfolio requirements for image files" above.

Photography: a CD or flash drive containing 20 images in photography and two or three images in a second emphasis. Submissions must conform to specifications stated under "Portfolio requirements for image files" above.

Printmaking: a CD or flash drive containing 10 to 20 images, including a selection of four to six original printed works, sent in a returnable portfolio. Submissions must conform to specifications stated under "Portfolio requirements for image files" above.

Sculpture: a CD or flash drive containing 20 images in sculpture, including details, and two or three images in a second emphasis. Submissions must conform to specifications stated under "Portfolio requirements for image files" above.

Extreme care is taken in handling all portfolios, but the school cannot be responsible for reimbursement in the event of loss or damage.

Applications and all supporting materials are reviewed by a committee of art and art history faculty members from the appropriate area.

M.A.: Art History

Applications to the M.A. program in art history, with all supporting materials and requests for financial aid, must be received at the School of Art and Art History and the University's Office of Graduate Admissions by December 15 for fall admission in the following year.

Applicants must hold a bachelor's degree, preferably in art history or a related field.

Although exceptions may be made when other components of the application are strong, applicants should have a combined verbal and quantitative score of at least 300 and an analytical writing score of at least 5 on the Graduate Record Exam (GRE) General Test; and an undergraduate g.p.a. of at least 3.25 on a 4.00 scale.

In addition to materials submitted to the Office of Graduate Admissions (see "Admission" above), the following materials must be submitted to the graduate program coordinator at the School of Art and Art History: transcripts from all colleges and universities the applicant has attended; three letters of recommendation assessing the applicant's potential for graduate study in art history (sent by the person making the recommendation); and a research paper (preferably from an art history course) or

undergraduate thesis that demonstrates the applicant's potential to undertake research in art history.

Applicants also must submit a 1,000-word personal statement describing their intellectual development, academic interests, and career goals; the statement must name the University of Iowa faculty member under whose guidance the applicant hopes to work and tell how that faculty member's area of expertise, or how the art history program, is especially suited to the applicant's interests and goals.

Applicants to graduate programs in art history should consult the Art and Art History Graduate Bulletin on the School of Art and Art History web site.

Ph.D.: Art History

Applications to the Ph.D. program in art history, with all supporting materials and requests for financial aid, must be received at the School of Art and Art History and the Office of Graduate Admissions by December 15 for fall admission in the following year.

Applicants must hold an M.A. in art history or a related graduate degree and must be able to demonstrate proficiency in French or German. Proficiency in a second non-English language relevant to the student's research area is required by the end of the third semester of Ph.D. work; see "Language Requirement" under "Doctor of Philosophy in Art History" above.

Although exceptions may be made when other components of the application are strong, applicants should have a combined verbal and quantitative score of at least 300 and an analytic writing score of at least 5 on the Graduate Record Exam (GRE) General Test; and a graduate g.p.a. of at least 3.50 on a 4.00 scale.

Students who completed an M.A. at The University of Iowa and who wish to apply for entrance into the Ph.D. program must make a formal application for change of status through the graduate program coordinator. Applications are evaluated in the context of the entire applicant pool.

In addition to materials submitted to the Office of Graduate Admissions (see "Admission" above), the following materials must be submitted to the graduate program coordinator at the School of Art and Art History: transcripts from all colleges and universities the applicant has attended; three letters of recommendation, including one from the applicant's M.A. thesis supervisor, assessing the applicant's potential for doctoral study in art history (sent by the person making the recommendation); and a copy of an M.A. thesis or other substantial M.A. research paper.

Applicants also must submit a 1,000-word personal statement describing their purpose in pursuing graduate studies and their intellectual development, academic interests, and career goals; the statement must name the University of Iowa faculty member under whose guidance the applicant hopes to work and how that faculty member's area of expertise, or the art history program, is especially suited to the applicant's interests and goals.

Applicants to graduate programs in art history should consult the Art and Art History Graduate Bulletin on the School of Art and Art History web site.

Financial Support

Fellowships, teaching assistantships, research assistantships, and tuition scholarships are awarded to graduate students on the basis of artistic and/or scholarly record.

Presidential Graduate Fellowships

The Graduate College awards Presidential Graduate Fellowships on the basis of a University-wide competition among incoming Ph.D. students. For information about the fellowships, including nomination and selection criteria and stipends, see Presidential Graduate Research Fellowship on the Graduate College web site.

Dean's Graduate Fellowships

The Graduate College awards Dean's Graduate Fellowships on the basis of a University-wide competition among graduate students. Criteria for the fellowships are similar to those for the Presidential Graduate Fellowship but are designed to support incoming students who are underrepresented in graduate education. For more information, see Dean's Graduate Research Fellowship on the Graduate College web site.

Iowa Arts Fellowships

The Graduate College awards Iowa Arts Fellowships to two incoming or first-year studio art graduate students each year. For more information, see Iowa Arts Fellowship on the Graduate College web site.

Teaching and Research Assistantships

Assistantships are awarded to graduate students on the basis of academic record, promise as scholars or artists, and demonstrated ability to do the job. Quality of performance in one's graduate program at Iowa is generally the major criterion for awarding teaching assistantships. The number of hours of work required depends on the amount of the award.

Scholarships and Fellowships

The School of Art and Art History offers a variety of scholarships and fellowships made possible by contributions from alumni who wish to support promising artists and scholars. These awards are made on the same basis as teaching and research assistantships.

Information and application materials for graduate scholarships and fellowships are included in the admissions package. They also are available from the School of Art and Art History main office.

Renewal or reappointment for fellowships and assistantships depends on adequate progress toward the degree (graduate students must accumulate at least 18 s.h. of graduate credit each calendar year and maintain a grade-point average above the required minimum) and satisfactory performance of assistantship duties.

Decisions on assistantships and financial aid generally are made during the latter part of the spring semester for the following academic year. Applications and all relevant materials should be on file by February 1.

Student Organizations

The undergraduate Art History Society and the graduate Art History Society sponsor activities for students. The Faculty/Graduate Student Art History Colloquium

meets five times each semester to focus on professional development and issues of broad interest in art.

Resources and Facilities

Reference Collections

The art library contains 100,000 volumes, an outstanding periodical collection, and an extensive microfilm and microfiche archive.

The school's Office of Visual Materials contains a rapidly growing collection of 325,000 slides, 30,000 digital images, 350,000 35mm slides, 30,000 mounted photographs, and a video collection.

Museum of Art

The University of Iowa Museum of Art has a significant permanent collection that includes major holdings of 20th-century and contemporary art, African and pre-Columbian art, English and American silver, European and American prints, drawings and photographs, and Etruscan, Iranian, and contemporary American ceramics. As well as serving as a resource for research in a wide variety of art history areas, the museum offers a program of exhibitions, lectures, and recitals.

Due to the Iowa River flooding during summer 2008, the museum's collections are being displayed and its events are being held in a variety of other facilities. Learn about current exhibitions and events, and their locations, by visiting the Museum of Art web site.

Interdisciplinary Resources

Colloquia, visiting artists and lecturer programs, and graduate workshops bring visitors to the School of Art and Art History and provide open forums for discussion of issues in art and scholarship.

Among the school's major assets is the Project for the Advanced Study of Art and Life in Africa (PASALA), an interdisciplinary program that brings together faculty with international reputations in art history, anthropology, film, history, and literature to offer courses and independent study of art in West, Central, East, and South Africa. The result is a program of unusual breadth and depth of expertise. PASALA is among the most active of such programs in the country, organizing international symposia that discuss significant topical issues and publishing the proceedings in regular issues of *Iowa Studies in African Art*. PASALA offers scholarships and support for research in Africa and dissertation preparation to outstanding students. A major resource for PASALA is the UI Museum of Art's Stanley Collection of African Art. Visit Art & Life in Africa to learn more.

Art history participates in the University's Crossing Borders program, which offers major financial support to designated graduate student fellows whose dissertation topics involve multiple foreign language areas. Fellows take team-taught seminars in a range of disciplines, with focus on interactions across cultural, regional, or national divides. They help plan an annual convocation, at which they and invited lecturers present their research.

The School of Art and Art History affiliates with the Department of American Studies (p. 44), giving students opportunities to study not only the history of American art but a variety of interdisciplinary programs in American history, literature, and politics. The school also is linked

to the Medieval Studies (p. 482) Program, which offers an undergraduate certificate and courses in the history, literature, and culture of the Middle Ages.

Art Buildings

The University of Iowa is restoring and replacing School of Art and Art History facilities that were damaged or destroyed by Iowa River flooding during summer 2008. The school's administrative center, Art Building West, has reopened and once again is home to the school's main office as well as the Office of Visual Materials, the Art Library, an auditorium, art history classrooms, a gallery, a café, and studios for graphic design, painting, animation, and digital photography. Designed by architect Steven Holl, Art Building West has won numerous awards for its innovative design, including the 2007 American Institute of Architects Honor Award for Architecture.

Studio classrooms are temporarily housed in the Studio Arts Building, on Iowa City's south side, and planning is under way for permanent facilities to be built close to Art Building West. Visit the School of Art and Art History web site and ISIS for information about studio, office, and classroom sites.

Courses

Art History, Lower-Level Undergraduate

ARTH:1000 (01H:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

ARTH:1010 (01H:001) Art and Visual Culture 3 s.h.

Developments in Western art history from prehistoric times (ca. 25000 B.C.E.) to present; key monuments in architecture, painting, and sculpture in their wider cultural contexts; 19th- and 20th-century new media (i.e., photography). GE: Historical Perspectives; Literary, Visual, and Performing Arts.

ARTH:1020 (01H:004) Masterpieces: Art in Historical and Cultural Perspectives 3 s.h.

Masterpieces of Western art—how to look at, think about, and understand some of the worlds' most exciting works of architecture, painting, and sculpture; their construction, hidden meanings, historical content, and their meanings today. GE: Literary, Visual, and Performing Arts.

ARTH:1030 (01H:008) Themes in Global Art 3 s.h.

Key themes in art from a global perspective; propaganda and power, social functions of art, word and image, ritual and body decoration, artistic exchange, religion.

ARTH:1040 (01H:002) Arts of Africa 3 s.h.

Arts, artists, and cultures of Africa; sculpture, paintings, pottery, textiles, architecture, human adornment. GE: International and Global Issues; Literary, Visual, and Performing Arts.

ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I 3 s.h.

Survey to foster development of critical skills in thinking and writing about visual culture, and to familiarize students with broad outlines of artistic development in the Western tradition, from prehistory through later Middle Ages; aesthetic qualities of artworks, relationship between style, function, and meaning. GE: Historical Perspectives; Literary, Visual, and Performing Arts.

ARTH:1060 (01H:006) From Mona Lisa to Modernism: Survey of Western Art II 3 s.h.

Survey of the Western world's visual arts from Renaissance (ca. 1400) to present; major movements and principal masters of Western Europe and the United States in their social and historical contexts; focus on stimulation of visual literacy and familiarity with outstanding cultural monuments. GE: Historical Perspectives; Literary, Visual, and Performing Arts.

ARTH:1070 (01H:016) Asian Art and Culture 3 s.h.

Art from India, China, and Japan in many media and forms, in their cultural and historical contexts; cultural distinctions of these Asian civilizations as seen through the visual arts; chronology used to highlight historical processes and provide perspectives on continuity and change. GE: Historical Perspectives; Literary, Visual, and Performing Arts. Same as CHIN:1070 (039:016).

ARTH:1080 (01H:007) Writing About the Visual Arts 3 s.h.

Opportunity to develop understanding of and skill in using visual-arts writing conventions and linguistic competencies that are necessary for academic and professional success; formats such as exhibition reviews, art criticism, research writing, artist's statements; experience through exercises, formal essays, revision, workshops. Requirements: fulfillment of General Education rhetoric requirement.

ARTH:1090 (01H:009) Earthly Paradises: A Global History of Gardens 3 s.h.

Fundamental and universal question—what is the relationship between humanity and nature; how ornamental garden has functioned as a metaphor for paradise across time and among diverse cultures; basic tools to analyze any landscape design; how artful manipulation of nature has served to express various political, religious, and social ideals across the globe; comprehensive and chronological survey of garden design development. GE: Historical Perspectives.

ARTH:2020 (01H:084) Introduction to Western Architecture 3 s.h.

Overview of monuments, Neolithic period to present; aesthetic and structural principles, major styles, architects.

ARTH:2030 (01H:086) Introduction to American Architecture 3 s.h.

Characteristics of American public, domestic, and industrial architecture as evolved from Native American contact period to present; visual features of American-built environment and social, political, and economic factors that shaped development; design contributions of individual architects, impact of new technology, and growth of architectural profession.

- ARTH:2040 (01H:090) Introduction to Art and Religion** 3 s.h.
How religious and cult practices have influenced the shape of objects and monuments now considered superb examples of art and architecture; late antiquity to Renaissance; case studies; focus on initiation rituals.
- ARTH:2130 (01H:020) Introduction to African Architecture** 3 s.h.
Survey of African architecture, including structures throughout the continent ranging from rock-cut churches of Ethiopia to elaborately painted Ndebele homes of South Africa; four areas of African architecture (ancient, traditional, Islamic, contemporary); function, materials, and aesthetic choices of architecture and how they reflect social, religious, political, and economic situations of the people who constructed it.
- ARTH:2160 (01H:023) Introduction to Art and Life in Africa** 3 s.h.
Masks and sculpture; techniques used to create art (pottery, weaving, carving, brass casting, iron smelting and forging, architecture); videos of art used in performance and African artists creating art; readings of African novels, including *Things Fall Apart* by Nigerian novelist Chinua Achebe; daily life in Africa (farming, building houses, cooking, education, child rearing, funerals, religion) and other aspects of life that give context to art created by African artists.
- ARTH:2220 (01H:031) Introduction to the Art of China** 3 s.h.
Visual arts of China and their history; emphasis on understanding in context of Chinese civilization, history. Same as ASIA:2231 (039:028).
- ARTH:2250 (01H:033) Introduction to the Art of Japan** 3 s.h.
Chronological survey of Japan's visual arts in their historical and cultural contexts from Neolithic age to present; extensive use of slides, films, other visual materials. Same as JPNS:2250 (39J:033).
- ARTH:2320 (01H:026) Introduction to Ancient Art** 3 s.h.
Art and architecture of the Mediterranean world (ca. 3500 B.C.E.) to death of Constantine (337 C.E.); Egyptian, Cycladic, Minoan, Mycenaean, Greek, Etruscan, and Roman cultures; artistic responses to life and death; impact of breakthroughs in technology and engineering on visual culture; role of art in empire building; interrelationships of art, politics, religion. Same as CLSA:2226 (20E:026).
- ARTH:2330 (01H:027) Introduction to Egyptian and Ancient Near Eastern Art** 3 s.h.
Art and architecture of Egypt and the Near East (ca. 3500 B.C.E.) to advent of Islam; Egyptian, Sumerian, Assyrian, Babylonian, and Persian cultures; artistic responses to life and death; impact of breakthroughs in technology and engineering on visual culture; role of art in empire building; interrelationships of art, politics, and religion. Same as CLSA:2330 (20E:027).
- ARTH:2340 (01H:028) Introduction to Greek and Roman Art** 3 s.h.
Art and architecture of Greece and Rome (ca. 3000 B.C.E.) to death of Constantine (337 C.E.); Cycladic, Minoan, Mycenaean, Greek, Etruscan, and Roman cultures; artistic responses to life and death; impact of breakthroughs in technology and engineering on visual culture; role of art in empire building; interrelationships of art, politics, and religion. Same as CLSA:2340 (20E:028).
- ARTH:2420 (01H:040) Introduction to Medieval Art** 3 s.h.
Comprehensive survey of artistic traditions of Western Europe and Mediterranean Basin from roughly 300 to 1500; reign of Roman Emperor Constantine to lifetime of Christopher Columbus; complexity and diversity of cultural and artistic traditions that flourished in these so-called Middle Ages, where blending of Roman and northern legacies created European cultures from which we belong.
- ARTH:2520 (01H:047) Introduction to Italian Renaissance Art** 3 s.h.
Italian art, architecture from early Renaissance to 1600.
- ARTH:2620 (01H:053) Introduction to Baroque Visual Culture** 3 s.h.
Art, architecture in Europe from 1600 to 1700.
- ARTH:2730 (01H:062) Introduction to Nineteenth-Century Art** 3 s.h.
Major European artists, works, movements, aesthetic theories from late 18th century to 1900; works in their aesthetic, cultural, intellectual, political contexts; boundaries, definitions of movements (i.e., Neo-Classicism, Romanticism, Realism, Impressionism, Post-Impressionism, Symbolism).
- ARTH:2740 (01H:063) Introduction to Northern Renaissance Art** 3 s.h.
Northern European art between 1350 and 1600; the transition between the late Middle Ages and the Renaissance; artistic output of this period; development of critical thinking skills by exploring ways in which the Northern Renaissance has been defined with respect to Italian Renaissance and northern medieval traditions.
- ARTH:2820 (01H:073) Introduction to Modern/Contemporary Art** 3 s.h.
Modern European and American painting, sculpture, and architecture from 1880 to present; major art movements of modern art history.
- ARTH:2920 (01H:066) Introduction to American Art** 3 s.h.
Survey of painting, sculpture, architecture, and photography in the United States from colonial era to mid-20th century; how the new country grappled with creating a visual culture unique to its own character and development; portraits, landscape paintings, sculpture, and architecture in an array of styles and media; circumstances of their creation, aspirations and preconceptions of their makers, perspectives of their audiences. Recommendations: ARTH:1060 (01H:006). GE: Historical Perspectives; Literary, Visual, and Performing Arts.
- ARTH:2975 (01H:099) Undergraduate Seminar in the History of Art** 3 s.h.

Characteristic problems, methodological issues, critical thinking and writing. Offered fall semesters. Requirements: art history major.

Art History, Upper-Level Undergraduate and Graduate

An introductory course in the appropriate art history area or consent of instructor is prerequisite for some courses numbered above 3000. Courses titled "Themes in ..." consider topics of current interest in the field, organized thematically rather than chronologically.

ARTH:3000 (01H:100) Digital Approaches to Art History I 3 s.h.

Digital approaches to study of art history; emphasis on cultural identity.

ARTH:3020 (01H:157) Paris and the Art of Urban Life 3 s.h.

City of Paris examined in varied historical, artistic, cultural contexts; interdisciplinary. Same as FREN:3030 (009:130).

ARTH:3030 (01H:183) History of Prints 3 s.h.

Printmaking as important art form, influential carrier of styles and iconography from area to area; focus on Europe; history of prints from prehistoric times to present.

ARTH:3080 (01H:180) Marketing, Promoting, Politicking Contemporary Public Art 3 s.h.

How public art projects are conceived, created, and paid for; projects sponsored and funded by federal, state, and local governments and private businesses 1960 to present; projects' operational structures, how artists are selected; Vietnam Veterans Memorial, Serra's *Tilted Arc*, recent projects. Same as MUSM:3080 (024:181).

ARTH:3056 (01H:143) Italian Baroque Visual Culture 3 s.h.

Visual culture of 17th-century Italy contextualized; major media (painting, sculpture, architecture) by leading artists (Bernini, Borromini, Caravaggio, Cortona); full range of material culture, including minor and decorative arts; use of imagery by individual and institutional patrons for the persuasive purpose of political and social advancement; ideological utility of art as a recurring theme, underscoring the Baroque antecedents of media manipulation of our own time.

ARTH:3070 (01H:145) Themes in Baroque-Era Art 3 s.h.

Topics and themes in baroque-era art.

ARTH:3085 (01H:177) Principles of Historic Preservation of the Built Environment 3 s.h.

Overview of practical and theoretical principles of historic preservation of the built environment; hands-on fieldwork, archival research, and document preparation; evolution of historic preservation in America and its controversies.

ARTH:3090 (01H:186) Contemporary Architecture 3 s.h.

Quality of contemporary-built environments in America, Western Europe, Asia, and Middle East from 1970 to present; stylistic evolution of postmodern design, new urbanism, sustainable architecture; impact of literary and cultural theory on contemporary practitioners such as Daniel Libeskind, Steven Holl.

ARTH:3100 (01H:156) Themes in 18th- and 19th-Century European Art 3 s.h.

Themes and topics in 18th- and 19th-century European art.

ARTH:3120 (01H:105) Art of Pre-Columbian America 3 s.h.

Art and architecture of Mexico and Peru before Cortéz.

ARTH:3130 (01H:104) American Indian Art 3 s.h.

Sculpture, painting, architecture, crafts, arts of personal adornment of native peoples of North America. GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity.

ARTH:3150 (01H:107) Art of West Africa 3 s.h.

How art is used to solve problems and mark important passages in life.

ARTH:3160 (01H:108) Themes in African Art 3 s.h.

Survey of African architecture includes structures throughout the continent ranging from the rock-cut churches of Ethiopia to the elaborately painted Ndebele homes of South Africa; four areas of African architecture: ancient, traditional, Islamic, contemporary; function, materials, and aesthetic choices of the architecture and how these reflect the social, religious, political, and economic situations of the people who constructed it.

ARTH:3161 (01H:109) Themes in Ancient Art 3 s.h.

Themes and topics in ancient art.

ARTH:3170 (01H:116) The Art of Central Africa 3 s.h.

Artistic production and media in Central Africa categorized by geographies but examined from perspectives of innovation, power, gender, performance, ancestry, religious beliefs, technology, death, and the body; breadth of Central Africa's artistic production, art history, and terminology; 20th-century debates around African art.

ARTH:3197 (01H:174) Themes in Modern and Contemporary Art 3 s.h.

Topics and themes in modern and contemporary art.

ARTH:3220 (01H:119) Chinese Art and Culture 3 s.h.

Archaeological discoveries, sculpture, painting, architecture, calligraphy, other arts of Greater China area in historical and cultural contexts of past 5,000 years. Prerequisites: ARTH:1060 (01H:006) or ARTH:2220 (01H:031). Same as ASIA:3219 (039:159).

ARTH:3230 (01H:120) Chinese Painting I: Pagodas and Palaces 3 s.h.

Early Chinese painting from fourth century B.C.E. through 14th century C.E.; figural style, religious art, emergence of landscape, other nonreligious subjects, interconnectedness of painting and calligraphy as fine arts. Same as ASIA:3220 (039:120).

ARTH:3240 (01H:191) Chinese Painting II 3 s.h.

History of painting in China during the Song Dynasty (960-1279 C.E.) and later; emphasis on art of later centuries to present time in its historical and cultural contexts.

ARTH:3260 (01H:123) Japanese Painting 3 s.h.

Japanese painting in its historical, cultural contexts; focus on developments of successive eras—religious art; narrative, other literary connections; Zen; decorative traditions; popular arts; Japan and the modern world. Same as JPNS:3260 (39):123).

ARTH:3270 (01H:124) Themes in Asian Art History 3 s.h.

Same as ASIA:3270 (039:131).

ARTH:3310 (01H:197) Celtic and Viking Art 3 s.h.

Art and architecture of Celts and Vikings from prehistory to Middle Ages.

ARTH:3320 (01H:110) Egyptian Art 3 s.h.

Sculpture, painting, architecture, and luxury arts from Pyramid Age to Death of Cleopatra. Same as RELS:3704 (032:104).

ARTH:3325 (01H:125) Kings, Gods, and Heroes: Art of the Ancient Near East 3 s.h.

Arts, kings, and cultures of Mesopotamia, Syria, and Iran; sculpture, seals, pottery, metalworking, architecture.

ARTH:3330 (01H:127) Classical Greek Art 3 s.h.

Art, sacred architecture from early Classical through late fourth century B.C.E.; Athens in the Golden Age. Same as CLSA:3227 (20E:124).

ARTH:3340 (01H:128) Greek Vase Painting 3 s.h.

Greek ceramics as documents of religious beliefs, mythology, and daily life 1000-300 B.C.E.

ARTH:3350 (01H:132) Art of Early Rome: Patrons and Politics 3 s.h.

Examination of architecture, sculpture, and painting in central Italy from c. 800 B.C. to the end of the Roman Republic in 27 B.C.; art in the service of social ideology and political propaganda; funerary art and its relationship to the living; artistic interactions between Etruria, Greece, and Rome. Same as CLSA:3232 (20E:128).

ARTH:3360 (01H:133) Art of the Ancient Roman Empire 3 s.h.

Major developments in architecture, sculpture, and painting from the ascension of Augustus to sole ruler in 31 B.C. to the death of Constantine in A.D. 337; influence of individual emperors on the development of artistic forms; relationship between public and private art; interdependency of Rome and the provinces. Same as CLSA:3233 (20E:130).

ARTH:3370 (01H:134) Art and Culture in Ancient Pompeii 3 s.h.

Art and architecture, as documents of ancient society and religion in towns destroyed by Mount Vesuvius in C.E. 79. Same as CLSA:3234 (20E:129).

ARTH:3380 (01H:135) City of Rome: Image and Ideology 3 s.h.

Myth of the city of Rome as seen in paintings, sculpture, architecture, urbanism, and cinema from early Renaissance to Mussolini; focus on urban topography and mythic origins; the divinely-ordained destiny of Rome in God's providential plan for humanity; raw imperialism of Italian fascism as manifested in the visual legacy of the city; ideological underpinnings of the city's major institutions (the papacy, municipal government, Italian monarchy) and the fascist state as supported through the appropriation of the myth of Rome.

ARTH:3385 (01H:148) Baroque Rome: Caravaggio, Bernini, Borromini 3 s.h.

Rome and its institutions as reflected in the careers of its three most revolutionary artists.

ARTH:3390 (01H:136) Early Medieval Art 3 s.h.

Complex artistic traditions that developed roughly between 300 and 1000 in territories once governed by the Roman Empire and in areas of northern Europe directly influenced by Western Christian tradition; period as not simply a "Dark Age," but a pivotal chapter in history of Western art and culture; group discussion, individual research topics.

ARTH:3391 (01H:137) Themes in Medieval Art 3 s.h.

Themes and topics in medieval art.

ARTH:3420 (01H:138) Gothic Architecture 3 s.h.

Gothic architecture and its history, from varied perspectives (e.g., formal structural, symbolic, geometric, socioeconomic).

ARTH:3520 (01H:131) The Sculptural Origins of Michelangelo 3 s.h.

Visual and cultural origins of Michelangelo's sculpture, painting, and architectural designs; role that Michelangelo and his work played as a visual artist, poet, and religious reformer in culture of Florence and Rome in the 16th century; reasons for Michelangelo being a dynamic influence in all of the arts through the contemporary period.

ARTH:3530 (01H:140) The World of Giotto and Dante 3 s.h.

Painting, sculpture, and architecture 1250-1400.

ARTH:3550 (01H:142) Leonardo, Raphael, and Their Contemporaries 3 s.h.

The arts in Italy 1485-1550.

ARTH:3630 (01H:146) Themes in Renaissance Art 3 s.h.

Themes and topics in Renaissance art.

ARTH:3640 (01H:147) The Artist in the Studio: Allegory and Reality from Renaissance to Modern 3 s.h.

Changing needs of a growing modern secular leisure class, demonstrated in works of art that depict artists at work in their own environment and the popularity of artist's self-portraits; significance of subject category in understanding changes in perception of social, economic, and political roles of visual artists and visual arts traced from Leonardo, Michelangelo, and Raphael to Velasquez, Rubens, Rembrandt, Vermeer, Picasso, Matisse and others; literary, musical, and theatrical arts.

ARTH:3650 (01H:150) Seventeenth-Century Dutch and Flemish Painting 3 s.h.

Painting in the age of Rubens, Rembrandt, Vermeer; rise of landscape, still life, genre.

ARTH:3700 (01H:152) David to Delacroix: Art in the Age of Revolutions 3 s.h.

Developments in French art and culture in a period of artistic, cultural, and political upheavals from French Revolution through Napoleonic Empire to founding of Second Empire in mid-19th century; intersections of art with aesthetics, culture, and politics; role of psychology, biology, natural sciences in art; use of myth; rise of modernism; changes in patronage; new role of museums and galleries; innovations in printmaking, book illustration, caricature; artists include David, Girodet, Gros, Ingres, Gericault, and Delacroix, among others.

ARTH:3720 (01H:155) The Romantic Revolution 3 s.h.

Transformations in European art and culture 1750-1850, an age of artistic, political, cultural, intellectual crisis and revolutions; major artists, including David, Ingres, Gericault, Delacroix, Goya, Freidrich, Constable, Turner.

ARTH:3730 (01H:158) Realism, Impressionism, Post-Impressionism 3 s.h.

Naturalism, Realism, the Impressionist landscape, painting of modern life, new trends in subjectivity and exoticism mid- to late-19th-century European art and culture; Courbet, Manet, Degas, Monet, Renoir, Seurat, Cezanne, Van Gogh, Gauguin, Ensor, Munch.

ARTH:3740 (01H:159) Manet to Matisse 3 s.h.

Development of modernism and the avant-garde in late 19th- and early 20th-century Paris; intersection of innovation and tradition, literature and art; role of theory and criticism in works of Manet, Degas, Seurat, Cezanne, Gauguin, Rodin, Matisse, and Picasso.

ARTH:3820 (01H:171) Modern Art 3 s.h.

European and American art 1900-1940.

ARTH:3830 (01H:172) Late Modern Art 3 s.h.

American and European art 1940-1970.

ARTH:3840 (01H:173) Contemporary Art 3 s.h.

European and American art 1970 to present.

ARTH:3850 (01H:178) Pop Art 3 s.h.

Survey of pop art in America, Britain, Europe; focus on developments in painting and sculpture 1950s to early 1960s; continuing influence of Pop Art.

ARTH:3860 (01H:179) Minimalism 3 s.h.

Survey of Minimalism; focus on developments in painting and sculpture during 1960s; continuing influence.

ARTH:3864 (01H:164) Nazi and Stalinist Art: Aesthetics of Power 3 s.h.

Manipulative power of art, architecture, urbanism, and film in 20th-century totalitarian regimes—Italy, Germany, and Stalinist Soviet Union as well as Madrid, Warsaw, Beijing, Pyongyang, Baghdad; dark side of art and its transnational character, particularly in architecture and urban planning; nature of propaganda and state-sponsored art, responses to modernism and industrialization, allure of militarism and empire, uses of historicism, role of public ritual and mass spectacle in totalitarianism; common currency of totalitarian art across national groups, cultures, ideologies; how aesthetics function as tools of modern autocracies, with lessons for ailing 21st-century democracies.

ARTH:3870 (01H:184) History of Photography 3 s.h.

Survey of photography 1839 to present.

ARTH:3880 (01H:185) Modern Architecture 3 s.h.

Impact of new technology, artistic theory, and social practices on modern European and American architecture, 1890 to 1977.

ARTH:3900 (01H:189) Themes in Architectural History 3 s.h.

Topics and themes in architectural history.

ARTH:3920 (01H:162) National Images: American Art to 1865 3 s.h.

Painting, sculpture, and architecture from colonial times to Civil War.

ARTH:3930 (01H:163) American Renaissance and the Gilded Age 3 s.h.

Architecture, painting, and sculpture, 1865-1913.

ARTH:3940 (01H:165) American Western Art 3 s.h.

Painting and sculpture of western United States, primarily from Euro-American perspective.

ARTH:3950 (01H:170) Modernism and Early Twentieth-Century American Art 3 s.h.

American responses to European Modernism in painting, sculpture, architecture, and photography.

ARTH:3970 (01H:167) African American Art and Architecture 3 s.h.

Visual and material culture of African Americans, including painting, sculpture, decorative arts, and film, examined from aesthetic and ideological perspectives.

ARTH:3980 (01H:168) American Print Culture 3 s.h.

Exploration of a wide range of imagery printed and published in the United States during 19th century (1776-1900); fine art original prints, popular imagery in periodicals and illustrated books, scholarly literature, history of evolving technologies, variety of printed work; shifting reputation of printed art and its makers.

- ARTH:3985 (01H:190) Honors Research in Art History** arr.
Research and preparation of thesis. Requirements: honors standing.
- ARTH:3990 (01H:199) Topics in Art History** 3 s.h.
Varied topics.
- ARTH:3995 (01H:194) Independent Study in Art History** arr.
Advanced work in art history.
- ARTH:4010 (01H:176) Critical Theory** 3 s.h.
Influence of art theory on recent art practice; critics and philosophers whose ideas have been particularly important to the process of putting art and its histories into greater social and political context—Theodor Adorno, Walter Benjamin, Roland Barthes, Jacques Derrida, Michel Foucault, Jean-Francois Lyotard, Jurgen Habermas, Jean Baudrillard, Terry Eagleton, Michael Fried, T.J. Clark, Rosalind Krauss, and Homi Bhabha; general influence of feminism, poststructuralism, postcolonialism, and postmodernism.
- ARTH:4040 (01H:182) Art, Law, and Ethics** 3 s.h.
How law and ethics apply to individuals and institutions concerned with the visual arts. Same as LAW:8163 (091:192).
- ARTH:4081 (01H:181) The Art Museum: Theory and Practice** 3 s.h.
Introduction to different aspects of art museums; emphasis on roles of art historians, especially curatorial practice; current and historical theories and practices of art exhibitions; varying debates of the politics of display; art museum professions; the many facets of art exhibition preparation; the University of Iowa Museum of Art collections. Same as MUSM:4081 (024:162).
- ARTH:4891 (01H:188) Big-Shouldered City: Chicago Architecture** 3 s.h.
Architectural and urban development of Chicago; how changing visions of this most-American of cities has been influenced by aesthetic, social, political, economic factors; early settlement patterns, impact of the Great Fire of 1871, skyscraper technology, Daniel Burnham's 1909 Plan, Bungalow Belt, park system; larger history of American city in terms of its architectural, urban, and landscape development.
- ARTH:4941 (01H:166) American Landscape Art** 3 s.h.
Landscape from 1750 to present, emphasis on 19th century; land and its use fundamental to the history and culture of the United States as American art subjects, American art in the period of territorial expansion in 19th century; major movements of landscape aesthetics, artistic treatments, historiography.
- ARTH:6000 (01H:200) History and Methods** 3 s.h.
Critical thinking and research; readings in historical development of the discipline, from Renaissance to present; methodological paradigms and trends.
- ARTH:6020 (01H:210) Art History Colloquium** 1 s.h.
Current topics and research in art history. Requirements: art history graduate standing.
- ARTH:6040 (01H:300) Directed Studies** arr.
- ARTH:6080 (01H:302) M.A. Written Thesis** arr.
- ARTH:6085 (01H:385) Seminar: Problems in Architectural History** 3 s.h.
Key themes, architects, and literature that informs the history of the built environment in varied cultural contexts.
- ARTH:6110 (01H:310) Seminar: Problems in African Art** 2-3 s.h.
- ARTH:6300 (01H:320) Seminar: Problems in Ancient Art** 3 s.h.
Key themes and issues in ancient art. Same as CLSA:6200 (20E:326).
- ARTH:6440 (01H:340) Seminar: Problems in Medieval Art** 3 s.h.
Major issues, methodologies.
- ARTH:6640 (01H:353) Seminar: Problems in Baroque Art** 3 s.h.
- ARTH:6740 (01H:359) Graduate Seminar: Nineteenth-Century Art** 3 s.h.
- ARTH:6840 (01H:362) Seminar: Modern/Contemporary Art** 3 s.h.
Major issues, methodologies.
- ARTH:6940 (01H:366) Seminar: Problems in American Art** 3 s.h.
- ARTH:7010 (01H:400) Ph.D. Readings** arr.
- ARTH:7020 (01H:402) Ph.D. Thesis** arr.
- ## Studio Art
- Courses numbered below 3000 are primarily for undergraduates and may not be repeated unless noted on ISIS. Some courses numbered 2000-3000 are repeatable. Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all studio courses for art majors.
- ## Animation, Lower-Level Undergraduate
- ANIM:2125 (01D:098) Introduction to Animation** 3 s.h.
Introduction to animation and its role in contemporary creative practice; focus on historical and technical principles of traditional 2-D animation, 2-D digital animation, and 3-D computer animation; creative, conceptual, and technical facets of animation practice; conceptualize and execute animations using processes and methods currently integrated into contemporary time-based art practice. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

Animation, Upper-Level Undergraduate and Graduate

ANIM:3125 (01D:105) Animation I 4 s.h.

Continuation of ANIM:2125 (01D:098); focus on technology of 3-D animation; 3-D modeling, texturing, animation, rendering and lighting; projects cover creative, conceptual, and technical facets of 3-D animation pipeline; conceptualize and execute projects using processes and methods currently integrated into 3-D animation industry through lectures, critiques, computer software, screenings, and labs. Prerequisites: ANIM:2125 (01D:098).

ANIM:3130 (01D:115) Professional Practices in Animation and Gaming Studios 2 s.h.

Experiential learning experience through immersion in professional animation and gaming studios that blend technology, art, and design; behind-the-scenes meetings with professionals, equipment, and processes involved in creating major animated and video game works; studio and museum visits to gain understanding of technology and art, professional studio culture, and innovative design; animation history, studio culture, entertainment artistry, art technology, and contemporary art. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

ANIM:3135 (01D:145) Animation II 4 s.h.

Continuation of ANIM:3125 (01D:105); focus on technology of 3-D animation; 3-D modeling, texturing, animation, rendering and lighting; projects cover creative, conceptual, and technical facets of 3-D animation pipeline; students conceptualize and execute projects using processes and methods currently integrated into 3-D animation industry through lectures, critiques, computer software, screenings, and labs. Prerequisites: ANIM:3125 (01D:105).

General Art, Lower-Level Undergraduate

ARTS:1000 (01P:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

ARTS:1010 (01B:001) Elements of Art 3 s.h.

Drawing, composition; selected reading. Requirements: non-art major. GE: Literary, Visual, and Performing Arts.

ARTS:1020 (01B:035) Elements of 3-D Design 3 s.h.

Introduction to 3-D design using drafting, modeling, and virtual reality software; basic concepts of drafting, planning, and color theory; basic Auto CAD, 3ds Max Studio, Vizard, InDesign software; students design an object to be printed 2-D and 3-D and a conceptual space to be printed 2-D and experienced virtually; student journal and portfolio. Requirements: non-art major.

ARTS:1030 (01B:040) Elements of Jewelry and Metal Arts 3 s.h.

Fundamental 3-D design principles and appreciation of contemporary jewelry and metal art works; techniques and materials in jewelry and metal arts; experimentation with diverse media. Requirements: non-art major. GE: Literary, Visual, and Performing Arts.

ARTS:1040 (01B:050) Elements of Intermedia 3 s.h.

Introduction to intermedia for non-art majors; conceptual, interdisciplinary approach to new and emerging art forms, including time-based media, video, collaborative, and community-based projects; research in online networks, web projects. Requirements: non-art major.

ARTS:1050 (01B:080) Elements of Printmaking 3 s.h.

Requirements: non-art major. GE: Literary, Visual, and Performing Arts.

ARTS:1055 (01B:051) Elements of Foil Imaging 3 s.h.

Printmaking experience using the Iowa Foil Printer; aesthetic and technical research, documentation in *Foil Imaging...A New Art Form*; hands-on opportunity to explore new dimensions of visual expression. Requirements: non-art major.

ARTS:1060 (01B:075) Elements of Digital Photography 3 s.h.

Introduction to history, aesthetics, and practice of photography as a fine art; includes demonstrations, workshops, critiques, final portfolio; photography time outside of class; digital camera required. Requirements: non-art major.

ARTS:1080 (01B:090) Elements of Sculpture 3 s.h.

Possibilities and definition of 3-D form, including time-based, performance, structural, installation, and kinetic sculpture. Requirements: non-art major. GE: Literary, Visual, and Performing Arts.

ARTS:1400 (01A:001) The Passport Project: Exploring Knowledge and Culture Beyond the Classroom 1 s.h.

Attendance at 12 events selected from the University and Iowa City's rich intellectual and cultural offerings, including music concerts, art workshops and openings, literary readings, lectures in the sciences and humanities, hands-on engineering demonstrations, dance recitals, political forums, and theatrical productions; written and multimedia reviews and reflections in electronic passports; small-group discussions; special events featuring outstanding leaders in the arts, humanities, and sciences. Same as CSI:1400 (407:090).

ARTS:1450 (01A:002) Passport Project Colloquium 1 s.h.

Opportunities and challenges for peer mentors involved in CSI:1400 (407:090); activities including short readings and media screenings related to innovative and best practices in learning and teaching; emphasis on multi-modal writing online for peers; informal presentations and reflections. Same as CSI:1450 (407:095).

ARTS:1500 (01A:006) Media, Social Practice, and Design Studio Foundations 3 s.h.

Introduction to key principles and skills in graphic design, photography, and video.

ARTS:1510 (01A:003) Basic Drawing 3 s.h.

Two-dimensional visual language, media; space, form; color. Requirements: art major or art minor.

ARTS:1520 (01A:004) Design Fundamentals 3 s.h.

Two- and three-dimensional concepts and their relations; working with basic drawing instruments; problems in visual arts; artists' philosophies and techniques. Requirements: art major.

ARTS:1560 (01A:009) Art Student Ambassador Seminar 0-1 s.h.

Ambassadors provide information about the School of Art and Art History to incoming and visiting students, University community, and broader community; conduct tours; meet with students and parents; review curriculum; provide information on opportunities; coordinate events; and develop materials for incoming students. Requirements: art major.

ARTS:1570 (01A:010) Internship Experience: Undergraduate 1-3 s.h.

General Art, Upper-Level Undergraduate and Graduate

ARTS:3230 (01P:134) Scene Design I 3 s.h.

Development of theatre scenery; how to research, conceptualize, and express ideas in 3-D models, simple sketches, and drafting. Same as THTR:3230 (049:134).

ARTS:3320 (01P:150) Introduction to Sequential Art: Comics/Graphic Novels 3 s.h.

Overview of contemporary American comic artists, history of comics and graphic novels in the United States; genres and structures in sequential art; students create works that combine design, images, texts, story. Requirements: satisfaction of rhetoric requirement.

ARTS:3400 (01P:185) Grant Writing in the Arts 3 s.h.

ARTS:4190 (01P:190) Honors in Studio Art 0-3 s.h.

Research, preparation, and exhibition of an honors project in studio art. Requirements: studio art major, UI g.p.a. of at least 3.33, and art g.p.a. of at least 3.50.

ARTS:4195 (01P:195) B.F.A. Exhibition 0 s.h.

B.F.A. students present a show of their work in final semester; use of flyers and other media to advertise show; meetings with faculty and academic advisors to complete required documentation; students planning to graduate with honors in the art major may combine honors project and B.F.A. show; variations require approval by B.F.A. faculty advisor and academic advisors. Requirements: B.F.A. standing in final semester.

ARTS:4200 (01P:199) Topics in Studio Arts 1-3 s.h.

ARTS:4300 (01P:160) Letterpress I 3 s.h.

Mechanics of letterpress printing, typography, and design as applied to hand set metal type and edition printing; printing on a Vandercook proof press; introduction to photopolymer plates and methods of illustration related to edition printing, historical aspects of printing technology, typesetting, type classification; role of letterpress in modern private press and contemporary artist books. Same as UICB:4300 (108:160).

ARTS:4340 (01P:164) Digital Design for Artists' Books 3 s.h.

Introduction to concepts, techniques, and technologies used to design and produce artists' books with personal computers and graphic design software. Same as UICB:4340 (108:164).

ARTS:4390 (01P:162) Book and Publication Design 3 s.h.

Students plan, design, and produce a book using Adobe Creative Suite; page layout software, typography, page layout and design, book formatting, handling of image files, preparation of materials for print and other contemporary book media; history of book design, book design in contemporary publishing; visit to University of Iowa Libraries Special Collections. Prerequisites: UICB:4300 (108:160) or DSGN:3120 (01D:100). Same as UICB:4390 (108:162).

General Art, Graduate

ARTS:5330 (01P:167) Letterpress III: Imagemaking arr.

Builds on skills acquired in UICB:4300 (108:160) and UICB:4380 (108:169); advanced work in fine press book design and image-making processes for fine press printing. Prerequisites: UICB:4380 (108:169). Same as UICB:5330 (108:167).

ARTS:5340 (01P:161) Letterpress III: The Handprinted Book 3 s.h.

Exploration of problems in hand-printing books—choice of manuscript, editing, design, typesetting, proofreading, printing and binding; histories of printing and of the book, emphasis on 20th- and 21st-century book design and literature. Prerequisites: UICB:4380 (108:169). Same as UICB:5340 (108:161).

ARTS:6000 (01A:302) M.A. Written Thesis 1 s.h.

ARTS:6190 (01P:299) Graduate Independent Study arr.

Individual instruction by a faculty member.

ARTS:7000 (01A:304) M.F.A. Written Thesis 1 s.h.

Ceramics, Lower-Level Undergraduate

Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all ceramics courses for art majors; ARTS:1510 (01A:003) Basic Drawing is prerequisite for nonmajors.

CERM:2010 (01C:060) Exploring Forms in Clay I 3 s.h.

Basic handbuilding methods of forming, firing, glazing clay. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004). GE: Literary, Visual, and Performing Arts.

CERM:2020 (01C:061) Exploring Thrown Forms in Clay II 3 s.h.

Basic wheel-throwing techniques; clay, glaze formulation and preparation in kiln firing. Prerequisites: CERM:2010 (01C:060).

Ceramics, Upper-Level Undergraduate and Graduate

CERM:3010 (01C:170) Advanced Clay Forming III 4 s.h.

Advanced throwing techniques; larger scale, more professional goals; projects may be more sculptural or one of a kind. Offered fall semesters. Prerequisites: CERM:2010 (01C:060) and CERM:2020 (01C:061).

CERM:4010 (01C:171) Advanced Clay Forming IV 4 s.h.

Advanced individual projects. Offered spring semesters. Prerequisites: CERM:2020 (01C:061) or CERM:3010 (01C:170).

CERM:4020 (01C:172) Ceramic Materials and Effects 4 s.h.

Empirical, practical methods of glaze and body formulation; effects of various types of kilns and firing atmospheres on glaze materials, clay bodies; digital imaging used for testing and documenting results. Offered fall semesters of even years. Prerequisites: CERM:3010 (01C:170).

CERM:4030 (01C:173) Undergraduate Ceramics Workshop 3-4 s.h.

Advanced undergraduate studio; critiques of student work and electronic portfolio development, visiting artist participation; may include field trips. Prerequisites: CERM:4010 (01C:171).

CERM:4040 (01C:174) Kiln Building 4 s.h.

Kiln theory, design, construction methods; may include participation in kiln construction. Offered fall semesters of odd years. Prerequisites: CERM:3010 (01C:170).

CERM:4050 (01C:176) Concepts: Materials and Installation 4 s.h.

Exposure to contemporary methods of working in clay, develop critical thinking skills that move clay into the realm of conceptual work, develop a personal direction in the medium; conceptual development and material exploration; set clay side by side with other materials and mediums; demonstrate dedication to the work and to the development of mature ideas and forms of expression. Prerequisites: CERM:3010 (01C:170).

CERM:4099 (01C:190) Undergraduate Individual Instruction 1-3 s.h.

Individual instruction in ceramics for advanced students.

Ceramics, Graduate

CERM:6075 (01C:275) Ceramics Workshop 3-4 s.h.

Advanced graduate studio; critique of student work; visiting artists, field trips. Prerequisites: CERM:4010 (01C:171).

CERM:6099 (01C:270) Graduate Individual Instruction in Ceramics arr.

Requirements: knowledge of clay and glaze computation, and ability to fire kilns.

Design, Lower-Level Undergraduate

Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all design courses for art majors; ARTS:1510 (01A:003) Basic Drawing is prerequisite for nonmajors.

DSGN:2110 (01D:090) Graphic Design I 3 s.h.

Basic principles, techniques, and applications of graphic design, typography, composition, visual perception; creative, problem-solving aspects of graphic design. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

Design, Upper-Level Undergraduate and Graduate

DSGN:3110 (01D:120) Graphic Design II 4 s.h.

In-depth study and exploration of graphic design as creative and problem solving tool of visual communication; translation of ideas and concepts into comprehensible visual language. Prerequisites: DSGN:2110 (01D:090) and DSGN:3120 (01D:100).

DSGN:3120 (01D:100) Typography 4 s.h.

Introduction to letterform and typographic fundamentals; designing with type—attention to composition, hierarchy, historical practice. Prerequisites: DSGN:2110 (01D:090). Same as UICB:3310 (108:101).

DSGN:3130 (01D:110) Web Site Design I 3 s.h.

Designing for the World Wide Web; composition, manipulation, organization of type and images; projects, demonstrations, discussions. Prerequisites: DSGN:2110 (01D:090) and DSGN:3120 (01D:100).

DSGN:4110 (01D:150) Graphic Design III 4 s.h.

Continuation of DSGN:3110 (01D:120); graphic design knowledge and skills applied to complex design problems such as visual identity, packaging, information design. Prerequisites: DSGN:3110 (01D:120) and DSGN:3130 (01D:110).

DSGN:4130 (01D:140) Web Site Design II 4 s.h.

Continuation of DSGN:3130 (01D:110); in-depth exploration and study of graphic design principles and their application in online and interactive media; further development of HTML, CSS, other related technologies. Prerequisites: DSGN:3110 (01D:120) and DSGN:3130 (01D:110). Corequisites: DSGN:4110 (01D:150) or DSGN:4140 (01D:160), if not taken as prerequisites.

DSGN:4140 (01D:160) Problems in Graphic Design 4 s.h.

Design topics; content varies. Prerequisites: DSGN:2110 (01D:090), DSGN:3110 (01D:120), and DSGN:3120 (01D:100).

DSGN:4199 (01D:190) Undergraduate Individual Instruction 1-3 s.h.

Individual instruction in design for advanced students.

Design, Graduate

DSGN:6175 (01D:200) Graduate Graphic Design Workshop 4 s.h.

Complex problems in graphic design; planning, development, organization of integrated design programs.

DSGN:6299 (01D:240) Individual Instruction in Design arr.

Three-Dimensional Design, Lower-Level Undergraduate

TDSN:2205 (01T:020) Art and Engineering 3 s.h.

Collaborative, interdisciplinary, cutting-edge opportunity to gain real world engineering experience while learning to think creatively and analytically to create engaging works of art; interdisciplinary collaboration and creative methodologies that enhance life-long creative practice of artists and engineers; basic electronics and Arduino prototyping platform to create programmable, sensor-driven, responsive circuits. Prerequisites: TDSN:2210 (01T:021) or CERM:2010 (01C:060) or MTLs:2910 (01G:084) or SCLP:2810 (01N:015). Same as ECE:2120 (055:012).

TDSN:2210 (01T:021) Problems in 3-D Design I: Form and Structure 3 s.h.

Materials, their formal and structural possibilities. Offered fall semesters. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

TDSN:2220 (01T:022) Problems in 3-D Design II: Form and Function 4 s.h.

How objects are designed and structured; modeling, graphic skills necessary for basic project development. Offered spring semesters. Prerequisites: TDSN:2210 (01T:021).

TDSN:2230 (01T:025) Introduction to Portfolio Design 3 s.h.

Preparation of presentation boards and portfolio production for print and job application; for students in 3-D design and related areas. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

TDSN:2240 (01T:064) Introduction to Computer-Aided Design for 3-D Design 3 s.h.

Basic principles of 2-D and 3-D computer-aided drafting; use of AutoCAD software to draw plans, elevations, and sections for objects and interior spaces. Prerequisites: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and TDSN:2210 (01T:021) or CERM:2010 (01C:060) or MTLs:2910 (01G:084) or SCLP:2810 (01N:015). Same as CEE:2240 (053:040).

TDSN:2250 (01T:070) Introduction to Computer Modeling for 3-D Design 3 s.h.

Basic knowledge and practical technical skills using 3ds Max studio software; experience creating and manipulating basic forms and working with texture, background, light, and camera viewpoints; basic animation. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

TDSN:2260 (01T:075) Introduction to Virtual Reality for 3-D Design 3 s.h.

Introduction to Vizard software; design of virtual 3-D space; translation of environments created in 3ds Max software into Vizard software. Corequisites: TDSN:2250 (01T:070), if not taken as a prerequisite.

TDSN:2270 (01T:028) Digital Forming 3 s.h.

Introduction to process of design; work with 3-D virtual digital tools to create objects and forms printed with rapid prototyping technology; use of Leonar3Do software, 3-D glasses, and a bird device that functions as a mouse to create forms in space; virtual modeling techniques that allow creation and manipulation of shapes in the air; design development on Leonar3Do, improved with 3ds Max, and saved for 3-D printing. Prerequisites: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and TDSN:2210 (01T:021) or CERM:2010 (01C:060) or MTLs:2910 (01G:084) or SCLP:2810 (01N:015).

Three-Dimensional Design, Upper-Level Undergraduate and Graduate

TDSN:3201 (01T:103) Advanced Computer Modeling with 3ds Max 3 s.h.

Creation of rendered and animated environments using advanced modeling techniques. Prerequisites: TDSN:2250 (01T:070).

TDSN:3205 (01T:110) Advanced Robotics 3 s.h.

Advanced peripheral integration and control, including stepper motors, solar power, audio playback, and live data manipulation through physical sensors; advanced fabrication (e.g., printed circuit boards and wiring harness design); for students with previous experience in robotics and electronics. Prerequisites: SCLP:3840 (01N:105).

TDSN:3210 (01T:137) Environmental Design I 4 s.h.

Human interaction with the interior and exterior environment. Offered fall semesters of odd years. Prerequisites: TDSN:2210 (01T:021). Same as THTR:3206 (049:158).

TDSN:3220 (01T:141) Interior Design I 4 s.h.

Relationship of interior space to its architecture, environment, human element; color, materials, furnishings, lighting; projects. Offered spring semesters. Prerequisites: TDSN:2210 (01T:021).

TDSN:3230 (01T:142) Color for Interior Design 4 s.h.

Use of color for interior spaces; principles of color theory reviewed and applied to 3-D environments; color as a compositional element and psychological tool. Prerequisites: TDSN:2210 (01T:021).

TDSN:3240 (01T:102) 3-D Computer-Aided Design arr.

Three-dimensional computer-aided drafting; use of AutoCAD software. Prerequisites: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and TDSN:2210 (01T:021) or CERM:2010 (01C:060) or MTLs:2910 (01G:084) or SCLP:2810 (01N:015).

TDSN:4210 (01T:143) Digital Animation and Visual Art 3 s.h.

Assimilation of digital animation into realm of traditional fine art mediums; exploration of fundamental skills (storyboarding, rotoscoping, stop motion, motion graphics, 3-D animation); Adobe Photoshop, After Effects, and 3ds Max techniques and software that are industry standards in the careers of animators, storyboard artists, roto artists, digital compositors, and motion graphic artists; production of a show reel of student work for group showing and final critique. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

TDSN:4220 (01T:144) Interior Design II 3 s.h.

Continuation of TDSN:3220 (01T:141). Offered fall semesters of even years. Prerequisites: TDSN:2240 (01T:064) and TDSN:3220 (01T:141).

TDSN:4250 (01T:192) Fabrication and Design: Hand-Built Bicycle 4 s.h.

Building a bicycle frame by hand; use of CAD modeling and development of fabrication skills to create a modern-day work of art. Prerequisites: TDSN:2240 (01T:064).

TDSN:4255 (01T:193) Hand-Built Bicycles in the Rockies 1 s.h.

Building a titanium hand-built bike; use of hand-built fabrication techniques and tools; translation of CAD design into first full-suspension titanium fat bike; aspects of metal technology, concept development, fabrication geometry and design, metal properties and selection, tool selection, brazing and TIG welding, jig setup and use, and mitering; travel to Fort Collins, Colorado to work for one week at Black Sheep Bikes (two-time winner of the North American Hand Built Bike Show). Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

TDSN:4260 (01T:147) 3-D Computer Graphic Art 3 s.h.

Three-dimensional modeling; emphasis on movement in form and function; advanced modeling techniques in polygonal and NURBS modeling to generate fundamentally sound models used for rapid prototyping, visualization, and animation; Box modeling, NURBS modeling, rigging, materials, bump maps, normal maps, and rendering; fundamental skills of computer graphic artists working in the fields of animation, architectural visualization, video game modeling, industrial design, and engineering design. Prerequisites: TDSN:2250 (01T:070).

TDSN:4270 (01T:176) Problems in 3-D Design: Locative Art Practice 4 s.h.

How our relationship to Earth has changed with new forms of locating place in it; new forms of representation used to express exploration of that relationship; designing a locative research project; exploration of four major course concepts (geo-annotation, locative inscription, GPS drawing, alternative cartography) using portable, networked, and location-aware computing for mapping relationships. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

TDSN:4299 (01T:190) Undergraduate Individual Instruction arr.

Individual instruction in 3-D design for advanced students.

Three-Dimensional Design, Graduate

TDSN:6210 (01T:238) Environmental Design II 4 s.h.

Continuation of TDSN:3210 (01T:137); design of virtual environments.

TDSN:6295 (01T:249) Advanced Problems in Design 4 s.h.

Special issues and topics in design.

TDSN:6299 (01T:240) Individual Instruction in 3-D Design arr.

Individual instruction in 3-D design for advanced students.

Drawing, Lower-Level Undergraduate

Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all drawing courses for art majors; ARTS:1510 (01A:003) Basic Drawing is prerequisite for nonmajors.

DRAW:2310 (01F:007) Life Drawing I 3 s.h.

Observational drawing of form in its spatial contexts; drawing in varied media; figural as well as nonfigural content. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

Drawing, Upper-Level Undergraduate and Graduate

DRAW:3310 (01F:105) Concepts in Drawing 3-4 s.h.

Intermediate-level topics; observation, theory, media, form, content; emphasis on personal direction. Prerequisites: DRAW:2310 (01F:007). Same as THTR:3205 (049:157).

DRAW:4310 (01F:109) Advanced Concepts in Drawing 3-4 s.h.

Advanced-level topics. Requirements: DRAW:3310 (01F:105) taken two times.

DRAW:4320 (01F:106) Seminar in Painting and Drawing 3-4 s.h.

Contemporary issues, practical and professional skills, interdisciplinary concerns, education and career goals. Offered fall semesters. Requirements: for undergraduate students — DRAW:3310 (01F:105); PNTG:2420 (01K:010) taken twice, or PNTG:2420 (01K:010) and PNTG:2430 (01K:046); and BFA clearance.

DRAW:4399 (01F:190) Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in drawing for advanced students.

Drawing, Graduate

DRAW:6310 (01F:201) Graduate Drawing 3-4 s.h.
Compositional and conceptual drawing as related to the student's major interest; varied media. Requirements: 6 s.h. of DRAW:3310 (01F:105).

DRAW:6399 (01F:205) Individual Instruction in Drawing arr.

Intermedia, Lower-Level Undergraduate

Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all intermedia courses for art majors; ARTS:1510 (01A:003) Basic Drawing is prerequisite for nonmajors.

INTM:2710 (01J:090) Intermedia I 3 s.h.
Interdisciplinary focus; emphasis on conceptual, installation, video, time-based media, performance art. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

INTM:2720 (01J:091) Intermedia II 3 s.h.
Interdisciplinary investigation of materials and concepts in relation to time-based media, performance, video, installation; individual and collaborative projects. Prerequisites: INTM:2710 (01J:090).

INTM:2730 (01J:095) Topics in Intermedia 3 s.h.
Continuation of study and practice in emerging media and new genres, including video, Internet art, installation, new media, and social practice. Requirements: ARTS:1510 (01A:003) and ARTS:1520 (01A:004) for majors; ARTS:1510 (01A:003) for nonmajors.

Intermedia, Upper-Level Undergraduate and Graduate

INTM:3720 (01J:104) Media Art Lab 4 s.h.
Study and production in the media arts—digital video, sound, installation/performance, Internet, new media art; conceptual development through readings, screenings; hands-on workshops using a range of media production equipment and platforms; in-class, short-term projects. Requirements: INTM:2710 (01J:090) or CINE:1834 (048:034) or graduate standing. Recommendations: experience with media technologies.

INTM:3730 (01J:100) Advanced Intermedia Topics 3 s.h.
Areas of intermedia practice, including installation, video, Internet-based production, sound design, image and text, new media. Prerequisites: INTM:2710 (01J:090).

INTM:3750 (01J:108) Art and Ecology 4 s.h.
Collaborative, creative research group; artistic responses to environmental sustainability and related social issues; critical approaches rooted in humanities, other disciplines. Prerequisites: INTM:2710 (01J:090).

INTM:3755 (01J:115) What is Storytelling For? 4 s.h.

INTM:3765 (01J:140) Artists in the Community—Intermedia 3-4 s.h.
Student participation in internships at Iowa City and Johnson county nonprofit organizations; interdisciplinary seminar.

INTM:3799 (01J:190) Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in intermedia for advanced students.

INTM:4775 (01J:110) Intermedia Workshop 3-4 s.h.
Visual practice/visual theory; projects, critiques, visiting artists and scholars. Requirements: INTM:2720 (01J:091) or graduate standing in intermedia.

INTM:4780 (01J:180) Women's Lives in Alternative Texts 3 s.h.
Work of contemporary comics creators; how they craft memoir-based texts that explore intersections of aging, sexuality, race, gender, and relationships. Same as GWSS:4180 (131:180).

Intermedia, Graduate

INTM:6780 (01J:200) Art, Engagement, and Activism 4 s.h.
Role of artists in our communities; how to build a rewarding studio practice and influence social, political, and cultural decisions within the community; work of artists, designers, creative scholars, performers, and writers whose work is socially engaged, collaborative, labeled as radical or activist in nature; students produce a small body of written, visual, and performed work influenced by events and needs within their communities; examination and discussion of various theories of art, activism, performance, and engagement.

INTM:6795 (01J:208) Intermedia Graduate Special Topics 3-4 s.h.
Areas of intermedia practice, including installation, video, Internet-based production, sound design, image and text, new media.

INTM:6799 (01J:201) Individual Instruction in Intermedia and Video Art arr.

Metalworking and Jewelry, Lower-Level Undergraduate

Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all metalworking and jewelry courses for art majors; ARTS:1510 (01A:003) Basic Drawing is prerequisite for nonmajors.

MTLS:2910 (01G:084) Introduction to Jewelry and Metal Arts 3 s.h.

Fabrication, hammer forming, hydraulic die forming, soldering, riveting, etching, texturing, anodization of aluminum and titanium, stone setting, and patination techniques; creation of jewelry, flatware, and other functional and nonfunctional sculptural objects using varied metals and other materials; emphasis on creativity, learning, and basic metalworking techniques. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

MTLS:2920 (01G:085) Intermediate Jewelry and Metal Arts 4 s.h.

Applications with casting (gold, silver, bronze), enameling, and stone setting, processes may be combined; photo etching and 3-D computer modeling; trends in craft; emphasis on development of student's personal aesthetics, learning, and refining technical skills in metalworking and jewelry techniques. Prerequisites: MTLS:2910 (01G:084).

Metalworking and Jewelry, Upper-Level Undergraduate and Graduate

MTLS:3920 (01G:186) Advanced Jewelry and Metal Arts 4 s.h.

Electroforming; production of hollow copper structures through prolonged electroplating on a nonmetallic form (typically wax) with a conductive coating; metal-forming techniques (e.g., raising and fold forming); emphasis on development of personal aesthetics, learning, and refining technical skills in metalworking and jewelry techniques. Prerequisites: MTLS:2920 (01G:085).

MTLS:4910 (01G:187) Mixed Media Workshop 3-4 s.h.

Free exploration of all media and materials, including found objects; creation of conceptual and/or functional mixed media objects, jewelry, sculptures, installation pieces; pioneering use of new materials, development of new techniques, creation of diverse innovative art works. Prerequisites: MTLS:2910 (01G:084). Recommendations: MTLS:2910 (01G:084) and MTLS:3920 (01G:186).

MTLS:4920 (01G:184) Mold Making 4 s.h.

All aspects of mold making, including plaster, rubber, and silicone. Prerequisites: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and MTLS:2910 (01G:084) or CERM:2010 (01C:060) or SCLP:2810 (01N:015) or TDSN:2210 (01T:021).

MTLS:4960 (01G:192) Form and Fabrication: The Hand-Built Bicycle Frame II 4 s.h.

Building on TDSN:4250 (01T:192); advanced concepts of bicycle frame design and fabrication; concept development, fabrication geometry and design, metal properties and selection, tool selection, brazing and welding, including titanium-milling and how to build a frame jig; emphasis on applying fabrication skills while situating frame building project within context of a design problem. Prerequisites: TDSN:4250 (01T:192).

MTLS:4975 (01G:188) Graduate Workshop 4 s.h.

Independent studio work; personal aesthetics, conceptual and technical skills developed and refined; creation of work without boundaries of media; portfolios, exhibitions, professional goals. Prerequisites: MTLS:2920 (01G:085), MTLS:3920 (01G:186), and MTLS:4910 (01G:187).

MTLS:4999 (01G:190) Undergraduate Individual Instruction 1-3 s.h.

Individual instruction in metalsmithing and jewelry for advanced students.

Metalworking and Jewelry, Graduate

MTLS:6999 (01G:240) Individual Instruction in Metalsmithing and Jewelry arr.

Painting, Lower-Level Undergraduate

Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all painting courses for art majors; ARTS:1510 (01A:003) Basic Drawing is prerequisite for nonmajors.

PNTG:2410 (01K:009) Painting I 3 s.h.

Emphasis on observational painting, theory and development of pictorial ideas and skills. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

PNTG:2420 (01K:010) Painting II 4 s.h.

Materials, techniques, beginning of a personal painting language through observation and imagination. Prerequisites: PNTG:2410 (01K:009).

PNTG:2430 (01K:046) Painting III 4 s.h.

Painting, with contemporary issues overlying study in materials and techniques; language and direction of personal painting. Prerequisites: PNTG:2420 (01K:010).

PNTG:2440 (01K:049) Advanced Painting 4 s.h.

Individual projects as they aid the realization of a personal vision. Prerequisites: PNTG:2420 (01K:010). Requirements: PNTG:2420 (01K:010) taken two times.

Painting, Upper-Level Undergraduate and Graduate

PNTG:4499 (01K:190) Undergraduate Individual Instruction 1-3 s.h.

Individual instruction in painting for advanced students.

Painting, Graduate

PNTG:6475 (01K:207) Graduate Drawing and Painting Workshop 3-4 s.h.

Group and individual criticism, team-taught. Corequisites: PNTG:6480 (01K:208).

PNTG:6480 (01K:208) Graduate Drawing and Painting Forum 1 s.h.

Problems and issues of contemporary artists.

PNTG:6495 (01K:206) Graduate Painting: Topics 3-4 s.h.

Individual painting projects in desired medium; topics vary.

PNTG:6499 (01K:215) Individual Instruction in Painting

arr.

Papermaking, Upper-Level Undergraduate and Graduate**BKAT:3100 (01X:110) Papermaking** 3 s.h.

History, fundamental techniques of Western and Eastern hand papermaking; projects in traditional sheet forming, basic paper chemistry, paper coloring. Offered spring semesters. Same as UICB:3100 (108:110).

BKAT:3280 (01X:104) Elements of Book Art 3 s.h.

Overview of book art process and techniques for nonmajors; introduction to traditional bookbinding skills, nontraditional book structures, and content development for artist books. Same as UICB:3280 (108:104).

BKAT:3400 (01Z:143) Calligraphy: Foundational Hands 3 s.h.

Fundamental calligraphic skills using Roman majuscule, Humanistic minuscule, Italic; basic layout and color theory incorporated into letter practice. Same as UICB:3400 (108:143).

BKAT:4100 (01X:130) Paperworks 3 s.h.

Conceptual and methodological approaches to 2-D and 3-D paper works; creation of works that couple unique properties of paper-pulp medium with personal visual ideas and clarity of intent; contemporary issues in paper pulp, medium's relationship to larger art and craft contexts. Same as UICB:4100 (108:130).

BKAT:4205 (01Y:150) Bookbinding I: Materials and Techniques 3 s.h.

Hands-on introduction to materials and techniques commonly used in bookbinding. Same as UICB:4205 (108:150).

BKAT:4210 (01Y:156) Boxes and Enclosures 3 s.h.

Hands-on techniques for a variety of book enclosures; appropriateness, aesthetic issues concerning box design; Japanese wraparound case, drop-spine box, hinged and lidded boxes, slipcase; technical skill development. Prerequisites: UICB:4205 (108:150). Same as UICB:4210 (108:156).

BKAT:4220 (01Y:157) Moveable/Sculptural Books 3 s.h.

Varied formats for moveable and/or sculptural books; history; readings, hands-on model making. Same as UICB:4220 (108:157).

BKAT:4230 (01Y:158) Pop-Up Book Structures 3 s.h.

Hands-on exploration of varied aspects of paper engineering for bookmaking; historical and modern models studied and executed. Prerequisites: UICB:4205 (108:150). Same as UICB:4230 (108:158).

BKAT:4270 (01Y:151) Bookbinding II 3 s.h.

Builds on skills acquired in UICB:4205 (108:150); projects to complete six bindings based on historical and contemporary models; sewing styles, board attachments, endband types; nonadhesive and case-bound structures, varied materials and binding styles, their effects on structure, aesthetic considerations, further development of solid binding skills; historical development of particular binding practices. Prerequisites: UICB:4205 (108:150). Same as UICB:4270 (108:151).

BKAT:4280 (01Y:015) Artists' Books 3 s.h.

Exploration of the book as a form for artistic expression; emphasis on conceptual development; relationship between content, form, and structure; how a book's structure and design can enhance and integrate part of the work's meaning. Prerequisites: UICB:4205 (108:150) or BKAT:4205 (01Y:150). Same as UICB:4280 (108:154).

BKAT:4400 (01Z:142) History of Western Letterforms 3 s.h.

History of Western letterforms, with focus on tools, materials, techniques; the major hands, their place in history, their influence on modern times; creation of letterforms using appropriate tools; hands-on approach with emphasis on understanding rather than mastery. Same as UICB:4400 (108:142).

BKAT:4490 (01Z:146) Studies in Letter Arts 3 s.h.

Special topics and advanced projects in calligraphy and letter arts. Prerequisites: UICB:3400 (108:143) or UICB:4400 (108:142). Same as UICB:4490 (108:146).

Papermaking, Graduate**BKAT:5110 (01X:120) Islamic/Asian Papermaking History and Technique** 3 s.h.

History, technique, and aesthetics of traditional Islamic and Asian hand papermaking. Same as UICB:5110 (108:132).

BKAT:5120 (01Z:133) Western Papermaking History and Technique 3 s.h.

History and technique of traditional European hand papermaking and related aesthetics; students gain confidence in pursuing independent production of handmade papers or undertaking related research in their own particular areas of interest; fiber preparation, sheet forming, and drying/finishing methods; concurrent readings and discussions of related history and aesthetics; special projects selected by student with instructor approval. Same as UICB:5130 (108:133).

BKAT:5170 (01X:136) Advanced Papermaking Production 3 s.h.

Independent Western- or Japanese-style projects undertaken at UICB Research and Production Paper Facility at Oakdale Campus under faculty guidance; plan, implement, and evaluate professional scale production runs using full-scale equipment. Prerequisites: UICB:5110 (108:132) or UICB:5130 (108:133) or BKAT:5110 (01X:120) or BKAT:5120 (01Z:133). Same as UICB:5170 (108:136).

BKAT:5180 (01X:131) Advanced Projects in Paper 3 s.h.

Advanced independent projects undertaken in a classroom setting; collaborative group discussions to plan, implement, troubleshoot, and evaluate student projects. Prerequisites: UICB:5110 (108:132) or UICB:5130 (108:133) or BKAT:5110 (01X:120) or BKAT:5120 (01Z:133). Same as UICB:5180 (108:131).

BKAT:5210 (01Y:152) Bookbinding III 3 s.h.

Bookbinding structures based on historical and contemporary models; differences in various binding practices, how these differences affect function, why the styles developed; experience choosing appropriate structures for particular uses; emphasis on fine tuning skills and techniques required for advanced binding practices; sewn endbands, rounding and backing, sewing on varied supports, board attachments, and covering methods. Requirements: for UICB:5210 (108:152) — UICB:4205 (108:150) and UICB:4270 (108:151); for BKAT:5210 (01Y:152) — BKAT:4205 (01Y:150) or BKAT:4270 (01Y:151) or UICB:4205 (108:150) or UICB:4270 (108:151). Same as UICB:5210 (108:152).

BKAT:5260 (01Y:153) Studies in Bookbinding 3 s.h.

Topics related to hand bookbinding. Same as UICB:5260 (108:153).

Photography, Lower-Level Undergraduate

Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all photography courses for art majors; ARTS:1510 (01A:003) Basic Drawing is prerequisite for nonmajors.

PHTO:2510 (01L:036) Beginning Digital Photography 3 s.h.

How to use digital technology to make high-quality color and black-and-white photographs from scanned film and digital files; basic photography skills, including exposure, bracketing, composition; how to use raw files to make large digital prints; color profiles for fine digital printing. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

PHTO:2513 (01L:040) Digital Photographic Imaging 3 s.h.

Working knowledge of digital image-making techniques, including image capture, image building/editing, printing/output options, work with Photoshop on Macintosh computers.

Photography, Upper-Level Undergraduate and Graduate

PHTO:3510 (01L:101) Intermediate Darkroom 3-4 s.h.

Darkroom techniques, including film developing and printing; theory and practice of photography as fine art and cultural phenomenon; development of visual literacy, students' critical awareness of their work. Requirements: PHTO:2510 (01L:036) for majors; PHTO:2510 (01L:036) or PHTO:2513 (01L:040) for nonmajors.

PHTO:3520 (01L:102) Intermediate Photography Digital 3-4 s.h.

Digital photography including landscape, portrait, collage, still life, manipulated images; black-and-white and color printing; computer technology; history of photography in political and social issues. Prerequisites: PHTO:2510 (01L:036).

PHTO:4510 (01L:105) Advanced Photography 3-4 s.h.

Individual projects; development of personal vision. Prerequisites: PHTO:3510 (01L:101) or PHTO:3520 (01L:102).

PHTO:4545 (01L:129) Materials and Techniques 4 s.h.

Concepts and techniques, from reading contemporary topics to understanding and applying nontraditional photographic processes and digital imaging. Prerequisites: PHTO:3510 (01L:101) or PHTO:3520 (01L:102).

PHTO:4555 (01L:140) Advanced Digital Imaging 4 s.h.

Varied image editing programs, with focus on Photoshop and the web. Prerequisites: PHTO:3510 (01L:101) or PHTO:3520 (01L:102).

PHTO:4599 (01L:190) Undergraduate Individual Instruction 1-3 s.h.

Individual instruction in photography for advanced students.

PHTO:4665 (01L:165) Introduction to 4x5 and Studio Lighting 4 s.h.

Use of a 4x5 camera to correct perspective, depth of field; large format printing, negative processes. Prerequisites: PHTO:3510 (01L:101).

Photography, Graduate

PHTO:6575 (01L:236) Graduate Photography Workshop 4 s.h.

Projects; group critiques; readings.

PHTO:6599 (01L:231) Individual Instruction in Photography arr.

Printmaking, Lower-Level Undergraduate

Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all printmaking courses for art majors; ARTS:1510 (01A:003) Basic Drawing is prerequisite for nonmajors.

PRNT:2610 (01M:011) Introduction to Printmaking 3 s.h.

Introduction to methods, materials, and concepts of printmaking. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004). Requirements: art major.

Printmaking, Upper-Level Undergraduate and Graduate

PRNT:3610 (01M:111) New Media for Printmaking 4 s.h.

New concepts and techniques for contemporary print media, including digital and less toxic applications in relief, intaglio, lithography, and screenprinting. Prerequisites: PRNT:2610 (01M:011).

PRNT:3620 (01M:121) Intaglio 4 s.h.

Concepts, techniques; traditional through contemporary ideas, methods; emphasis on metal plate printing, including etching, drypoint, engraving, softground, aquatint. Requirements: PRNT:2610 (01M:011) or B.F.A. candidacy in any area or graduate standing.

PRNT:3630 (01M:124) Relief 3-4 s.h.

Concepts and techniques of relief printmaking, including woodcut, linocut, relief etching, black-and-white and color printing methods; traditional and contemporary approaches; for graduate students with no printmaking experience. Requirements: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and PRNT:2610 (01M:011) for art majors; ARTS:1510 (01A:003) for nonmajors; or B.F.A. candidacy in any area; or graduate standing.

PRNT:3640 (01M:131) Lithography 4 s.h.

Technical, aesthetic characteristics; basic direct drawing, processing, printing of stone and plate images in black and white. Requirements: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and PRNT:2610 (01M:011) for art majors; ARTS:1510 (01A:003) for nonmajors; or B.F.A. candidacy in any area; or graduate standing.

PRNT:3660 (01M:142) Monoprint 3-4 s.h.

Concepts, techniques in use of traditional and alternative printmaking media to produce unique, matrix-generated prints. Offered spring semesters.

PRNT:3670 (01M:151) Foil Imaging I 3 s.h.

Participation in development of a new art form involving creation of original prints and other works of art using hot stamped foil and Iowa Foil Printer. Requirements: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and PRNT:2610 (01M:011) for art majors; ARTS:1510 (01A:003) for nonmajors; or B.F.A. candidacy in any area; or graduate standing.

PRNT:3675 (01M:170) Foil Workshop in Printmaking 2 s.h.

Hands-on experience creating foil prints; workshop format. One or two weeks. Offered summer session.

PRNT:3680 (01M:134) Silkscreen 4 s.h.

Photographic, nonphotographic stencil techniques for silkscreen printing. Requirements: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and PRNT:2610 (01M:011) for art majors; ARTS:1010 (01B:001) and ARTS:1050 (01B:080) for nonmajors; or B.F.A. candidacy in any area; or graduate standing.

PRNT:4610 (01M:135) Advanced Printmaking 4 s.h.

Print media (i.e., intaglio, lithography, relief, screenprint); emphasis on individual technical and conceptual growth and development of independent studio practices. Requirements: two courses chosen from PRNT:3620 (01M:121), PRNT:3630 (01M:124), PRNT:3640 (01M:131), and PRNT:3680 (01M:134).

PRNT:4620 (01M:122) Advanced Intaglio and Relief 3-4 s.h.

Concepts and techniques of intaglio/relief; etching, engraving, drypoint, softground, aquatint, woodcut, linocut, color printing; emphasis on advanced methods, personal vision.

PRNT:4640 (01M:132) Advanced Lithography 3-4 s.h.

Technical, aesthetic aspects; emphasis on color printing, indirect image-forming and photo-mechanical processes. Prerequisites: PRNT:2610 (01M:011) and PRNT:3640 (01M:131).

PRNT:4670 (01M:152) Foil Imaging II 4 s.h.

Advanced aesthetic and technical research for creation of original prints and other works of fine art using hot stamped foil and other printmaking techniques; individual instruction. Prerequisites: PRNT:3670 (01M:151).

Printmaking, Graduate

PRNT:6675 (01M:260) Graduate Print Workshop 3-4 s.h.

Contemporary issues in printmaking; emphasis on development of personal work and independent studio practice through group critiques, special research projects, work in all print media.

PRNT:6699 (01M:250) Individual Instruction in Printmaking arr.

Sculpture, Lower-Level Undergraduate

Courses ARTS:1510 (01A:003) Basic Drawing and ARTS:1520 (01A:004) Design Fundamentals are prerequisites for all sculpture courses for art majors; ARTS:1510 (01A:003) Basic Drawing is prerequisite for nonmajors.

SCLP:2810 (01N:015) Undergraduate Sculpture I 3 s.h.

Basic sculptural concepts, processes, investigation of materials such as plaster, clay, wood; emphasis on developing formal language, acquiring basic skills; spatial, conceptual, technical issues. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004). GE: Literary, Visual, and Performing Arts.

SCLP:2820 (01N:016) Undergraduate Sculpture II 3 s.h.

Continuation of SCLP:2810 (01N:015); form, materials, processes, woodcarving, welding, concrete carving and direct application; expanding concept development; contemporary sculptural formats, collaborative process. Prerequisites: SCLP:2810 (01N:015).

SCLP:2875 (01N:019) Sculpture Workshop 3-4 s.h.

Critiques with focus on concept and form development; new processes. Prerequisites: SCLP:2810 (01N:015).

Sculpture, Upper-Level Undergraduate and Graduate

SCLP:3840 (01N:105) Introduction to Robotic Art Studio 3 s.h.

Exploration, design, and creation of interactive artworks, kinetic sculpture, robotic art, sound works, light art, and performance environments; application of basic electronics and mechanical techniques; use of programmable micro-controller Arduino. Prerequisites: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and SCLP:2810 (01N:015) or CERM:2010 (01C:060) or MTLs:2910 (01G:084) or TDSN:2210 (01T:021).

SCLP:3895 (01N:140) Topics in Sculpture 4 s.h.
Projects, reading; specialized conceptual forms and issues in contemporary sculpture, such as public art, installation. Prerequisites: SCLP:2810 (01N:015).

SCLP:4825 (01N:165) Casting in Hot Metal 3-4 s.h.
Foundry work, wax working, mold making, and processes. Prerequisites: SCLP:2820 (01N:016).

SCLP:4830 (01N:170) Motion Systems for Visual Art 3 s.h.
In-depth study of motion in art; study of nature, dance, and mechanisms used as inspiration; motion considered conceptually and mined for specific qualities based on student interest; basic mechanical systems (e.g., gears, pulleys, levers, cams); technical considerations (e.g., material choices for low friction interfaces, ball-bearings, various bushings); power transmission via motors, wind, and human power; discussion of mechanical systems. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

SCLP:4835 (01N:175) Electronic Objects and Spaces 4 s.h.
Aesthetic use of electronics to sequence and control motion, light, and sound; introduction to basic electronics through hands-on workshops and discussions; demonstrations on how to build an Arduino, integrated circuits, power supplies, soldering, prototyping, motors, sensors; projects integrating electronics with objects and spaces; artist screenings and critiques. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

SCLP:4840 (01N:180) Air, Actuators, and Motors 4 s.h.
Introduction to wide range of motors, actuators, and air devices available for integration in art projects; various forms of motor control and necessary means to power these devices; DC and AC motors, stepper motors, solenoids, electro magnets, relays, pneumatics, inflatables, and other air-driven devices; development of a project utilizing one or more systems; examples and media demonstrations to show how artists and scientists employ these systems. Prerequisites: ARTS:1510 (01A:003) and ARTS:1520 (01A:004).

SCLP:4899 (01N:190) Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in sculpture for advanced students.

Sculpture, Graduate

SCLP:6264 (01N:264) Graduate Sculpture Workshop 3-4 s.h.
Critique seminar with readings for graduate sculptors and nonsculpture graduate students.

SCLP:6899 (01N:260) Individual Instruction in Sculpture arr.

Art Education, Upper-Level Undergraduate and Graduate

ARTE:3143 (01E:143) Methods of Art Education in Elementary Schools 3-4 s.h.
Application of studio methods to teaching children in Saturday Children's Art Class Program. Same as EDTL:3143 (07E:143).

Art Education, Graduate

ARTE:6267 (01E:367) Seminar: Current Issues in Art Education 3-4 s.h.
Analysis of literature in art education and related disciplines. Same as EDTL:6267 (07S:367).

Asian and Slavic Languages and Literatures

Director, Division of World Languages, Literatures, and Cultures

- Russell Ganim

Chair, Department of Asian and Slavic Languages and Literatures

- Russell Ganim

Professors

- Chuanren Ke, Philip Lutgendorf, Margaret H. Mills, Helen Shen, Frederick Smith (Religious Studies/Asian and Slavic Languages and Literatures)

Associate professor

- Maureen Robertson (Asian and Slavic Languages and Literatures/Cinematic Arts/Translation)

Assistant professors

- Kendall Heitzman, Yumiko Nishi

Lecturers

- Kiyomi Kawakami, Irina Kostina, Jitka Sonkova, Sang-Seok Yoon, Xiaoyuan Zhao

Professors emeriti

- W. South Coblin, Vadim Kreyd, Ray J. Parrott Jr., Helene A. Scriabine

Associate professor emeritus

- Christopher A. Wertz

Assistant professor emeritus

- Miriam J. Gelfand

Undergraduate majors: Asian languages and literature (B.A.); Russian (B.A.)

Undergraduate minors: Asian languages; Russian

Graduate degree: M.A. in Asian civilizations

Web site: <http://clas.uiowa.edu/dwllc/asll>

The Department of Asian and Slavic Languages and Literatures offers instruction in languages of Asia and eastern Europe as well as in the literatures, civilizations, and cultures of the regions. In addition to offering degree programs, the department welcomes undergraduate and graduate students from across the University to enroll in courses that complement their degree programs or satisfy their personal interests.

The department offers language study in Chinese, Czech, Hindi, Japanese, Korean, Russian, and Sanskrit.

Undergraduate students in all majors may satisfy the World Languages requirement of the General Education Program (p. 323) with courses in Chinese, Czech, Hindi, Japanese, Korean, Russian, or Sanskrit; see "Language for General Education" below. They also may get acquainted with Asia and Eastern Europe by taking any of the department's General Education Program courses on Asian humanities and on Russian and Slavic literature and culture, all taught in English. Entering students may take the department's First-Year Seminars, one on Asian culture and civilization, the other on Slavic culture and civilization.

The Department of Asian and Slavic Languages and Literatures is one of the academic units in the Division of World Languages, Literatures, and Cultures (p. 235).

Undergraduate Programs of Study

- Major in Asian languages and literature (Bachelor of Arts)
- Major in Russian (Bachelor of Arts)
- Minor in Asian languages
- Minor in Russian

The major in Asian languages and literature gives students the opportunity to develop advanced skills in an Asian language while they study the people, literatures, and cultures of Asia. Students choose one of four tracks: Chinese, Hindi, Japanese, or Sanskrit.

Students interested in Asian studies may add a second major in international studies with an emphasis in Asian studies; see International Studies (p. 428) in the Catalog. Many other disciplines work well as second majors for Asian languages and literature students, such as history, art history, political science, religion, sociology, journalism, business, and anthropology.

Graduates have found careers in education, government, communication, business, and other fields in the United States and abroad. The program also provides excellent background for advanced study in a variety of fields in the humanities and social sciences and for professional schools, such as law and business.

The Russian major trains students in both written and spoken Russian and in Russian literature, culture, and civilization. The department encourages students to pursue a second major (e.g., global health, history, linguistics, political science) and to develop their interests in related or complementary fields. Students interested in focusing on a broader interdisciplinary understanding of the region may earn a second major in International Studies (p. 428).

Training in Russian is often an important asset to careers in the natural and physical sciences, engineering, medicine, business, journalism, library and information science, and the social and military sciences. It also may be appropriate preparation for study of law or international relations as well as Slavic languages and literatures, comparative literature, and other humanistic disciplines.

Some governmental agencies are interested in job candidates who have advanced training in Russian; these agencies give preference to applicants who combine strong language proficiency with a well-rounded background in area studies. Students who develop an exceptional facility with the Russian language may pursue careers in literary and technical translation and interpretation.

Bachelor of Arts: Asian Languages and Literature

The Bachelor of Arts with a major in Asian languages and literature requires a minimum of 120 s.h., including 27-30 s.h. of work for the major. Students choose one of four tracks: Chinese, Hindi, Japanese, or Sanskrit. Credit required for the major depends on choice of track;

requirements for each track are listed below. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The amount of approved transfer credit that may be applied to the major varies by track; students should consult their advisors about courses taken at other institutions, including study abroad.

The major in Asian languages and literature requires the following work.

Chinese Track

The Chinese track requires a minimum of 30 s.h. of work for the major. Students must complete the following courses.

CHINESE LANGUAGE

Students must successfully complete CHIN:2101 (039:105) Second-Year Chinese: First Semester and CHIN:2102 (039:106) Second-Year Chinese: Second Semester (total of 10 s.h.) at The University of Iowa with a grade of C or higher, or the equivalent, before they may enroll in the following required courses.

All of these:

CHIN:3101 (039:115)-CHIN:3102 (039:116) Third-Year Chinese: First Semester - Third Year Chinese: Second Semester	6 s.h.
CHIN:4101 (039:108) Classical Chinese: First Semester	3 s.h.
CHIN:4103 (039:128)-CHIN:4104 (039:129) Fourth-Year Chinese: First Semester - Fourth- Year Chinese: Second Semester	6 s.h.

Advanced Chinese language—one of these:

CHIN:5101 (039:165) Fifth-Year Chinese: First Semester	3 s.h.
CHIN:5102 (039:166) Fifth-Year Chinese: Second Semester	3 s.h.
CHIN:5103 (039:171) Readings in Chinese Literature	3 s.h.
CHIN:5106 (039:215) Individual Chinese for Advanced Students	arr.

CHINESE LITERATURE AND CINEMA

One of these:

CHIN:3202 (039:142) Chinese Literature: Prose	3 s.h.
CHIN:3341 (039:141) Chinese Literature: Poetry	3 s.h.

One of these:

CHIN:4203 (039:180) Modern Chinese Writers	3 s.h.
CHIN:4206 (039:173) Transnational Chinese Cinemas	3 s.h.

CHINESE LITERATURE AND CULTURE

The following courses support the study of literature and culture. Courses that pertain to Chinese culture (the arts, history, literature, politics, religion, and translation) and to the methodology of literary or cultural studies, and are cross-listed with the Department of Asian and Slavic Languages and Literatures or are offered by other departments, may be counted toward this requirement.

Course content may vary by semester or instructor; students should consult their advisors for approval.

Two of these:

ASIA:2602 (039:055) Civilizations of Asia: China	3 s.h.
ASIA:4507 (039:198) Topics in Asian Studies	arr.
CHIN:1504 (039:019) Asian Humanities: China	3 s.h.
CHIN:1702 (039:032) Chinese Popular Culture	3 s.h.
CHIN:3201 (039:143) Workshop in Chinese Literary Translation	3 s.h.
CHIN:4204 (039:140) The Literature of Daoism	3 s.h.
CHIN:5104 (039:213) Advanced Classical Chinese	3 s.h.
CHIN:5201 (039:240) Seminar in Chinese Fiction	3 s.h.
CHIN:5202 (039:241) Seminar in Chinese Literature	arr.

Hindi Track

The Hindi track requires a minimum of 30 s.h. of work for the major. Students must complete the following courses.

SOAS:3101 (039:126)-SOAS:3102 (039:127) Second-Year Hindi-Urdu: First Semester - Second-Year Hindi-Urdu: Second Semester	8 s.h.
SOAS:4101 (039:184)-SOAS:4102 (039:185) Third-Year Hindi-Urdu: First Semester - Third- Year Hindi-Urdu: Second Semester (students may substitute 6 s.h. of South Asian studies courses numbered 3000 or above, with the approval of their major advisors)	6 s.h.
Additional South Asian studies courses numbered 3000 or above, including 1-3 s.h. of independent study	16 s.h.

A list of advanced South Asian studies courses numbered 3000 or above is available from the department.

Hindi track students are urged to fulfill the General Education Program (p. 323) Historical Perspectives or International and Global Issues requirement (3 s.h.) by completing HIST:2606 (016:007)/ASIA:2606 (039:057) Civilizations of Asia: South Asia.

Japanese Track

The Japanese track requires 30 s.h. of work for the major. Students may apply a maximum of 12 s.h. of approved transfer credit toward track requirements. Those who are planning to study abroad should consult with their Japanese track advisors in advance to determine whether their planned course work abroad will be accepted toward track requirements.

The following courses are prerequisite to the Japanese track; students may not count credit earned in these courses toward track requirements.

JPNS:1101 (39J:010) First-Year Japanese: First Semester	5 s.h.
JPNS:1103 (39J:012) First-Year Japanese: Second Semester	5 s.h.
JPNS:3101 (39J:101) Second-Year Japanese: First Semester	4-5 s.h.
JPNS:3102 (39J:102) Second-Year Japanese: Second Semester	4-5 s.h.

Work for the Japanese track includes third-year and fourth-year Japanese, literature and translation, linguistics and advanced language studies, and cultural studies. Students must complete the following courses.

THIRD- AND FOURTH-YEAR JAPANESE

Both of these sequences (12 s.h.):

JPNS:3103 (39J:105)-JPNS:3104 (39J:106) Third-Year Japanese I-II	6 s.h.
JPNS:3105 (39J:107)-JPNS:3106 (39J:108) Fourth-Year Japanese I-II	6 s.h.

LITERATURE AND TRANSLATION

Three of these (9 s.h.):

JPNS:3201 (39J:130) Workshop in Japanese Literary Translation	3 s.h.
JPNS:3202 (39J:141) Traditional Japanese Literature in Translation	3 s.h.
JPNS:3203 (39J:142) Modern Japanese Fiction in Translation	3 s.h.
JPNS:3204 (39J:143) Topics in Japanese Literature in Translation	3 s.h.
JPNS:3205 (39J:144) Major Authors in Modern Japanese Literature	3 s.h.
JPNS:3206 (39J:146) Warriors Dreams	3 s.h.
JPNS:3208 (39J:147) Introduction to Japanese Film	3 s.h.
JPNS:3210 (39J:150) Japanese Theater	3 s.h.
JPNS:3601 (39J:155) Contemporary Japanese Culture	3 s.h.
JPNS:4201 (39J:145) The Tale of Genji	3 s.h.

LINGUISTICS AND ADVANCED LANGUAGE STUDIES

At least 6 s.h. from these:

JPNS:3107 (39J:119) Classical Japanese: First Semester	3 s.h.
JPNS:3128 (39J:128) Introduction to Japanese Linguistics	3 s.h.
JPNS:3401 (39J:103) Language in Japanese Society	3 s.h.
JPNS:3402 (39J:129) Japan: Culture and Communication	3 s.h.
JPNS:4101 (39J:121)-JPNS:4102 (39J:122) Fifth- Year Japanese I - Fifth Year Japanese II	6 s.h.

CULTURAL STUDIES

Students complete one course (total of 3 s.h.) chosen from the following lists.

Asian and Slavic languages and literatures:

JPNS:1506 (039:020) Asian Humanities: Japan	3 s.h.
JPNS:3135 (39J:135) Postmodern Aesthetics and Japanese Culture	3 s.h.

Anthropology:

JPNS:2175 (39J:125) Japanese Society and Culture	3 s.h.
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Art history:

JPNS:2250 (39J:033) Introduction to the Art of Japan	3 s.h.
JPNS:3260 (39J:123) Japanese Painting	3 s.h.

History:

JPNS:4610 (39J:172) Japan—Age of the Samurai	3 s.h.
JPNS:4615 (39J:173) Modern Japan	3 s.h.
JPNS:4620 (39J:175) Japan-US Relations	3 s.h.

Religious studies:

JPNS:1115 (39J:017) Japanese Religions	3 s.h.
JPNS:3660 (39J:109) Japanese Religion and Thought	3 s.h.

World languages, literatures, and cultures:

JPNS:3700 (39J:162) Topics in Global Cinema	3 s.h.
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Sanskrit Track

The Sanskrit track requires a minimum of 27 s.h. for the major. Students must complete the following courses.

SOAS:3901 (039:112)-SOAS:3902 (039:113) Second-Year Sanskrit: First Semester - Second- Year Sanskrit: Second Semester	6 s.h.
SOAS:4201 (039:186)-SOAS:4202 (039:187) Third-Year Sanskrit: First Semester - Third- Year Sanskrit: Second Semester (students may substitute 6 s.h. of South Asian studies courses numbered 3000 or above, with the approval of their major advisors)	6 s.h.
Additional South Asian studies courses numbered 3000 or above, including 1-3 s.h. of independent study	15 s.h.

A list of advanced South Asian studies courses numbered 3000 or above is available from the department.

Sanskrit track students are urged to fulfill the General Education Program (p. 323) Historical Perspectives or International and Global Issues requirement (3 s.h.) by completing HIST:2606 (016:007)/ASIA:2606 (039:057) Civilizations of Asia: South Asia.

Bachelor of Arts: Russian

The Bachelor of Arts with a major in Russian requires a minimum of 120 s.h., including 32 s.h. of work for the major earned in Russian courses. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in Russian requires the following courses.

Language—one of these:

SLAV:3113 (041:109) Beginning Composition and Conversation I	4 s.h.
SLAV:3114 (041:110) Beginning Composition and Conversation II	4 s.h.

Language—both of these sequences:

SLAV:3111 (041:111)-SLAV:3112 (041:112) Third-Year Russian I-II	8 s.h.
SLAV:4111 (041:113)-SLAV:4112 (041:114) Fourth-Year Russian I-II	8 s.h.

Russian and East European culture—four of these:

SLAV:1131 (041:098) Introduction to Russian Culture	3 s.h.
SLAV:1132 (041:099) Russia Today	3 s.h.
SLAV:1450 (041:058) Diversities of Eastern Europe: Culture, Art, and Politics	3 s.h.
SLAV:1500 (041:055) Ukraine, a Country at the Crossroads: An Interdisciplinary Seminar on Ukrainian History and Culture	3 s.h.
SLAV:1531 (041:093) Slavic Folklore	3 s.h.
SLAV:1532 (041:094) Religion and Culture of Slavs	3 s.h.
SLAV:2100 (041:150) Secrets of Russian Mentality	3 s.h.
SLAV:2131 (041:160) Women in Russian Society	3 s.h.
SLAV:2531 (041:164) Topics in Russian, East European, and Eurasian Studies	arr.
SLAV:3082 (041:082) Youth Subcultures After Socialism	3 s.h.
SLAV:3100 (041:165) West and East: Women in the Slavic World	3 s.h.
SLAV:3122 (041:155) Tolstoy and Dostoevsky	3 s.h.
SLAV:3131 (041:104) Health Care and Health Reforms in Russia	3 s.h.
SLAV:3202 (041:102) Russian Literature in Translation 1860-1917	3 s.h.
SLAV:3221 (041:168) Twentieth-Century Czech Authors	3 s.h.

Students may substitute one of the following Slavic language two-course sequences for one of the four required Russian/East European culture courses (see list above).

SLAV:1211 (041:141)-SLAV:1212 (041:142) Conversational Czech I-II	6 s.h.
SLAV:2211 (041:143)-SLAV:2212 (041:144) Conversational Czech III-IV	6 s.h.

Students majoring in Russian are urged to choose elective courses in economics, geography, history, political science, global health, and international studies. Nearly every avenue of professional training and employment requires a solid background in Russian area studies. For example, criteria for U.S. government employment include substantive knowledge in history, economics, political science, sociological disciplines, scientific specialties, demography, military-related skills, and in some cases, cultural and religious background. In-depth knowledge of literature or linguistics without other substantive background may be of limited practical use in finding employment.

B.A. with Teacher Licensure

Students majoring in Asian languages and literature (Chinese or Japanese track) or in Russian who are interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for their major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Asian languages and literature majors must complete designated pedagogy and linguistics courses in the department in addition to the course work required for their major.

Students who plan to use their work toward a minor in Chinese, Japanese, or Russian as academic background for earning teacher licensure should contact the Office of Education Services about requirements.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A.: Asian Languages and Literature

Before the third semester begins: for students in Chinese and Japanese tracks, language work begun (students in the Hindi and Sanskrit tracks may begin language work in their sophomore year)

Before the fifth semester begins: at least first-year language competency

Before the seventh semester begins: at least second-year language competency and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least third-year, first-semester language competency and one additional course in the major (for the Japanese track, two additional courses in the major)

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A.: Russian

Before the third semester begins: competence in first-year Russian

Before the fifth semester begins: competence in second-year Russian

Before the seventh semester begins: competence in third-year Russian, an additional course in the major, and at least 90 s.h. earned toward the degree

Before the eighth semester: competence in fourth-year Russian and two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in Asian languages and literature or in Russian have the opportunity to graduate with honors in the major.

Asian languages and literature students must have the consent of the department chair and a faculty sponsor (an Asian specialist from any department) for departmental

honors work. In order to graduate with honors in the major, they must register for ASIA:4301 (039:191) Honors Tutorial and ASIA:4506 (039:195) Senior Honors Thesis and must complete an acceptable thesis based on original research.

Students majoring in Russian must have junior or senior standing, a g.p.a. of at least 3.33 in Russian, and a cumulative University of Iowa g.p.a. of at least 3.33 in order to enroll in the honors program in Russian. Students may earn up to 9 s.h. of honors credit in Russian; they earn 3 s.h. for each set of extensive readings with discussions, regular reports, and a semester paper that they complete. Contact the department for more information about requirements for graduation with honors in the Russian major.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor: Asian Languages

The minor in Asian languages is offered with four emphases: Chinese, Hindi, Japanese, and Sanskrit. Credit for the minor varies by emphasis. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Requirements for each emphasis are listed below.

CHINESE EMPHASIS

The minor in Asian languages with Chinese emphasis requires 15 s.h., including 12 s.h. earned in courses considered advanced for the minor taken at The University of Iowa. The minor must include the following course work. Some of these courses have prerequisites; students must complete all of a course's prerequisites before they may register for that course.

Both of these sequences:

CHIN:3101 (039:115)-CHIN:3102 (039:116) Third-Year Chinese: First Semester - Third Year Chinese: Second Semester	6 s.h.
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CHIN:4103 (039:128)-CHIN:4104 (039:129) Fourth-Year Chinese: First Semester - Fourth- Year Chinese: Second Semester	6 s.h.
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One of these:

CHIN:3202 (039:142) Chinese Literature: Prose	3 s.h.
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CHIN:3341 (039:141) Chinese Literature: Poetry	3 s.h.
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CHIN:4203 (039:180) Modern Chinese Writers	3 s.h.
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CHIN:4206 (039:173) Transnational Chinese Cinemas	3 s.h.
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HINDI EMPHASIS

The minor in Asian languages with Hindi emphasis requires 14 s.h., including 11 s.h. earned in courses considered advanced for the minor taken at The University of Iowa. The courses SOAS:2101 (039:123) First-Year Hindi-Urdu: First Semester and SOAS:2102 (039:124) First-Year Hindi-Urdu: Second Semester do not count as advanced courses for the minor.

JAPANESE EMPHASIS

The minor in Asian languages with Japanese emphasis requires 15 s.h., including 12 s.h. earned in courses considered advanced for the minor taken at The University of Iowa.

The following courses are prerequisite to the Japanese emphasis; they do not count toward the minor.

JPNS:1101 (39J:010) First-Year Japanese: First Semester	5 s.h.
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JPNS:1103 (39J:012) First-Year Japanese: Second Semester	5 s.h.
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JPNS:3101 (39J:101) Second-Year Japanese: First Semester	4-5 s.h.
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JPNS:3102 (39J:102) Second-Year Japanese: Second Semester	4-5 s.h.
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The minor with Japanese emphasis must include the following courses.

JPNS:3103 (39J:105)-JPNS:3104 (39J:106) Third-Year Japanese I-II	6 s.h.
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One course in literature and translation	3 s.h.
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One course in linguistics and advanced language studies	3 s.h.
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One course in literature and translation, or in linguistics and advanced language studies, or in cultural studies	3 s.h.
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Students select the courses in literature and translation, linguistics and advanced language studies, and cultural studies from those listed under "Bachelor of Arts: Asian Languages and Literature"/"Japanese Track" above.

SANSKRIT EMPHASIS

The minor in Asian languages with Sanskrit emphasis requires 15 s.h., including 12 s.h. earned in courses considered advanced for the minor taken at The University of Iowa. The advanced courses must be chosen from the following list.

SOAS:2902 (039:111) First-Year Sanskrit: Second Semester	4 s.h.
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SOAS:3901 (039:112) Second-Year Sanskrit: First Semester	3 s.h.
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SOAS:3902 (039:113) Second-Year Sanskrit: Second Semester	3 s.h.
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SOAS:4201 (039:186) Third-Year Sanskrit: First Semester	3 s.h.
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SOAS:4202 (039:187) Third-Year Sanskrit: Second Semester	3 s.h.
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SOAS:5201 (039:216) Individual Sanskrit for Advanced Students	arr.
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The course SOAS:2901 (039:110) First-Year Sanskrit: First Semester does not count as an advanced course for the minor.

Minor: Russian

The minor in Russian requires a minimum of 15 s.h. in Russian courses, including 12 s.h. earned in courses considered advanced for the minor taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may count a maximum of 3 s.h. taught in English toward the minor. The department recommends

that students choose courses numbered 3000 or above for the minor, such as the following sequences.

SLAV:3111 (041:111)-SLAV:3112 (041:112) Third-Year Russian I-II	8 s.h.
SLAV:3113 (041:109)-SLAV:3114 (041:110) Beginning Composition and Conversation I-II	8 s.h.
SLAV:4111 (041:113)-SLAV:4112 (041:114) Fourth-Year Russian I-II	8 s.h.

Language for General Education

Undergraduate students in all majors may satisfy the World Languages requirement of the College of Liberal Arts and Sciences General Education Program (p. 323) with course sequences in Chinese, Czech, Hindi, Japanese, Korean, Russian, and Sanskrit.

Students who have had experience with Japanese or Russian should take the appropriate University of Iowa World Languages Placement Test, which helps determine the level at which they should begin study of the language. Students with backgrounds in Chinese, Czech, Hindi, Korean, or Sanskrit may receive individual evaluations from the department.

CHINESE

The following sequence fulfills the General Education Program's World Languages requirement and is appropriate for students without previous knowledge of Chinese.

CHIN:1111 (039:008) First-Year Chinese: First Semester	5 s.h.
CHIN:1112 (039:009) First-Year Chinese: Second Semester	5 s.h.
CHIN:2101 (039:105) Second-Year Chinese: First Semester	5 s.h.
CHIN:2102 (039:106) Second-Year Chinese: Second Semester	5 s.h.

Students who have participated in ABRD:3411 (165:814) Iowa in Tianjin after completing CHIN:1111 (039:008) First-Year Chinese: First Semester and CHIN:1112 (039:009) First-Year Chinese: Second Semester, and students from Chinese-speaking families who perform exceptionally well in CHIN:1111 (039:008) First-Year Chinese: First Semester and CHIN:1112 (039:009) First-Year Chinese: Second Semester, may fulfill the World Languages requirement with the following sequence.

CHIN:1111 (039:008) First-Year Chinese: First Semester	5 s.h.
CHIN:1112 (039:009) First-Year Chinese: Second Semester	5 s.h.
CHIN:2103 (039:107) Accelerated Second-Year Chinese: First Semester	3 s.h.
CHIN:2104 (039:114) Accelerated Second-Year Chinese: Second Semester	3 s.h.

Students who have taken CHIN:2103 (039:107) and/or CHIN:2104 (039:114) should not enroll in CHIN:2101 (039:105) and/or CHIN:2102 (039:106).

Additional course work is available, including advanced Chinese, classical Chinese, and business Chinese. Consult the department for appropriate placement in Chinese language courses.

CZECH

The following sequence fulfills the General Education Program's World Languages requirement and is most appropriate for students without previous knowledge of Czech.

SLAV:1211 (041:141) Conversational Czech I	3 s.h.
SLAV:1212 (041:142) Conversational Czech II	3 s.h.
SLAV:2211 (041:143) Conversational Czech III	3 s.h.
SLAV:2212 (041:144) Conversational Czech IV	3 s.h.

HINDI

The following sequence fulfills the General Education Program's World Languages requirement. Additional courses are available.

SOAS:2101 (039:123) First-Year Hindi-Urdu: First Semester	5 s.h.
SOAS:2102 (039:124) First-Year Hindi-Urdu: Second Semester	5 s.h.
SOAS:3101 (039:126) Second-Year Hindi-Urdu: First Semester	4 s.h.
SOAS:3102 (039:127) Second-Year Hindi-Urdu: Second Semester	4 s.h.

JAPANESE

The following sequence fulfills the General Education Program's World Languages requirement and is appropriate for students without previous knowledge of Japanese.

JPNS:1101 (39J:010) First-Year Japanese: First Semester	5 s.h.
JPNS:1103 (39J:012) First-Year Japanese: Second Semester	5 s.h.
JPNS:3101 (39J:101) Second-Year Japanese: First Semester	4-5 s.h.
JPNS:3102 (39J:102) Second-Year Japanese: Second Semester	4-5 s.h.

KOREAN

The following sequence fulfills the General Education Program's World Languages requirement and leads to elementary/intermediate proficiency in Korean.

ASIA:1101 (039:040) First-Year Korean: First Semester	4 s.h.
ASIA:1102 (039:041) First-Year Korean: Second Semester	4 s.h.
ASIA:2101 (039:042) Second-Year Korean: First Semester	4 s.h.
ASIA:2102 (039:043) Second-Year Korean: Second Semester	4 s.h.

Students interested in Korean language study beyond the General Education requirement may take the third- and fourth-year Korean courses listed under "Courses" toward the end of this Catalog section.

RUSSIAN

The following sequence fulfills the General Education Program's World Languages requirement.

SLAV:1111 (041:001) First-Year Russian I	5 s.h.
SLAV:1112 (041:002) First-Year Russian II	5 s.h.

SLAV:2111 (041:003) Second-Year Russian I	4 s.h.
SLAV:2112 (041:004) Second-Year Russian II	4 s.h.

SANSKRIT

The following sequence fulfills the General Education Program's World Languages requirement.

SOAS:2901 (039:110) First-Year Sanskrit: First Semester	4 s.h.
SOAS:2902 (039:111) First-Year Sanskrit: Second Semester	4 s.h.
SOAS:3901 (039:112) Second-Year Sanskrit: First Semester	3 s.h.
SOAS:3902 (039:113) Second-Year Sanskrit: Second Semester	3 s.h.

Students interested in Sanskrit language study beyond the General Education requirement may take third-year Sanskrit courses listed under "Courses" toward the end of this Catalog section.

Related Certificate: International Business

The College of Liberal Arts and Sciences and the Tippie College of Business offer the Certificate in International Business. The program entails study of international business and economics; international relations and institutions; a language; and the art, literature, culture, and/or politics of a geographic area. Students of Chinese, Japanese, Hindi, or Russian are likely to satisfy the certificate's language requirement while completing the requirements for their major. For information about the certificate, see International Business (p. 420) in the Catalog.

Graduate Programs of Study

- Master of Arts in Asian civilizations

The master's degree program in Asian civilizations prepares students for doctoral study in a variety of disciplines. It also may be a good choice for students planning nonacademic careers in which advanced knowledge of Asian civilizations could be useful. For example, students working toward professional degrees, such as an M.D. or J.D., may decide to earn the M.A. in Asian civilizations while completing the professional degree.

Master of Arts

The Master of Arts program in Asian Civilizations requires a minimum of 30 s.h. of graduate credit, including 24 s.h. earned in residence at The University of Iowa. All students must maintain a g.p.a. of 3.00 or higher. Detailed information on degree requirements is sent to all applicants.

M.A. students choose from several tracks: Hindi language and literature, Sanskrit language and literature, South Asian studies, Chinese literature and culture, Chinese linguistics, teaching Chinese as a foreign language, interdisciplinary Chinese studies, teaching Japanese as a foreign language, Japanese studies, and interdisciplinary Japanese studies.

By the end of the first semester in residence, students propose a study plan developed in consultation with

their advisor and in accordance with guidelines for specializations within the program.

By the end of the final semester in residence, students are expected to demonstrate, either by departmental examination or the successful completion of courses at the appropriate level, advanced competence in Chinese, Japanese, Hindi, or Sanskrit. Advanced competence is defined generally as fourth-year level course work in Chinese or Japanese and third-year level in Hindi and Sanskrit.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. The Department of Asian and Slavic Languages and Literatures requires a g.p.a. of at least 3.00 for regular admission and a g.p.a. of at least 2.75 for conditional admission.

Applicants must submit a statement of purpose, a research paper written in English, three letters of recommendation, and scores on the Graduate Record Exam (GRE) General Test. Applicants whose first language is not English must score at least 97 (Internet-based) on the Test of English as a foreign language (TOEFL).

Both international and U.S. graduate applications requesting financial support for the following academic year are due February 1. All other applications are accepted until April 15 for fall admission and October 1 for spring admission.

Application materials are available from the department.

Study Abroad

The department strongly urges its students to seek opportunities for summer language study and study abroad to accelerate the language acquisition process. The University's memberships in the American Institute of Indian Studies and the China Cooperative Language and Study Programs consortium help facilitate students' access to quality international programs in India and China. The government of the People's Republic of China offers scholarships for two students to live and study in Mainland China each year.

The UI-Nanzan Exchange allows Iowa students to pay Iowa tuition, room, and board while attending the Center for Japanese Studies at Nanzan University in Nagoya, Japan. There also is a cooperative agreement with the Landour Language School in the Himalayan foothills of India. The South Asian Studies Program has launched a new study abroad program in Mysore and Bangalore, India, where students have the opportunity to study a variety of aspects of traditional and modern Indian civilization.

Iowa students participate in summer, semester, or academic year programs in Russian under the auspices of the American Council of Teachers of Russian (ACTR). The association directs academic language training programs in the cities of Moscow, St. Petersburg, and Vladimir.

Many students participate in summer, semester-long, and year-long study abroad programs in India, China, and Japan offered through other U.S. universities. In many cases credit is transferable, and it is possible for a student to study abroad and still complete the Four-Year Graduation Plan. There are many resources available for funding

research and study abroad. It also may be possible for students to apply University of Iowa financial aid to their study abroad programs.

Contact the Department of Asian and Slavic Languages and Literatures or International Programs Study Abroad for more information.

Summer Study, Internships

The department offers an intensive course of language study (second year) each summer in which students complete the equivalent of one academic year of study (the equivalent of one course for each of two semesters, totaling 8 s.h.). Scholarships are available for summer intensive Russian.

Students are encouraged to enrich their programs of study through internships designed to combine work experience in Asia or the United States with study or research projects. The University's Pomerantz Career Center keeps a list of internships.

Activities

Student Associations

Students have many opportunities to enrich their studies in Asian languages and literature while living in Iowa City. The University sponsors student associations for students from many Asian countries, including mainland China, Japan, Korea, India, Pakistan, and Taiwan. All University of Iowa students are welcome to join. Various international community groups sponsor cultural events and holiday celebrations throughout the year.

Residence in Living-Learning Community

The Global Mosaic Living-Learning Community welcomes American and international first-year and second-year students who wish to broaden their knowledge of international issues, languages, and cultures. Global Mosaic members live in Mayflower Residence Hall and enjoy a variety of programs on diverse cultures, the arts, fashion, cinema, dining and cuisine, study abroad, and more. Students must apply to live in the Global Mosaic Living-Learning Community; see the Living-Learning Communities web page.

Facilities

Language Media Center

The University's Language Media Center provides facilities for language learning, teaching, and research. Equipment in the center includes state-of-the-art computer, audio, and video facilities as well as standard and short-wave radios, tape and cassette recorders, record players, and soundproof recording rooms. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings also are available.

University of Iowa Libraries

Since 1960 University of Iowa Libraries has routinely acquired most American titles in Asian studies and selected overseas scholarly publications in English and other Western languages. The Main Library's Asian collection includes approximately 80,000 volumes in Asian languages and about 140,000 Western-language volumes

on Asian subjects. The University has been a member of the Library of Congress Foreign Currency Exchange Program for Indian books and periodicals since 1975. The library's nonprint media collection includes a growing number of Asian feature films. A Chinese-Japanese-Korean computer terminal gives students and faculty access to the growing Research Libraries Information Network database in Asian languages.

Financial Support

Undergraduate and graduate students have access to the following financial aid and scholarship resources. Contact the Department of Asian and Slavic Languages and Literatures for application information.

Cheng/Liu Scholarship: Undergraduate and graduate students currently majoring in Chinese in the Department of Asian and Slavic Languages and Literatures at The University of Iowa may apply for the Cheng/Liu Scholarship. The award can be used for summer Chinese language study.

Fairall Scholarship: Undergraduate or graduate majors who have attended and/or graduated from Iowa elementary or secondary schools may be nominated by the department to receive a Fairall Scholarship. Preference is given to Japanese studies students. Applications are available late spring, with scholarships to be awarded the following fall semester.

Foreign language and area studies fellowships: Only U.S. citizens are eligible. Graduate students combining work in Asian languages at an advanced level with interdisciplinary or professional programs may apply. The award is offered by International Programs for academic year and summer language study.

Graduate assistantships: The department offers teaching assistantships for graduate students in the program. All applicants to graduate study in the program receive information on applying for an assistantship. Assistantships are awarded each spring for the following academic year.

Graduate international research: Opportunities for funding research abroad include Stanley Fellowships for Graduate Student Research Abroad, CIREH Research Scholarships in International Health, Fulbright Grants, and Foreign Language Area Scholarships.

Summer language scholarships: Currently enrolled undergraduate and graduate students may compete for a Stanley-University of Iowa Foundation Support Organization Summer Language Scholarship, to be used for intensive summer language study in Chinese, Hindi, Japanese, or Sanskrit. Eight to ten awards of \$2,000-\$2,500 are made each summer. Applications are due March 1.

Support for undergraduate study abroad: Opportunities for undergraduates to study abroad include the Presidential Scholarships for Study Abroad and the Stanley Scholarships for International Research and Study.

Courses

Language for Undergraduate and Graduate Students

Chinese, Lower-Level Undergraduate

High school students and University of Iowa students who would like to learn Chinese but do not plan to use Chinese to satisfy the World Languages requirement of the College of Liberal Arts and Sciences General Education Program may wish to take the beginning Chinese courses CHIN:1115 (039:003), CHIN:1116 (039:004), CHIN:1117 (039:010), and CHIN:1118 (039:011) in sequence and may follow them with the second-year courses CHIN:2101 (039:105) and CHIN:2102 (039:106). See the course descriptions below.

CHIN:1101 (039:001) Conversational Chinese I 1 s.h.

Introduction to modern Chinese, with focus on communication "survival" skills for discussing oneself, family, daily activities, interests, personal preferences, food, shopping, travel, lodging; situational activities and performance.

CHIN:1102 (039:002) Conversational Chinese II 1 s.h.

Continuation of CHIN:1101 (039:001), with focus on speaking and listening.

CHIN:1111 (039:008) First-Year Chinese: First Semester 5 s.h.

Sound system of Mandarin Chinese, basic sentence patterns; aural understanding, speaking, reading, writing. Offered fall semesters. Requirements: undergraduate standing. GE: World Languages First Level Proficiency.

CHIN:1112 (039:009) First-Year Chinese: Second Semester 5 s.h.

Continuation of CHIN:1111 (039:008). Offered spring semesters. Prerequisites: CHIN:1111 (039:008). Requirements: undergraduate standing. GE: World Languages Second Level Proficiency.

CHIN:1115 (039:003) Beginning Chinese I 3 s.h.

Beginning Chinese; offered through UI Confucius Institute; first of a four-course sequence.

CHIN:1116 (039:004) Beginning Chinese II 3 s.h.

Continuation of CHIN:1115 (039:003); offered through UI Confucius Institute; second of a four-course sequence. Requirements: CHIN:1115 (039:003) or equivalent as demonstrated in written and oral exams.

CHIN:1117 (039:010) Beginning Chinese III 3 s.h.

Continuation of CHIN:1116 (039:004); offered through UI Confucius Institute; third of a four-course sequence. Prerequisites: CHIN:1116 (039:004).

CHIN:1118 (039:011) Beginning Chinese IV 3 s.h.

Continuation of CHIN:1117 (039:010); offered through UI Confucius Institute; last of a four-course sequence. Prerequisites: CHIN:1117 (039:010).

CHIN:2101 (039:105) Second-Year Chinese: First Semester 5 s.h.

Continuation of CHIN:1112 (039:009). Offered fall semesters. Prerequisites: CHIN:1112 (039:009). Requirements: undergraduate standing. GE: World Languages Second Level Proficiency.

CHIN:2102 (039:106) Second-Year Chinese: Second Semester 5 s.h.

Continuation of CHIN:2101 (039:105). Offered spring semesters. Prerequisites: CHIN:2101 (039:105). Requirements: undergraduate standing. GE: World Languages Fourth Level Proficiency.

CHIN:2103 (039:107) Accelerated Second-Year Chinese: First Semester 3 s.h.

Intermediate Chinese. Requirements: grades of C or higher in CHIN:1111 (039:008) and CHIN:1112 (039:009), and one summer of Chinese study in China. GE: World Languages First Level Proficiency.

CHIN:2104 (039:114) Accelerated Second-Year Chinese: Second Semester 3 s.h.

Intermediate Chinese. Prerequisites: grade of C or higher in CHIN:2103 (039:107). GE: World Languages Fourth Level Proficiency.

Chinese, Upper-Level Undergraduate

CHIN:3101 (039:115) Third-Year Chinese: First Semester 3 s.h.

Reading of advanced modern Chinese texts; speaking, writing. Offered fall semesters. Prerequisites: CHIN:2102 (039:106).

CHIN:3102 (039:116) Third Year Chinese: Second Semester 3 s.h.

Continuation of CHIN:3101 (039:115). Offered spring semesters. Prerequisites: CHIN:3101 (039:115).

CHIN:3103 (039:117) Business Chinese I 3 s.h.

Skill development in communicating with Chinese counterparts on a number of domains in business translations; first of a two-course sequence. Prerequisites: CHIN:2102 (039:106).

CHIN:3104 (039:118) Business Chinese II 3 s.h.

Skill development in communicating with Chinese counterparts on a number of domains in business translations; second of a two-course sequence. Prerequisites: CHIN:3102 (039:116) or CHIN:3103 (039:117).

CHIN:4101 (039:108) Classical Chinese: First Semester 3 s.h.

Late Zhou period; readings from *Zhanguoce*, *Mengzi*, *Zhuangzi*; focus on grammatical analysis, exact translation. Offered fall semesters. Prerequisites: CHIN:2102 (039:106).

CHIN:4102 (039:109) Classical Chinese: Second Semester 3 s.h.

Continuation of CHIN:4101 (039:108). Offered spring semesters. Prerequisites: CHIN:4101 (039:108).

CHIN:4103 (039:128) Fourth-Year Chinese: First Semester 3 s.h.

Proficiency through oral and written discussions of modern texts. Offered fall semesters. Prerequisites: CHIN:3102 (039:116).

CHIN:4104 (039:129) Fourth-Year Chinese: Second Semester 3 s.h.

Offered spring semesters. Prerequisites: CHIN:4103 (039:128).

Chinese, Graduate

CHIN:5101 (039:165) Fifth-Year Chinese: First Semester 3 s.h.

Improvement of language skills in modern Chinese: listening, speaking, reading, writing; skill development in reading authentic texts related to topics of student interest. Prerequisites: CHIN:4104 (039:129).

CHIN:5102 (039:166) Fifth-Year Chinese: Second Semester 3 s.h.

Continuation of CHIN:5101 (039:165). Prerequisites: CHIN:5101 (039:165).

CHIN:5103 (039:171) Readings in Chinese Literature 3 s.h.

Essays in aspects of contemporary Chinese society for advanced Chinese learners to elevate reading and writing abilities. Taught in Chinese. Requirements: CHIN:5102 (039:166) for nonnative Chinese student.

CHIN:5104 (039:213) Advanced Classical Chinese 3 s.h.

Readings from *Zuozhuan*, *Guoyu*, other texts of early classical period. Prerequisites: CHIN:4102 (039:109).

CHIN:5105 (039:220) Literary Chinese I 3 s.h.

Readings from literary and historical texts of Han and Wei-Jin periods. Prerequisites: CHIN:4102 (039:109).

Czech, Lower-Level Undergraduate

SLAV:1211 (041:141) Conversational Czech I 3 s.h.

Development of basic reading and writing skills, ability to understand and speak everyday Czech; history and culture of Czech-speaking countries through discussions, readings, and videos. GE: World Languages First Level Proficiency.

SLAV:1212 (041:142) Conversational Czech II 3 s.h.

Continuation of SLAV:1211 (041:141); development of basic reading and writing skills, ability to understand and speak everyday Czech; history and culture of Czech-speaking countries through discussions, readings, and videos. Prerequisites: SLAV:1211 (041:141). GE: World Languages Second Level Proficiency.

SLAV:2211 (041:143) Conversational Czech III 3 s.h.

Continuation of SLAV:1212 (041:142); development of reading and writing skills, ability to understand and speak everyday Czech; history and culture of Czech-speaking countries through discussions, readings, and videos. Prerequisites: SLAV:1212 (041:142). GE: World Languages Second Level Proficiency.

SLAV:2212 (041:144) Conversational Czech IV 3 s.h.

Continuation of SLAV:2211 (041:143); development of reading and writing skills, ability to understand and speak everyday Czech; history and culture of Czech-speaking countries through discussions, readings, and videos. Prerequisites: SLAV:2211 (041:143). GE: World Languages Fourth Level Proficiency.

Czech, Upper-Level Undergraduate and Graduate

SLAV:3145 (041:145) Third-Year Czech I 4 s.h.

Advanced knowledge of Czech grammar; reading, comprehension, conversation, and writing skills; varied techniques and activities for proficiency in Czech; conversation in small groups, presentation of oral reports, written compositions, group projects; articles from the press, contemporary Czech short stories, videos of contemporary Czech cultural scene. Prerequisites: SLAV:2212 (041:144).

SLAV:3146 (041:146) Third-Year Czech II 4 s.h.

Continuation of SLAV:3145 (041:145); advanced knowledge of Czech grammar and basic syntax structures of Czech sentences; reading, aural comprehension, conversation, writing skills; short stories from Czech Literature, Internet press articles, short compositions; videos of contemporary Czech cultural scene. Prerequisites: SLAV:3145 (041:145).

Hindi, Lower-Level Undergraduate

SOAS:2101 (039:123) First-Year Hindi-Urdu: First Semester 5 s.h.

Reading, writing, speaking. Offered fall semesters of odd years. GE: World Languages First Level Proficiency.

SOAS:2102 (039:124) First-Year Hindi-Urdu: Second Semester 5 s.h.

Continuation of SOAS:2101 (039:123). Offered spring semesters of even years. Prerequisites: SOAS:2101 (039:123). Requirements: undergraduate standing. GE: World Languages Second Level Proficiency.

Hindi, Upper-Level Undergraduate and Graduate

SOAS:3101 (039:126) Second-Year Hindi-Urdu: First Semester 4 s.h.

Conversation, reading of folktales and modern short stories. Offered fall semesters of even years. Prerequisites: SOAS:2102 (039:124). GE: World Languages Second Level Proficiency.

SOAS:3102 (039:127) Second-Year Hindi-Urdu: Second Semester 4 s.h.

Continuation of SOAS:3101 (039:126). Offered spring semesters of odd years. Prerequisites: SOAS:3101 (039:126). Requirements: undergraduate standing. GE: World Languages Fourth Level Proficiency.

SOAS:4101 (039:184) Third-Year Hindi-Urdu: First Semester 3 s.h.

Advanced level Hindi texts; speaking, writing. Offered fall semesters. Prerequisites: SOAS:3102 (039:127).

SOAS:4102 (039:185) Third-Year Hindi-Urdu: Second Semester 3 s.h.

Continuation of SOAS:4101 (039:184). Offered spring semesters. Prerequisites: SOAS:4101 (039:184).

Japanese, Lower-Level Undergraduate**JPNS:1101 (39J:010) First-Year Japanese: First Semester** 5 s.h.

Modern Japanese. Offered fall semesters. Requirements: undergraduate standing. GE: World Languages First Level Proficiency.

JPNS:1103 (39J:012) First-Year Japanese: Second Semester 5 s.h.

Continuation of JPNS:1101 (39J:010). Offered spring semesters. Prerequisites: JPNS:1101 (39J:010). Requirements: undergraduate standing. GE: World Languages Second Level Proficiency.

Japanese, Upper-Level Undergraduate and Graduate**JPNS:3101 (39J:101) Second-Year Japanese: First Semester** 4-5 s.h.

Continuation of JPNS:1103 (39J:012). Offered fall semesters. Prerequisites: JPNS:1103 (39J:012). Requirements: undergraduate standing. GE: World Languages Second Level Proficiency.

JPNS:3102 (39J:102) Second-Year Japanese: Second Semester 4-5 s.h.

Continuation of JPNS:3101 (39J:101). Offered spring semesters. Prerequisites: JPNS:3101 (39J:101). Requirements: undergraduate standing. GE: World Languages Fourth Level Proficiency.

JPNS:3103 (39J:105) Third-Year Japanese I 3 s.h.

Modern Japanese; focus on speaking, listening, reading, writing; materials related to everyday life and civilization in Japan. Offered fall semesters. Prerequisites: JPNS:3102 (39J:102).

JPNS:3104 (39J:106) Third-Year Japanese II 3 s.h.

Continuation of JPNS:3103 (39J:105). Offered spring semesters. Prerequisites: JPNS:3103 (39J:105).

JPNS:3105 (39J:107) Fourth-Year Japanese I 3 s.h.

Modern Japanese; focus on reading, writing, speaking, listening. Offered fall semesters. Prerequisites: JPNS:3104 (39J:106).

JPNS:3106 (39J:108) Fourth-Year Japanese II 3 s.h.

Continuation of JPNS:3105 (39J:107). Offered spring semesters. Prerequisites: JPNS:3105 (39J:107).

JPNS:3107 (39J:119) Classical Japanese: First Semester 3 s.h.

Grammar, readings in classical Japanese. Offered fall semesters. Prerequisites: JPNS:3104 (39J:106).

JPNS:4101 (39J:121) Fifth-Year Japanese I 3 s.h.

Modern Japanese; emphasis on communication skills. Offered fall semesters. Prerequisites: JPNS:3105 (39J:107) and JPNS:3106 (39J:108).

JPNS:4102 (39J:122) Fifth Year Japanese II 3 s.h.

Continuation of JPNS:4101 (39J:121). Offered spring semesters. Prerequisites: JPNS:4101 (39J:121).

Korean, Lower-Level Undergraduate**ASIA:1101 (039:040) First-Year Korean: First Semester** 4 s.h.

Modern Korean; speaking, listening, reading, writing. Offered fall semesters. GE: World Languages First Level Proficiency.

ASIA:1102 (039:041) First-Year Korean: Second Semester 4 s.h.

Continuation of ASIA:1101 (039:040). Offered spring semesters. Prerequisites: ASIA:1101 (039:040). GE: World Languages Second Level Proficiency.

ASIA:2101 (039:042) Second-Year Korean: First Semester 4 s.h.

Continuation of ASIA:1102 (039:041); conversation and readings in intermediate Korean language; Korean culture. Prerequisites: ASIA:1102 (039:041). GE: World Languages Second Level Proficiency.

ASIA:2102 (039:043) Second-Year Korean: Second Semester 4 s.h.

Continuation of ASIA:2101 (039:042). Prerequisites: ASIA:2101 (039:042). GE: World Languages Fourth Level Proficiency.

Korean, Upper-Level Undergraduate and Graduate**ASIA:3101 (039:150) Third-Year Korean: First Semester** 3 s.h.

Continuation of ASIA:2102 (039:043); advanced intermediate Korean—conversation and grammar skills beyond basic intermediate level; vocabulary expansion with increasingly complex, abstract concepts; how to advance one's opinion and discuss thoughts, ideas. Prerequisites: ASIA:2102 (039:043).

ASIA:3102 (039:151) Third-Year Korean: Second Semester 3 s.h.

Continuation of ASIA:3101 (039:150); conversation and grammar skills beyond basic intermediate level; writing skills for formal occasions; advanced discussion skills—how to advance one's opinion and share thoughts and ideas; traditional and modern Korean culture. Prerequisites: ASIA:3101 (039:150).

ASIA:4000 (039:146) Fourth Year Korean: First Semester 3 s.h.

Continuation of ASIA:3102 (039:151); development of intermediate high to advanced-level Korean; enlarging vocabulary, exploring Korean sentence structures, reading various types of texts, listening to authentic Korean materials; Korean society and culture; content-based learning methodology. Prerequisites: ASIA:3102 (039:151).

Russian, Lower-Level Undergraduate**SLAV:1030 (041:005) Conversational Russian I** 3 s.h.

Basic elements of Russian for travel and business; for adult learners.

SLAV:1031 (041:006) Conversational Russian II 3 s.h.

Continuation of SLAV:1030 (041:005); basic elements of Russian for travel or business; for adult learners.

SLAV:1111 (041:001) First-Year Russian I 5 s.h.

Basic language skills of listening, speaking, reading, and writing Russian; fundamentals of Russian grammar. GE: World Languages First Level Proficiency.

SLAV:1112 (041:002) First-Year Russian II 5 s.h.

Continuation of SLAV:1111 (041:001). Prerequisites: SLAV:1111 (041:001). GE: World Languages Second Level Proficiency.

SLAV:2111 (041:003) Second-Year Russian I 4 s.h.

Transition to upper-level study through oral practice, grammar exercises, tapes, videos, readings from the Russian press. Prerequisites: SLAV:1112 (041:002). GE: World Languages Second Level Proficiency.

SLAV:2112 (041:004) Second-Year Russian II 4 s.h.

Continuation of SLAV:2111 (041:003). Prerequisites: SLAV:2111 (041:003). GE: World Languages Fourth Level Proficiency.

Russian, Upper-Level Undergraduate and Graduate**SLAV:3111 (041:111) Third-Year Russian I** 4 s.h.

Advanced Russian grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisites: SLAV:2112 (041:004).

SLAV:3112 (041:112) Third-Year Russian II 4 s.h.

Advanced Russian grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisites: SLAV:3111 (041:111).

SLAV:3113 (041:109) Beginning Composition and Conversation I 4 s.h.

Russian oral and aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, newspaper texts. Taught in Russian. Prerequisites: SLAV:2112 (041:004).

SLAV:3114 (041:110) Beginning Composition and Conversation II 4 s.h.

Russian oral and aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, conversation handbooks, current periodicals. Taught in Russian. Prerequisites: SLAV:2112 (041:004).

SLAV:3115 (041:119) Russian for Heritage Learners 3 s.h.

Linguistic problems (grammar and vocabulary), communicative problems (understanding of written and oral advanced Russian speech), cultural problems (similarities and differences between cultures); for Russian heritage speakers.

SLAV:3116 (041:120) Russian for Heritage Learners II 3 s.h.

Continuation of SLAV:3115 (041:119).

SLAV:4111 (041:113) Fourth-Year Russian I 4 s.h.

Perfecting spoken Russian and aural comprehension of native speech. Taught in Russian. Requirements: SLAV:3112 (041:112) or three years of college-level Russian.

SLAV:4112 (041:114) Fourth-Year Russian II 4 s.h.

Perfecting spoken Russian and aural comprehension of native speech. Taught in Russian. Requirements: SLAV:4111 (041:113) or three years of college-level Russian.

Sanskrit, Lower-Level Undergraduate**SOAS:2901 (039:110) First-Year Sanskrit: First Semester** 4 s.h.

Grammar, basic vocabulary; elementary readings. Offered fall semesters of even years. Requirements: undergraduate standing. GE: World Languages First Level Proficiency. Same as CLSA:2901 (20E:110).

SOAS:2902 (039:111) First-Year Sanskrit: Second Semester 4 s.h.

Readings in epic and story literature. Offered spring semesters of odd years. Prerequisites: SOAS:2901 (039:110). Requirements: undergraduate standing. GE: World Languages Second Level Proficiency. Same as CLSA:2902 (20E:111).

Sanskrit, Upper-Level Undergraduate and Graduate**SOAS:3901 (039:112) Second-Year Sanskrit: First Semester** 3 s.h.

Readings in epic and puranic texts. Offered fall semesters of odd years. Prerequisites: SOAS:2902 (039:111). Requirements: undergraduate standing. GE: World Languages Second Level Proficiency. Same as CLSA:3901 (20E:121).

SOAS:3902 (039:113) Second-Year Sanskrit: Second Semester 3 s.h.

The *Bhagavadgita* and related religious/philosophical texts. Offered spring semesters of even years. Prerequisites: SOAS:3901 (039:112). Requirements: undergraduate standing. GE: World Languages Fourth Level Proficiency. Same as CLSA:3902 (20E:122).

SOAS:4201 (039:186) Third-Year Sanskrit: First Semester 3 s.h.

Readings in philosophical and literary Sanskrit. Offered fall semesters. Prerequisites: SOAS:3902 (039:113).

SOAS:4202 (039:187) Third-Year Sanskrit: Second Semester 3 s.h.

Continuation of SOAS:4201 (039:186). Offered spring semesters. Prerequisites: SOAS:4201 (039:186).

Lower-Level Undergraduate**Asian Culture and Civilization****ASIA:1000 (039:029) First-Year Seminar** 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

ASIA:1040 (039:064) Living Religions of the East 3 s.h.

Religious beliefs, practices in India, China, Japan. GE: Values, Society, and Diversity. Same as RELS:1404 (032:004).

ASIA:1060 (039:006) Introduction to Buddhism 3 s.h.

Basic tenets, religious paradigms, historical phases important in the development of Buddhism; from the Buddha's life to evolution of Mahāyāna Buddhism; readings from India, Tibet, China, Japan, Korea, Southeast Asia. GE: Values, Society, and Diversity. Same as RELS:1506 (032:006).

ASIA:1110 (039:007) Gods, Buddhas, and Ghostly Officials: The Past and Present of Chinese Religions 3 s.h.

History of religious beliefs and practices in China; role in modern-day Chinese society; specific case studies that illuminate current situation of religion in China and impact on Chinese society; focus on the still widespread worship of gods and ancestors, the Confucian, Buddhist and Daoist traditions, recent upsurge of Christianity in China, and emergence of new religions (e.g., the Falun gong). Same as RELS:1510 (032:010).

ASIA:1135 (039:135) Korean Language in Culture and Society 3 s.h.

Introduction to various sociolinguistic phenomena in Korean society; general linguistic characteristics of Korean; Confucianism and honorifics; language changes in North and South Korea; gender differences and generation differences; Korean contacts with English, Chinese, Japanese, others. Taught in English.

ASIA:1704 (039:034) The Languages of Asia in Cultural and Historical Perspective 3 s.h.

Chinese, Japanese, Korean, Sanskrit and Hindi; cultural and ethnic factors which have affected and are affected by each language; nontechnical introduction to the structure of the language, discussion of the script in which the language is written, and the history of the language, including a brief outline of the political and cultural history of each pertinent linguistic area and the ways linguistic history has been affected by these factors.

ASIA:1706 (039:036) Understanding Korean Culture Wave 3 s.h.

Introduction to the Korean culture wave and characteristics of contemporary Korean popular culture; lectures with discussions of readings, various audio-visual references (i.e., films, television dramas, music videos, cartoon, Internet contents).

ASIA:1770 (039:017) Asian Humanities: Middle East 3 s.h.

How the self has been constructed in literary texts from premodern and modern Islamic world.

ASIA:2231 (039:028) Introduction to the Art of China 3 s.h.

Visual arts of China and their history; emphasis on understanding in context of Chinese civilization, history. Same as ARTH:2220 (01H:031).

ASIA:2444 (039:044) Envision India 3 s.h.

Introduction to world view and civilization of the South Asian subcontinent, not as a timeless and isolated culture, but as a dynamic and interactive part of evolving global cultural exchanges.

ASIA:2450 (039:048) India Beat: The Aesthetics and Politics of India Today 3 s.h.

Ways in which music forms a crucial part of Indian public sphere, reflecting and shaping culture, society, and economy; wide range of genres commonly performed and heard across India and South Asia today (i.e., film music, several folk forms, classical, semi-classical, Indipop, rock) and locating each of them in their respective historical, cultural, and socioeconomic contexts; exploration of themes and questions (i.e., emergence and impact of technologies of mass production, distribution of music in colonial and post-independence India).

ASIA:2602 (039:055) Civilizations of Asia: China 3 s.h.

GE: Historical Perspectives; International and Global Issues. Same as HIST:2602 (016:005).

ASIA:2604 (039:056) Civilizations of Asia: Japan 3-4 s.h.

GE: Historical Perspectives; International and Global Issues. Same as HIST:2604 (016:006).

ASIA:2606 (039:057) Civilizations of Asia: South Asia 3-4 s.h.

GE: Historical Perspectives; International and Global Issues. Same as HIST:2606 (016:007).

ASIA:2887 (039:087) Perspectives on Korea 3 s.h.

History of Korea from earliest times to present; changing meanings of Korea and Koreans; relevant issues of politics, society, and culture; events that shaped ancient Korean kingdoms, the Choson dynasty (1392-1910), Japanese occupation, and divided Korean peninsula; how present perspectives on Korea have influenced understandings of its past; placement of Korea within a regional and global context to examine Korea's relationship with the world. Same as HIST:2687 (16W:087).

CHIN:1070 (039:016) Asian Art and Culture 3 s.h.

Art from India, China, and Japan in many media and forms, in their cultural and historical contexts; cultural distinctions of these Asian civilizations as seen through the visual arts; chronology used to highlight historical processes and provide perspectives on continuity and change. GE: Historical Perspectives; Literary, Visual, and Performing Arts. Same as ARTH:1070 (01H:016).

CHIN:1504 (039:019) Asian Humanities: China 3 s.h.

Literary and philosophical texts of China in English translation. GE: Values, Society, and Diversity.

CHIN:1702 (039:032) Chinese Popular Culture 3 s.h.

Introduction to popular culture from the People's Republic of China, Taiwan, Hong Kong, and the Chinese diaspora; shifting relationships among cultural production, media and technology, and political thought; influences of Japan, Korea, and the West; materials drawn from film, television shows, music, new media, popular literature, comics, magazines, advertising, fashion, art, and material culture; no previous knowledge of Chinese is required.

CHIN:1800 (039:080) Chinese Character Writing and Calligraphy 1 s.h.

Introduction to Chinese script and Chinese character handwriting (including brush writing) techniques; historical development of Chinese writing styles, Chinese character formation, fundamentals of Chinese character writing (stroke sequence, character structure); basic techniques of using Chinese brush; appreciation of Chinese calligraphy as an art form; hands-on practice in writing Chinese characters using a hard pen and Chinese writing brush. Recommendations: enrollment in a Chinese language course.

SOAS:1502 (039:018) Asian Humanities: India 3 s.h.

Introduction to four thousand years of South Asian civilization, through popular stories. GE: Values, Society, and Diversity. Same as RELS:1502 (032:008).

Japanese Culture and Civilization**JPNS:1115 (39J:017) Japanese Religions** 3 s.h.

Religions of Japan from ancient times to the present day; elite and popular Japanese interpretations of Chinese Buddhist and Daoist traditions; the parallel development of an indigenous kami tradition; contemporary new religious movements; focus on the codification of a variety of religious (and sometimes quasi-religious) paths, including the way of tea, the way of the brush, and the way of the samurai. Same as RELS:1610 (032:017).

JPNS:1200 (39J:020) Special Topics in Japanese 3 s.h.

Topics vary.

JPNS:1506 (039:020) Asian Humanities: Japan 3 s.h.

Introduction to premodern, modern, and contemporary Japanese images, myths, and literature in English translation. GE: Values, Society, and Diversity.

JPNS:2175 (39J:125) Japanese Society and Culture 3 s.h.

Cultural anthropology of Japan, including historical tradition, religious ethos, social organization, human ecology, educational and political institutions; emphasis on how these aspects relate to and influence one another. GE: Values, Society, and Diversity. Same as ANTH:2175 (113:125).

JPNS:2250 (39J:033) Introduction to the Art of Japan 3 s.h.

Chronological survey of Japan's visual arts in their historical and cultural contexts from Neolithic age to present; extensive use of slides, films, other visual materials. Same as ARTH:2250 (01H:033).

Slavic Culture and Civilization**SLAV:1000 (041:029) First-Year Seminar** 1 s.h.

Cultural, literary, architectural, and historical beauty of Prague, the capital of the Czech Republic. Requirements: first- or second-semester standing.

SLAV:1050 (041:050) Russian for Travelers and Business People 2 s.h.

How Russian culture continues to shape current geopolitical and sporting events (e.g., World Cup Soccer 2018); emphasis on learning basic survival Russian phrases, cultural etiquette and norms. Taught in English.

SLAV:1131 (041:098) Introduction to Russian Culture 3 s.h.

Development of cultural history in Russia from middle ages to present; painting, music architecture, literature viewed against their political, historical, and social settings. Taught in English. GE: Values, Society, and Diversity.

SLAV:1132 (041:099) Russia Today 3 s.h.

Contemporary Russia, with focus on prevailing social, political, economic, ethnic, environmental conditions; attention to historical evolution of problems, current factors; what these factors might portend for the future. Taught in English. GE: International and Global Issues; Values, Society, and Diversity.

SLAV:1450 (041:058) Diversities of Eastern Europe: Culture, Art, and Politics 3 s.h.

Exploration of major cultural and social changes in Central Europe since the 1950s; very similar, yet different experiences of four nations with a communist takeover, including crushed attempts to reform and humanize socialism and their final reach for freedom and democracy in 1989; current cultural and social situations of each country as they took advantage of newly available opportunities.

SLAV:1500 (041:055) Ukraine, a Country at the Crossroads: An Interdisciplinary Seminar on Ukrainian History and Culture 3 s.h.

Cultural specificity of Ukraine as a large multicultural European country; vital background information for analysis of present-day political events; strategic location between East and West; centuries-long history and culture; all readings in English, no knowledge of Russian or Ukrainian required. Same as CL:1500 (218:055).

SLAV:1531 (041:093) Slavic Folklore 3 s.h.

Introduction to culture, history, and art of eastern European peoples; pagan, dualistic, and animistic beliefs and their coexistence with Christian faith in eastern Europe. GE: Historical Perspectives; Values, Society, and Diversity.

SLAV:1532 (041:094) Religion and Culture of Slavs 3 s.h.

Early and medieval Slavic history, with focus on Russian and Czech art, literature, and religion from 10th through 17th century. GE: Historical Perspectives; Values, Society, and Diversity.

SLAV:2100 (041:150) Secrets of Russian Mentality 3 s.h.

Deeper insight of Russian mentality through philosophical, historical, cultural, and practical developments that have shaped Russian behavior and thought.

SLAV:2122 (041:022) Cult Films of the Last Soviet Generation 3 s.h.

Political and cultural circumstance of one of the world's most volatile and powerful regions; how life within what was considered an "Evil Empire" from 1960s to 1980s was far from primitive; how creative intelligentsia continued producing and enjoying excellent motion pictures despite multiple bans and regulations; implications for contemporary life; wider understanding of Russian aesthetics.

SLAV:2131 (041:160) Women in Russian Society 3 s.h.

Historical developments that have shaped women's role in contemporary Russian society; readings in cultural history, political science, autobiographical and fictional literature, contemporary film. Taught in English.

SLAV:2232 (041:075) Romani (Gypsy) Cultures of Eastern Europe 3 s.h.

Aspects of culture shared by most Roma (Gypsies) around the world; samples of folklore from Europe; impact of Roma on European literature, music, and culture; readings in English; no previous knowledge of Russian or Romani required. Same as CL:2700 (218:075).

SLAV:2531 (041:164) Topics in Russian, East European, and Eurasian Studies arr.

Same as CL:2531 (218:164).

Upper-Level Undergraduate and Graduate

Asian Culture and Civilization

ASIA:3120 (039:121) Autobiography in Islamic Literary Cultures 3 s.h.

How the self has been constructed in Islamic literary cultures from classical Islamic period to modernity.

ASIA:3219 (039:159) Chinese Art and Culture 3 s.h.

Archaeological discoveries, sculpture, painting, architecture, calligraphy, other arts of Greater China area in historical and cultural contexts of past 5,000 years. Prerequisites: ARTH:1060 (01H:006) or ARTH:2220 (01H:031). Same as ARTH:3220 (01H:119).

ASIA:3220 (039:120) Chinese Painting I: Pagodas and Palaces 3 s.h.

Early Chinese painting from fourth century B.C.E. through 14th century C.E.; figural style, religious art, emergence of landscape, other nonreligious subjects, interconnectedness of painting and calligraphy as fine arts. Same as ARTH:3230 (01H:120).

ASIA:3270 (039:131) Themes in Asian Art History 3 s.h.

Same as ARTH:3270 (01H:124).

ASIA:3414 (039:178) Government and Politics of the Far East 3 s.h.

Functions, institutions of government in countries of Far East; focus on social, economic, historical environments. GE: International and Global Issues; Social Sciences. Same as POLI:3414 (030:143).

ASIA:3550 (039:125) Islam, Secularity, Modernity 3 s.h.

How religiosity and secularity are experienced in the Muslim world today.

ASIA:3560 (039:168) Topics in Asian Religions 3 s.h.

Same as RELS:3560 (032:170).

ASIA:3655 (039:170) Zen Buddhism 3 s.h.

Prerequisites: RELS:1404 (032:004) or RELS:1506 (032:006) or RELS:1510 (032:010). Same as RELS:3655 (032:188).

ASIA:3700 (039:164) Topics in Global Cinema 3 s.h.

Identification of new models and methods to investigate cinema's relationship to current global issues beyond traditional scholarly focus in Western Europe and the United States; exploration of an emerging field, moving away from the paradigm of national cinema and bringing together shared theoretical frameworks while acknowledging different historical and cultural contexts. Same as WLLC:3700 (218:160), JPNS:3700 (39J:162).

ASIA:3775 (039:188) East Meets West: The Western Reception of Eastern Religion 3 s.h.

Introduction of religious ideas and forms from India, China, and Japan into Europe and America to late 20th century, from Greeks to New Age. Same as RELS:3575 (032:178).

ASIA:3890 (039:172) Comparative Ritual 3 s.h.

Practice and theory; rituals from religions, including Hinduism, Buddhism, Christianity, Indian religions; theories of interpretation. Same as RELS:3572 (032:172).

ASIA:4166 (039:175) Topics in Asian History 3 s.h.

Same as HIST:4666 (16W:178).

ASIA:4301 (039:191) Honors Tutorial arr.

ASIA:4506 (039:195) Senior Honors Thesis arr.

ASIA:4507 (039:198) Topics in Asian Studies arr.

Topics vary.

ASIA:4508 (039:199) Asian Studies arr.

ASIA:4606 (039:145) Topics in Asian Cinema 3 s.h.

Issues or topics in East or South Asian cinemas. Same as CINE:4606 (048:106).

- ASIA:4655 (039:196) China Since 1927** 3 s.h.
Communist revolution from 1920s to founding of People's Republic of China in 1949; Mao Zedong's radical policies, Cultural Revolution; Deng Xiaoping's economic reforms; China today. GE: International and Global Issues. Same as HIST:4655 (16W:198).
- ASIA:4657 (039:197) Chinese History from 1600 to 1927** 3 s.h.
Chinese history from the 17th to early 20th century, history of the Qing dynasty (1644-1911); Qing's role in shaping aspects of today's politics in China and the mentality of Chinese people; foundation of Manchu state in early 17th century, Ming-Qing transition in 1644, politics and society during the high Qing era, decline of the empire under foreign invasion and inner rebellions in the 19th century, collapse of the dynasty in 1911. Same as HIST:4650 (16W:197).
- ASIA:4660 (039:156) Buddhist Poetry** 3 s.h.
Poetry across the Buddhist world as a favorite form of expression for talking about things that cannot be captured in words; content and style of some major works of Buddhist poetry; theories about relationships between words and meaning that inform poems; scandalous lives of poets; opportunity to explore Buddhist poetry analytically and creatively; no prior knowledge of Asian languages required. Same as RELS:4660 (032:156).
- ASIA:6483 (039:177) Second Language Classroom Learning** 3 s.h.
Synthesis of empirical findings on children's and adults' learning of a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as SLA:6506 (164:171), EDTL:6483 (07S:183).
- SOAS:3448 (039:148) The Allure of Krishna: Sacred Sexuality in Indian Culture** 3 s.h.
For thousands of years, Krishna, the dark-skinned flute-player, has been central to the religious experience of many Hindus; his diverse roles as mischievous divine child, sensual teenage cowherd, and adult statesman, warrior, and philosopher celebrated in poetry and prose, painting and sculpture, music, dance, drama, film, and television; exploration of multiple facets of Krishna's character through literary and visual sources, performances; focus on Indian interpretations of erotic content prominent in his story and to the figure of Radha, Krishna's mistress and beloved. Same as RELS:3448 (032:148).
- SOAS:3500 (039:149) Queerness in South Asian Literature and Cinema** 3 s.h.
Debates and conflicts around gender or sexual variance in South Asian cultural spheres; shifting representations of queerness—a broad label for non-normative gender/sexual practices or identities—in literature and films from India and neighboring regions; diverse constructions of gender/sexuality in precolonial India; focus on postcolonial period when regulation of deviant gender/sexuality became tied to colonial administration and emerging national identity; how cultural representations constructed normative or deviant genders/sexualities in relation to class, caste, and nationhood.
- SOAS:3920 (039:183) Enlightenment: Cross-Cultural Experiments in Religious Realization** 3 s.h.
Enlightenment as one of the most important ideas that feeds contemporary religious and spiritual imagination; exploration of this concept in contemporary religious and spiritual discourse. Same as RELS:3582 (032:182).
- SOAS:4103 (039:217) Individual Hindi for Advanced Students** arr.
Readings in medieval and modern Hindi.
- SOAS:4802 (039:250) South Asian Research Seminar** arr.
Faculty and student research.
- Chinese Culture and Civilization**
- CHIN:3201 (039:143) Workshop in Chinese Literary Translation** 3 s.h.
Translation from Chinese to English with emphasis on literary translation; issues in theory and practice of translation; special features of Chinese as a source language for translation. Prerequisites: CHIN:3102 (039:116). Same as TRNS:3202 (218:131).
- CHIN:3202 (039:142) Chinese Literature: Prose** 3 s.h.
Readings in Chinese prose, primarily fiction, from third century B.C. to 1900 A.D., in English translation.
- CHIN:3260 (039:130) Conversational Business Chinese** 3 s.h.
Intermediate language and culture. Requirements: one year of Chinese study. Recommendations: business major, or two years of Chinese-learning experience and interest in doing business in China.
- CHIN:3301 (039:139) Chinese Historical Phonology** 3 s.h.
Phonology of Mandarin, other major Chinese dialect groups; reconstruction of the sound system of Middle and Old Chinese. Same as LING:3301 (103:139).
- CHIN:3302 (039:144) Introduction to Chinese Linguistics** 3 s.h.
Aspects of modern Chinese linguistics, such as Chinese phonology, syntax, pedagogical grammar, history of the language. Taught in English. Same as SLA:3302 (164:181), LING:3302 (103:144).
- CHIN:3341 (039:141) Chinese Literature: Poetry** 3 s.h.
Readings in classical and modern Chinese poetry in English translation. Same as CL:3341 (218:141).
- CHIN:4203 (039:180) Modern Chinese Writers** 3 s.h.
Readings in modern and contemporary Chinese fiction; in English translation. Same as CL:4203 (218:183).
- CHIN:4204 (039:140) The Literature of Daoism** 3 s.h.

Texts of philosophical, religious Daoism; Daoism in traditional Chinese political theory, literature, the arts, alchemy and medicine, sexual custom, combat. Taught in English. Same as RELS:4404 (032:186).

CHIN:4206 (039:173) Transnational Chinese Cinemas 3 s.h.

Films from Mainland China, Hong Kong, Taiwan, and Chinese diasporic communities, silent era to present; relationship of film to nation-state, cultural interflows, media technologies, ideologies. English subtitles. Same as CINE:4674 (048:174).

CHIN:4301 (039:239) Seminar in Chinese Linguistics: Historical Phonology 3 s.h.

Topics in Chinese historical phonology. Prerequisites: CHIN:3301 (039:139).

Japanese Culture and Civilization

JPNS:3128 (39J:128) Introduction to Japanese Linguistics 3 s.h.

Phonology, morphology, syntax, semantics, pragmatics; basic structural features of Japanese language.

JPNS:3135 (39J:135) Postmodern Aesthetics and Japanese Culture 3 s.h.

Japanese postmodern trends (from Zen Buddhism to the habits of contemporary otaku consumers); examination of aesthetics including works of literature, film, visual art, and electronic media.

JPNS:3201 (39J:130) Workshop in Japanese Literary Translation 3 s.h.

Workshop in translation from Japanese to English, with emphasis on literary translation; issues in theory and practice of translation; special features of Japanese as a source language for translation. Corequisites: JPNS:3103 (39J:105), if not taken as a prerequisite. Same as TRNS:3201 (218:130).

JPNS:3202 (39J:141) Traditional Japanese Literature in Translation 3 s.h.

From seventh century to early modern times. Same as CL:3204 (218:143).

JPNS:3203 (39J:142) Modern Japanese Fiction in Translation 3 s.h.

Nineteenth century to present. Same as CL:3203 (218:142).

JPNS:3204 (39J:143) Topics in Japanese Literature in Translation 3 s.h.

Topics vary.

JPNS:3205 (39J:144) Major Authors in Modern Japanese Literature 3 s.h.

Modern Japanese literary works in English translation.

JPNS:3206 (39J:146) Warriors Dreams 3 s.h.

Images of the warrior in traditional Japanese literature, from poetry of the eighth century to romances of the 19th century; readings in English. Same as CL:3206 (218:147).

JPNS:3208 (39J:147) Introduction to Japanese Film 3 s.h.

History of Japanese cinema with particular attention paid to Japanese conventions and innovations that differ from classical Hollywood or European paradigms (benshi silent-film narrators, jidaigeki period films, wartime propaganda, postwar melodrama, avant-garde Japanese New Wave, rise of Japanese documentary, anime); screenings may include works by world-famous directors (Mizoguchi, Ozu, Kurosawa) and later masters (Ichikawa Kon, Suzuki Seijun, Itami Juzo); knowledge of film or Japanese is not necessary; all readings in English, films screened with Japanese subtitles.

JPNS:3210 (39J:150) Japanese Theater 3 s.h.

Major forms of Japanese theater and performance including Nō and kyōgen, the *bunraku* puppet theater, kabuki, *shingeki* "Western" theater, *benshi* film narration, *butoh* modern dance, counterculture and street theater of the 1960s, and Japanese musicals; focus on textual analysis and performance practices; weekly screenings of theatrical performances and student-led staged readings of contemporary performances; all readings in English and screenings have subtitles or accompanying scripts; no knowledge of Japanese required.

JPNS:3260 (39J:123) Japanese Painting 3 s.h.

Japanese painting in its historical, cultural contexts; focus on developments of successive eras—religious art; narrative, other literary connections; Zen; decorative traditions; popular arts; Japan and the modern world. Same as ARTH:3260 (01H:123).

JPNS:3401 (39J:103) Language in Japanese Society 3 s.h.

Aspects of the Japanese language that reflect culture, social structures of Japan; communication styles and strategies, cross-cultural communication, language in media, metaphors.

JPNS:3402 (39J:129) Japan: Culture and Communication 3 s.h.

JPNS:3500 (39J:148) Business Japanese I 3 s.h.

Introduction to essential linguistic skills and practical knowledge needed to effectively communicate in Japanese in various professional contexts in socially appropriate manners; business-related expressions, vocabulary, honorifics; development of skills utilizing them in verbal and written modes; sociocultural knowledge associated with Japanese business context, including manners and customs; readings, films, discussions. Corequisites: JPNS:3104 (39J:106), if not taken as a prerequisite.

JPNS:3601 (39J:155) Contemporary Japanese Culture 3 s.h.

Cultural texts and practices in contemporary Japan: literature, film, television, manga.

JPNS:3660 (39J:109) Japanese Religion and Thought 3 s.h.

Same as RELS:3660 (032:116).

JPNS:3700 (39J:162) Topics in Global Cinema 3 s.h.

Identification of new models and methods to investigate cinema's relationship to current global issues beyond traditional scholarly focus in Western Europe and the United States; exploration of an emerging field, moving away from the paradigm of national cinema and bringing together shared theoretical frameworks while acknowledging different historical and cultural contexts. Same as WLLC:3700 (218:160), ASIA:3700 (039:164).

JPNS:4201 (39J:145) The Tale of Genji 3 s.h.

Close reading in English of Murasaki Shikibu's *Tale of Genji*; tale's literary and social contexts, and later reception. Same as CL:4201 (218:144).

JPNS:4610 (39J:172) Japan—Age of the Samurai 3 s.h.

Society, culture, and politics of feudal Japan; social class, gender, norms, and political and economic developments explored through cinema and literature. Same as HIST:4610 (16W:172).

JPNS:4615 (39J:173) Modern Japan 3 s.h.

Political, social, and cultural developments of Japanese feudalism; feature films, fiction. Same as HIST:4615 (16W:173).

JPNS:4620 (39J:175) Japan-US Relations 3 s.h.

Political, social, economic, and cultural developments in Japan mid-19th to late-20th century. Same as HIST:4620 (16W:175).

Korean Culture and Civilization

ASIA:4151 (039:174) Selected Readings in Korean I 3 s.h.

Korean literary works and various readings related to Korean history, culture, and society; expansion of Korean literacy and cultural knowledge through readings; advanced Korean texts. Prerequisites: ASIA:3102 (039:151).

ASIA:4152 (039:179) Selected Readings in Korean II 3 s.h.

Reading various genres of more advanced texts than those covered in ASIA:4150; short stories, poetry, and essays familiar with educated Korean people; texts related to history and current events (e.g., articles from newspapers or magazines); texts written in hangul (Korean characters) and hanja (Chinese characters); Korean literature, history, and culture. Prerequisites: ASIA:3102 (039:151).

Slavic Culture and Civilization

SLAV:3082 (041:082) Youth Subcultures After Socialism 3 s.h.

Examination of youth subculture (i.e., distinct style and identity, beliefs, value system, fashion and favorite music) on the territory of post-communist Europe and its relations with the mainstream culture; how young people of Russia express their individuality after years of dullness and monotony. GE: Values, Society, and Diversity.

SLAV:3100 (041:165) West and East: Women in the Slavic World 3 s.h.

Roles of women in two Slavic countries—Islamic Republic of Dagestan in Russia, and the Czech Republic—using approaches from the social sciences and humanities; Christian/Catholic traditions in the western Slavic country (i.e., Czechoslovakia/Czech Republic) and Islamic influences in eastern parts of Russia; analysis of women's egalitarian roles in socialist societies of 1980s, the impact of the major political, economic, and social transitions on women's lives in 1990s.

SLAV:3122 (041:155) Tolstoy and Dostoevsky 3-4 s.h.

Tolstoy's *War and Peace*, *Anna Karenina*; Dostoevsky's *Crime and Punishment*, *The Brothers Karamazov*, and short stories. Taught in English. Same as CL:3122 (218:149).

SLAV:3124 (041:157) Invitation to Nabokov 3 s.h.

Nabokov's works and his writings on Russian literature.

SLAV:3131 (041:104) Health Care and Health Reforms in Russia 3 s.h.

Societal changes and their continuing effect on the Russian health care system since 1991; guest lectures from public health, nursing, medicine, cultural anthropology. Same as GHS:3131 (152:170).

SLAV:3202 (041:102) Russian Literature in Translation 1860-1917 3 s.h.

Survey of major works, figures, and trends of 19th- and 20th-century Russian literature; age of the Russian novel; development of short fiction, drama, poetry of the Silver Age. Same as CL:3302 (218:107).

SLAV:3221 (041:168) Twentieth-Century Czech Authors 3 s.h.

Twentieth-century prose literature of Czechoslovakia; philosophical works of Capek, Hrabal, Kundera, Klima, Havel. Taught in English. Same as CL:3221 (218:154).

SLAV:3250 (041:190) Readings in Russian Literature 3 s.h.

Readings of poetry and prose by Russian authors. Requirements: third-year Russian.

SLAV:3480 (041:180) Literature and Translation 3 s.h.

Translation in the broadest sense; originality, authority, authorship, accuracy, ownership, audience; issues problematizing differences between medium and message. Same as PORO:3480 (160:180), TRNS:3480 (218:180).

SLAV:3990 (041:108) Special Readings arr.

Russian-language materials determined by student and instructor. Requirements: 16 s.h. of Russian language instruction.

SLAV:4990 (041:279) Independent Research arr.

Directed study.

SLAV:4995 (041:199) Honors arr.

Requirements: consent of program coordinator.

Graduate**Asian Culture, Linguistics, Pedagogy, Individual Study**

ASIA:5030 (039:234) Principles of Teaching and Learning Foreign Languages 3 s.h.

Same as FREN:5030 (009:234), GRMN:5030 (013:221), SLAV:5030 (041:234).

ASIA:5102 (039:214) Individual Korean for Advanced Students arr.

Korea's modern/traditional culture, history, and current social issues; reading, translating authentic articles. Prerequisites: ASIA:3102 (039:151).

ASIA:6501 (039:291) M.A. Thesis arr.
Offered fall semesters.

ASIA:6502 (039:292) M.A. Thesis arr.
Offered spring semesters.

ASIA:6520 (039:235) Seminar: South Asian Religion 3 s.h.
Topics in South Asian religions. Same as RELS:6520 (032:235).

ASIA:6901 (039:200) Second Language Acquisition Research and Theory I 3 s.h.
Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as FREN:6901 (009:237), SLA:6901 (164:201), SPAN:6901 (035:201), JPNS:6901 (39J:201).

ASIA:6903 (039:201) Second Language Acquisition Research and Theory II 3 s.h.
Continuation of SLA:6901 (164:201). Prerequisites: SLA:6901 (164:201). Same as SLA:6902 (164:202), SPAN:6902 (035:202).

ASIA:6955 (039:223) Topics in Second Language Acquisition: Listening 3 s.h.
Theory, pedagogy, research, and assessment in second language listening. Same as SLA:6955 (164:223).

ASIA:7606 (039:258) Readings in Chinese History arr.
Same as HIST:7606 (016:292).

SOAS:5201 (039:216) Individual Sanskrit for Advanced Students arr.
Research, translation projects. Requirements: fourth-year proficiency.

Chinese Culture, Linguistics, Pedagogy, Individual Study

CHIN:5024 (039:233) Teaching Chinese as a Foreign Language VII: Pedagogical Grammar 3 s.h.

Introduction to Chinese grammar system from perspective of teaching Chinese as a foreign language; students teach a unit of Chinese grammar to demonstrate understanding of assigned grammar unit and pedagogical approach involved.

CHIN:5106 (039:215) Individual Chinese for Advanced Students arr.

Research, translation projects. Prerequisites: CHIN:4104 (039:129).

CHIN:5201 (039:240) Seminar in Chinese Fiction 3 s.h.

Novels, novelettes; 16th to 18th centuries (Ming and Qing periods). Requirements: ability to read original texts. Same as CL:5201 (218:233).

CHIN:5202 (039:241) Seminar in Chinese Literature arr.

Requirements: two years of modern Chinese and one year of classical Chinese. Same as CL:5202 (218:441).

CHIN:6401 (039:210) Teaching Chinese as a Foreign Language VI: Pedagogical/ Research Project 3 s.h.

Participation in Chinese as a Foreign Language material development projects under instructor's guidance.

CHIN:7401 (039:202) Teaching Chinese as a Foreign Language I: Theories/Research 3 s.h.

Research, theory on acquisition of Chinese as a non-native language. Same as SLA:7406 (164:281).

CHIN:7402 (039:203) Teaching Chinese as a Foreign Language II 3 s.h.

Multiple levels of major Chinese textbooks, curricular organizational schemes, language programs, communicative language instruction; development of supplementary materials for a University of Iowa Chinese course. Same as SLA:7408 (164:282).

CHIN:7403 (039:204) Teaching Chinese as a Foreign Language III 3 s.h.

Development, application of technological teaching/ learning materials; emphasis on designing computer-based materials that increase learner interaction in contextualized cultural environments.

CHIN:7404 (039:208) Teaching Chinese as a Foreign Language IV 3 s.h.

Overview of goals, concepts, principles, research, and issues in assessment and testing of Chinese as a foreign language. Same as SLA:7804 (164:274).

CHIN:7405 (039:209) Teaching Chinese as a Foreign Language V 3 s.h.

Seminar on research design; for M.A. students planning to write a thesis or project, or graduate students seeking knowledge in designing qualitative or quantitative studies. Prerequisites: CHIN:7401 (039:202) and PSQF:4143 (07P:143). Same as SLA:7405 (164:275).

Japanese Culture, Linguistics, Pedagogy, Individual Study

JPNS:5301 (39J:200) Japanese Linguistics 3 s.h.

Japanese language as linguistic system; basic linguistic terminology; sound systems, grammar, meanings, usages. Prerequisites: JPNS:4102 (39J:122).

JPNS:5401 (39J:202) Japanese as a Foreign Language: Practical Applications 3 s.h.

Instructional methodology, curriculum, and material design; hands-on experience. Prerequisites: JPNS:4102 (39J:122). Same as SLA:5441 (164:276).

JPNS:5901 (39J:204) Practicum in Teaching Japanese as a Foreign Language 1-3 s.h.

Teaching apprenticeship guided and supervised by a faculty member skilled in University curriculum and instruction.

JPNS:5902 (39J:215) Individual Japanese for Advanced Students arr.

JPNS:6403 (39J:239) Special Topics in Japanese Linguistics 3 s.h.

Topics in applied linguistics and language pedagogy related to Japanese language. Same as SLA:6403 (164:228).

JPNS:6901 (39J:201) Second Language Acquisition Research and Theory I 3 s.h.

Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as FREN:6901 (009:237), ASIA:6901 (039:200), SLA:6901 (164:201), SPAN:6901 (035:201).

JPNS:7101 (39J:251) Readings in Modern Japanese 3 s.h.

Readings in modern Japanese.

JPNS:7201 (39J:245) Seminar in Japanese Literature 3 s.h.

Requirements: three years of Japanese.

JPNS:7630 (39J:257) Readings: Japanese History arr.

Same as HIST:7630 (016:294).

Slavic Culture, Linguistics, Pedagogy, Individual Study

SLAV:5030 (041:234) Principles of Teaching and Learning Foreign Languages 3 s.h.

Same as FREN:5030 (009:234), GRMN:5030 (013:221), ASIA:5030 (039:234).

SLAV:5220 (041:276) Seminar: Russian Linguistics 3 s.h.

Topics may include Russian morphosyntax, colloquial Russian, Russian pragmatics, Slavic gender linguistics.

Biology

Chair

- Bernd Fritzsch

Professors

- Mark Blumberg (Psychology/Biology), Daniel Eberl, Jan Fassler, Bernd Fritzsch (Iowa Entrepreneurial Endowed Professor of Biology), Steven Green (Biology/Otolaryngology—Head and Neck Surgery), Stephen D. Hendrix, Alan Kay, Jim Jung-Ching Lin, Robert E. Malone, Sally Mason, Linda Maxson, Jeffrey C. Murray (Stead Family Department of Pediatrics/Biology), Diane C. Slusarski, David R. Soll (Carver/Emil Witschi Professor of the Biological Sciences), Chun-Fang Wu

Associate professors

- Chi-Lien Cheng, Josep Comeron, Michael E. Dailey, Albert Erives, Douglas Houston, Erin Irish, John Logsdon, Anna Malkova, John Manak (Biology/Pediatrics), Bryant F. McAllister, Maurine Neiman, Christopher Stipp (Biology/Molecular Physiology and Biophysics), Joshua Weiner

Assistant professors

- Andrew Forbes, Bridget Lear, Ana Llopart, Bryan T. Phillips, Veena Prahlad, Sarit Smolikove

Lecturers

- Lori Adams, V. Jean Fitzgerald, Mark Holbrook, Brenda Leicht, Kenneth Mason, Olga Miakotina, Ray Tallent, Kristine Williams

Professors emeriti

- George Cain, Wayne R. Carlson, Robert W. Cruden, Jeffrey L. Denburg, Joseph Frankel, Gary N. Gussin, Jack Lilien, John R. Menninger, Dawson Mohler, Jonathan E. Poulton, Jeffrey T. Schabillion, Ming-Che Shih, Richard D. Sjolund, Eugene Spaziani, Barbara A. Stay, Wei-yeh Wang, Norman E. Williams

Associate professors emeriti

- Robert W. Embree, Diana G. Horton, Thomas E. Melchert

Undergraduate major: biology (B.A., B.S.)

Undergraduate minor: biology

Graduate degrees: M.S. in integrated biology; Ph.D. in integrated biology

Web site: <http://www.biology.uiowa.edu>

The Department of Biology offers undergraduate and graduate programs that prepare students for work in a wide variety of fields in business, education, foundations, government, health care, industry, and research. It also offers several courses that undergraduate students in all majors may use to satisfy the General Education Program (p. 323) Natural Sciences requirement and other courses on topics of general interest for undergraduate non-biology majors, including a First-Year Seminar designed for entering students.

Undergraduate Programs of Study

- Major in biology (Bachelor of Arts, Bachelor of Sciences)
- Minor in biology

The major in biology prepares students to enter research or service careers associated with private industry or government programs and for primary and secondary school teaching. It also prepares them to enter advanced degree programs leading to careers in higher education and to independent research in a variety of biological fields, or for practice in health professions such as medicine, dentistry, pharmacy, nursing, veterinary medicine, medical technology, and physical therapy.

Students majoring in biology may earn a Bachelor of Science or a Bachelor of Arts degree. All students complete the chemistry/physics/mathematics foundation and the biology core. In addition, B.S. students choose one of six tracks, while B.A. students choose courses from several breadth menus and have a wider selection of elective courses.

The department acquaints undergraduate students with the nature of practicing scientists' work by offering BIOL:4898 (002:189) Entering Research, BIOL:4999 (002:196) Honors Investigations (requires membership in the University of Iowa Honors Program), and BIOL:4899 (002:199) Introduction to Research (requires a Department of Biology faculty sponsor). Students associate with one of the department's research groups in experiments, discussion of current research, study of specialized topics, and attendance at research seminars.

Students interested in field biology, zoology, or botany may take varied courses in those subjects offered during the summer at Iowa Lakeside Laboratory (p. 1267), in northwestern Iowa.

Bachelor of Science

The Bachelor of Science with a major in biology requires a minimum of 120 s.h., including at least 65-75 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major is divided into six tracks that emphasize the most dynamic and active areas in the biological sciences. Five of the tracks—cell and developmental biology, genetics and biotechnology, evolutionary biology, neurobiology, and plant biology—emphasize distinct areas. The sixth track—comprehensive biology—provides highly diverse content. Students working toward a B.S. must complete the chemistry/physics/mathematics foundation, the biology core, and one of the six tracks.

Students who wish to apply transfer credit toward graduation with a major in biology should consult their biology advisor.

CHEMISTRY/PHYSICS/MATHEMATICS FOUNDATION

All of these:

CHEM:1110 (004:011)-CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
CHEM:2210 (004:121) Organic Chemistry I	3 s.h.

One of these sequences:

PHYS:1511 (029:011)-PHYS:1512 (029:012) College Physics I-II	8 s.h.
PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II	8 s.h.

One of these:

MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.

One of these:

STAT:2010 (22S:030) Statistical Methods and Computing (preferred for evolution track)	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

BIOLOGY CORE

All of these:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.

Tracks for the Bachelor of Science

Bachelor of Science students majoring in biology must select a single track. Each track includes seven or eight courses. The experiential elective requirement may be satisfied by taking an appropriate investigative lab for the track, or through several other options: students who use BIOL:4999 (002:196) Honors Investigations to fulfill the experiential elective requirement must complete a minimum of 6 s.h. in that course; students who use BIOL:4899 (002:199) Introduction to Research must complete a minimum of 5 s.h. in that course in combination with 1 s.h. in BIOL:4898 (002:189) Entering Research; and students who use BIOL:4897 (002:188) Advanced Teaching Internship in Biology must complete a minimum of 4 s.h. in that course.

CELL AND DEVELOPMENTAL BIOLOGY TRACK

The cell and developmental biology track provides education in the structure and function of cells and in the principles of development as they apply to animals and plants. This track is appropriate for students who wish to pursue graduate study in cellular and developmental biology, to prepare for professional study in medicine and other health-related fields, or to take positions in laboratories and companies engaged in cancer research and related fields.

Group 1 (Biochemistry)

One of these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) & BIOC:3130 (099:130) Biochemistry and Molecular Biology I-II	6 s.h.

Group 2 (Cell/Developmental Biology Core)

This course:

BIOL:2723 (002:114) Cell Biology	3 s.h.
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One of these:

BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3363 (002:117) Plant Developmental Biology	3 s.h.

One of these:

BIOL:3626 (002:133) Cell Biology Laboratory	4 s.h.
BIOL:3736 (002:135) Developmental Biology Lab	4 s.h.

Group 3 (Experiential Elective)

One of these:

BIOL:3626 (002:133) Cell Biology Laboratory (if not used for group 2 above)	4 s.h.
BIOL:3656 (002:186) Neurobiology Laboratory	4 s.h.
BIOL:3676 (002:132) Evolution Lab	4 s.h.
BIOL:3716 (002:138) Genetics and Biotechnology Lab	4 s.h.
BIOL:3736 (002:135) Developmental Biology Lab (if not used for group 2 above)	4 s.h.
BIOL:4897 (002:188) Advanced Teaching Internship in Biology	4 s.h.
BIOL:4898 (002:189) & BIOL:4899 (002:199) Entering Research - Introduction to Research	6 s.h.
BIOL:4999 (002:196) Honors Investigations (in cell/developmental biology)	6 s.h.

Group 4 (Electives)

At least two of these, with a minimum of one course numbered 3000 or above:

BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology (if not used for group 2 above)	3 s.h.
BIOL:3253 (002:180) Neurobiology	4 s.h.
BIOL:3314 (002:178) Genomics	3 s.h.
BIOL:3343 (002:124) Animal Physiology	3 s.h.
BIOL:3363 (002:117) Plant Developmental Biology (if not used for group 2 above)	3 s.h.
BIOL:3663 (002:139) Plant Response to the Environment	3 s.h.
BIOL:3713 (002:171) Molecular Genetics	4 s.h.
BIOL:4213 (002:170) Bioinformatics	4 s.h.
BIOL:4333 (002:168) Genes and Development	3 s.h.
BIOL:4753 (002:184) Developmental Neurobiology	3 s.h.
MICR:2157 (061:157) General Microbiology	5 s.h.
MICR:3147 (061:147) Survey of Immunology	3 s.h.

EVOLUTIONARY BIOLOGY TRACK

The evolutionary biology track provides education in the principles of evolution as they apply to understanding diversity within and among species, from genomic, ecological, and historical perspectives. This track is

appropriate for students who wish to pursue graduate study in evolutionary biology and related fields or to take positions in laboratories using population genetics or phylogenetic approaches such as forensics, fisheries, and human disease mapping.

Group 1 (Biochemistry)

One of these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) & BIOC:3130 (099:130) Biochemistry and Molecular Biology I-II	6 s.h.

Group 2 (Evolution Core)

Both of these:

BIOL:2673 (002:134) Ecology	3 s.h.
BIOL:3676 (002:132) Evolution Lab	4 s.h.

One of these:

BIOL:3314 (002:178) Genomics	3 s.h.
BIOL:4273 (002:162) Population Genetics and Molecular Evolution	3 s.h.
BIOL:4373 (002:160) Molecular Phylogenetics	3 s.h.

Group 3 (Experiential Elective)

One of these:

BIOL:3716 (002:138) Genetics and Biotechnology Lab	4 s.h.
BIOL:4897 (002:188) Advanced Teaching Internship in Biology	4 s.h.
BIOL:4898 (002:189) & BIOC:4899 (002:199) Entering Research - Introduction to Research	6 s.h.
BIOL:4999 (002:196) Honors Investigations (in evolution)	6 s.h.
ENVS:3095 (159:195) Field Ecology	4 s.h.
An approved Iowa Lakeside Laboratory course	4 s.h.

Group 4 (Electives)

At least two of these, with a minimum of one course numbered 3000 or above:

BIOL:2346 (002:108) Vertebrate Zoology	4 s.h.
BIOL:2374 (002:103) Biogeography	3 s.h.
BIOL:3244 (002:143) Animal Behavior	4 s.h.
BIOL:3314 (002:178) Genomics (if not used for group 2 above)	3 s.h.
BIOL:3663 (002:139) Plant Response to the Environment	3 s.h.
BIOL:4213 (002:170) Bioinformatics	4 s.h.
BIOL:4273 (002:162) Population Genetics and Molecular Evolution (if not used for group 2 above)	3 s.h.
BIOL:4373 (002:160) Molecular Phylogenetics (if not used for group 2 above)	3 s.h.
ANTH:3307 (213:116) Modern Human Origins	3 s.h.
ANTH:3325 (213:151) Human Evolutionary Genetics	3 s.h.
EES:3220 (012:122) Evolution of the Vertebrates	3 s.h.
EES:4440 (012:144) Phylogenetics and Biodiversity	3 s.h.
EES:4700 (012:170) Evolution of Ecosystems	3 s.h.

GENETICS AND BIOTECHNOLOGY TRACK

The genetics and biotechnology track provides education in the key principles of transmission, maintenance, regulation, and manipulation of genes. This track is appropriate for students who wish to pursue graduate study in fields related to genetics or to enter the modern biotechnology industry. It also provides excellent preparation for professional study in medicine and other health-related fields.

Group 1 (Biochemistry)

One of these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) & BIOC:3130 (099:130) Biochemistry and Molecular Biology I-II	6 s.h.

Group 2 (Genetics Core)

All of these:

BIOL:3314 (002:178) Genomics	3 s.h.
BIOL:3713 (002:171) Molecular Genetics	4 s.h.
BIOL:3716 (002:138) Genetics and Biotechnology Lab	4 s.h.

Group 3 (Experiential Elective)

One of these:

BIOL:3626 (002:133) Cell Biology Laboratory	4 s.h.
BIOL:3676 (002:132) Evolution Lab	4 s.h.
BIOL:3736 (002:135) Developmental Biology Lab	4 s.h.
BIOL:4897 (002:188) Advanced Teaching Internship in Biology	4 s.h.
BIOL:4898 (002:189) & BIOC:4899 (002:199) Entering Research - Introduction to Research	6 s.h.
BIOL:4999 (002:196) Honors Investigations	6 s.h.

Group 4 (Electives)

At least two of these, with a minimum of one course numbered 3000 or above:

BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3363 (002:117) Plant Developmental Biology	3 s.h.
BIOL:3663 (002:139) Plant Response to the Environment	3 s.h.
BIOL:4213 (002:170) Bioinformatics	4 s.h.
BIOL:4273 (002:162) Population Genetics and Molecular Evolution	3 s.h.
BIOL:4333 (002:168) Genes and Development	3 s.h.
BIOL:4373 (002:160) Molecular Phylogenetics	3 s.h.
MICR:3170 (061:170) Microbial Genetics	3 s.h.

NEUROBIOLOGY TRACK

The neurobiology track provides education in nervous system function at all levels, from molecular to systems biology. This track is appropriate for students who wish to pursue graduate study in neurobiology and related areas, including psychology and the social sciences; to enter laboratories that study the therapeutic basis of neurological disorders; or to work in pharmaceutical companies. It also provides good preparation for

professional study in medicine and other health-related fields.

Group 1 (Biochemistry)

One of these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) & BIOC:3130 (099:130) Biochemistry and Molecular Biology I-II	6 s.h.

Group 2 (Neurobiology Core)

All of these:

BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.
BIOL:3244 (002:143) Animal Behavior	4 s.h.
BIOL:3253 (002:180) Neurobiology	4 s.h.
BIOL:3656 (002:186) Neurobiology Laboratory	4 s.h.

Group 3 (Experiential Elective)

One of these:

BIOL:3626 (002:133) Cell Biology Laboratory	4 s.h.
BIOL:3676 (002:132) Evolution Lab	4 s.h.
BIOL:3716 (002:138) Genetics and Biotechnology Lab	4 s.h.
BIOL:3736 (002:135) Developmental Biology Lab	4 s.h.
BIOL:4897 (002:188) Advanced Teaching Internship in Biology	4 s.h.
BIOL:4898 (002:189) & BIOC:4899 (002:199) Entering Research - Introduction to Research	6 s.h.
BIOL:4999 (002:196) Honors Investigations (in neurobiology)	6 s.h.

Group 4 (Electives)

At least two of these, with a minimum of one course numbered 3000 or above:

BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3343 (002:124) Animal Physiology	3 s.h.
BIOL:4353 (002:181) Neurophysiology	3 s.h.
BIOL:4753 (002:184) Developmental Neurobiology	3 s.h.

PLANT BIOLOGY TRACK

The plant biology track provides education in how plants grow, how they have evolved, and how they interact with other organisms. This track is appropriate for students who wish to pursue graduate study in biology specializing in plants. It also is good preparation for positions in plant biotechnology companies that work in biofuels development, crop improvement, or carbon dioxide sequestration, or in agencies dedicated to the conservation of natural lands.

Group 1 (Biochemistry)

One of these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) & BIOC:3130 (099:130) Biochemistry and Molecular Biology I-II	6 s.h.

Group 2 (Plant Biology Core)

Both of these:

BIOL:3363 (002:117) Plant Developmental Biology	3 s.h.
BIOL:3663 (002:139) Plant Response to the Environment	3 s.h.

One of these:

BIOL:3676 (002:132) Evolution Lab	4 s.h.
BIOL:3716 (002:138) Genetics and Biotechnology Lab	4 s.h.

Group 3 (Experiential Elective)

One of these:

BIOL:3626 (002:133) Cell Biology Laboratory	4 s.h.
BIOL:3676 (002:132) Evolution Lab (if not used for group 2 above)	4 s.h.
BIOL:3716 (002:138) Genetics and Biotechnology Lab (if not used for group 2 above)	4 s.h.
BIOL:3736 (002:135) Developmental Biology Lab	4 s.h.
BIOL:4897 (002:188) Advanced Teaching Internship in Biology	4 s.h.
BIOL:4898 (002:189) & BIOC:4899 (002:199) Entering Research - Introduction to Research	6 s.h.
BIOL:4999 (002:196) Honors Investigations (in plant biology)	6 s.h.
ENVS:3095 (159:195) Field Ecology	4 s.h.
An approved Iowa Lakeside Laboratory course on plant diversity or plant ecology	4 s.h.

Group 4 (Electives)

At least two of these, with a minimum of one course numbered 3000 or above:

BIOL:2374 (002:103) Biogeography	3 s.h.
BIOL:2673 (002:134) Ecology	3-4 s.h.
BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3314 (002:178) Genomics	3 s.h.
BIOL:3713 (002:171) Molecular Genetics	4 s.h.
BIOL:4213 (002:170) Bioinformatics	4 s.h.
BIOL:4273 (002:162) Population Genetics and Molecular Evolution	3 s.h.
EES:4700 (012:170) Evolution of Ecosystems	3 s.h.

COMPREHENSIVE BIOLOGY TRACK

The comprehensive biology track offers a diverse, well-balanced introduction to the major fields of biology. This track prepares students for graduate study in the biological sciences and in science education and for work in laboratories that engage in research and applications in many fields of biology. It also provides broadly based preparation for professional study in medicine and other health-related fields.

Group 1 (Biochemistry and Molecular Biology)

One of these sequences:

BIOC:3120 (099:120) & BIOC:3130 (099:130) Biochemistry and Molecular Biology I-II	6 s.h.
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BIOL:3314 (002:178) & BIOC:3110 (099:110) Genomics - Biochemistry	6 s.h.
BIOL:3713 (002:171) & BIOC:3110 (099:110) Molecular Genetics - Biochemistry	7 s.h.

Group 2 (Cellular Biology)

One of these:

BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.

Group 3 (Biological Systems)

One of these:

BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3244 (002:143) Animal Behavior	4 s.h.
BIOL:3343 (002:124) Animal Physiology	3 s.h.
BIOL:3363 (002:117) Plant Developmental Biology	3 s.h.
BIOL:3663 (002:139) Plant Response to the Environment	3 s.h.

Group 4 (Population Biology)

One of these:

BIOL:2374 (002:103) Biogeography	3 s.h.
BIOL:2673 (002:134) Ecology	3 s.h.
BIOL:4273 (002:162) Population Genetics and Molecular Evolution	3 s.h.

Group 5 (Investigative Lab)

One of these:

BIOL:3626 (002:133) Cell Biology Laboratory	4 s.h.
BIOL:3656 (002:186) Neurobiology Laboratory	4 s.h.
BIOL:3676 (002:132) Evolution Lab	4 s.h.
BIOL:3716 (002:138) Genetics and Biotechnology Lab	4 s.h.
BIOL:3736 (002:135) Developmental Biology Lab	4 s.h.

Group 6 (Experiential Elective)

At least one of these:

BIOL:3626 (002:133) Cell Biology Laboratory (if not used for group 5 above)	4 s.h.
BIOL:3656 (002:186) Neurobiology Laboratory (if not used for group 5 above)	4 s.h.
BIOL:3676 (002:132) Evolution Lab (if not used for group 5 above)	4 s.h.
BIOL:3716 (002:138) Genetics and Biotechnology Lab (if not used for group 5 above)	4 s.h.
BIOL:3736 (002:135) Developmental Biology Lab (if not used for group 5 above)	4 s.h.
BIOL:4897 (002:188) Advanced Teaching Internship in Biology	4 s.h.
BIOL:4898 (002:189) & BIOL:4899 (002:199) Entering Research - Introduction to Research	6 s.h.
BIOL:4999 (002:196) Honors Investigations	6 s.h.
An approved Iowa Lakeside Laboratory course	4 s.h.

Suggested Schedule for First-Year Science Courses

The following first-year schedule of science courses is recommended for all biology majors (B.A. or B.S. students).

First-semester science courses:

CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
Calculus or mathematics leading to calculus	5-10 s.h.

Second-semester science courses:

BIOL:1411 (002:031) Foundations of Biology	4 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.
Calculus (if not taken during the first semester)	5 s.h.

Bachelor of Arts

The Bachelor of Arts with a major in biology requires a minimum of 120 s.h., including at least 62-73 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major for the Bachelor of Arts prepares students for graduate study in the biological sciences and is especially appropriate for those interested in careers in biological science education at all levels. It also provides suitable preparation for professional positions in laboratory or field research or for professional study in medicine and other health-related fields.

The B.A. program is broadly based. It introduces students to key concepts in important areas of biology and, compared to the B.S. program, provides more flexibility in choosing elective courses. Students working toward a Bachelor of Arts must complete the chemistry/physics/math foundation; the biology core; one course from each of three breadth menus; one course with a laboratory; and three elective courses, which may include one course in the history or philosophy of science.

Students who wish to apply transfer credit toward graduation with a major in biology should consult their biology advisor.

CHEMISTRY/PHYSICS/MATHEMATICS FOUNDATION

All of these:

CHEM:1110 (004:011)-CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
CHEM:2210 (004:121) Organic Chemistry I	3 s.h.

One of these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
CHEM:2220 (004:122) Organic Chemistry II	3 s.h.

One of these sequences:

PHYS:1511 (029:011)-PHYS:1512 (029:012) College Physics I-II	8 s.h.
PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II	8 s.h.

One of these:

MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.

One of these:

STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

BIOLOGY CORE

All of these:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.

BREADTH MENUS

Students must complete at least one course from each of the following three breadth menus.

Molecular and Cellular Biology

BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.
BIOL:3314 (002:178) Genomics	3 s.h.
BIOL:3713 (002:171) Molecular Genetics	4 s.h.

Developmental Biology and Physiology

BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3343 (002:124) Animal Physiology	3 s.h.
BIOL:3363 (002:117) Plant Developmental Biology	3 s.h.
BIOL:3663 (002:139) Plant Response to the Environment	3 s.h.

Ecology and Evolutionary Biology

BIOL:2374 (002:103) Biogeography	3 s.h.
BIOL:2673 (002:134) Ecology	3 s.h.
BIOL:4273 (002:162) Population Genetics and Molecular Evolution	3 s.h.

COURSE WITH A LABORATORY

One of these (must not have been used as a breadth menu course):

BIOL:2346 (002:108) Vertebrate Zoology	4 s.h.
BIOL:3244 (002:143) Animal Behavior	4 s.h.
BIOL:3626 (002:133) Cell Biology Laboratory	4 s.h.
BIOL:3656 (002:186) Neurobiology Laboratory	4 s.h.
BIOL:3676 (002:132) Evolution Lab	4 s.h.
BIOL:3716 (002:138) Genetics and Biotechnology Lab	4 s.h.
BIOL:3736 (002:135) Developmental Biology Lab	4 s.h.
BIOL:4999 (002:196) Honors Investigations	6 s.h.
BIOC:3140 (099:140) Experimental Biochemistry	2 s.h.

EES:3210 (012:121) Principles of Paleontology	3 s.h.
MICR:2157 (061:157) General Microbiology	5 s.h.
Iowa Lakeside Laboratory courses (students consult their advisors)	4-5 s.h.

ELECTIVES

Students complete at least three elective courses, which may include any course chosen from a breadth menu or from the list of courses with a laboratory that has not been used to satisfy those requirements, any other 2-4 s.h. course numbered 2000 or above except for BIOL:2211 (002:099) Genes, Genomes, and the Human Condition offered by the Department of Biology, any approved advanced biology course taught at Iowa Lakeside Laboratory (p. 1267) (students should consult their advisors), and/or any course(s) chosen from the following list.

ANTH:3307 (213:116) Modern Human Origins	3 s.h.
ANTH:3310 (213:188) Primate Behavior and Ecology	3 s.h.
ANTH:3322 (213:170) Primate Evolutionary Biology	3 s.h.
ANTH:3325 (213:151) Human Evolutionary Genetics	3 s.h.
ASP:3160 (153:160) Biology of Aging	3 s.h.
EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:3220 (012:122) Evolution of the Vertebrates	3 s.h.
EES:4700 (012:170) Evolution of Ecosystems	3 s.h.
HHP:4130 (027:155) Skeletal Muscle Physiology	3 s.h.
MICR:3147 (061:147) Survey of Immunology	3 s.h.

One of the electives may be chosen from these:

GEOG:3110 (044:131)/GHS:4111 (152:131) Geography of Health	3 s.h.
HIST:4160 (16W:137)/GHS:4160 (152:137) History of Public Health	3 s.h.
HIST:4162 (16W:138)/GHS:4162 (152:138) History of Global Health	3 s.h.
HIST:4419 (16E:139) Ancient and Medieval Science	3 s.h.
PHIL:3604 (026:104) Introduction to Philosophy of Science	3 s.h.

In addition, students who have passed CHEM:2210 (004:121) Organic Chemistry I, CHEM:2220 (004:122) Organic Chemistry II, and BIOC:3110 (099:110) Biochemistry may use BIOC:3110 (099:110) Biochemistry as a biology elective. Students may count BIOL:4899 (002:199) Introduction to Research (maximum of 3 s.h.) and BIOL:4897 (002:188) Advanced Teaching Internship in Biology (maximum of 2 s.h.) only once toward the B.A. elective requirement.

Suggested Schedule for First-Year Science Courses

The following first-year schedule of science courses is recommended for all biology majors (B.A. or B.S. students).
First-semester science courses:

CHEM:1110 (004:011) Principles of Chemistry I 4 s.h.
Calculus or mathematics leading to calculus 5-10 s.h.

Second-semester science courses:

BIOL:1411 (002:031) Foundations of Biology 4 s.h.
CHEM:1120 (004:012) Principles of Chemistry II 4 s.h.
Calculus (if not taken during the first semester) 5 s.h.

B.A. or B.S. with Teacher Licensure

Biology majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students with a strong interest in science teaching may complete a major offered by the Science Education Program. Students choose one of five emphases—biology, chemistry, earth science, physics, or all-science—and earn a Bachelor of Science degree. They may apply for admission to the Teacher Education Program. See Science Education (p. 809) in the Catalog.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Science

Before the third semester begins: MATH:1460 (22M:016) Calculus for the Biological Sciences or MATH:1850 (22M:025) Calculus I or MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus, CHEM:1110 (004:011) Principles of Chemistry I, CHEM:1120 (004:012) Principles of Chemistry II, and BIOL:1411 (002:031) Foundations of Biology

Before the fifth semester begins: BIOL:1412 (002:032) Diversity of Form and Function, CHEM:2210 (004:121) Organic Chemistry I, STAT:2010 (22S:030) Statistical Methods and Computing or STAT:3510 (22S:101) Biostatistics, and two other courses in the major

Before the seventh semester begins: BIOL:2512 (002:128) Fundamental Genetics; BIOL:3172 (002:131) Evolution; PHYS:1511 (029:011) College Physics I and PHYS:1512 (029:012) College Physics II or equivalents; five or six more courses in the major, including an investigative lab; and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General

Education courses, and a sufficient number of semester hours to graduate

Bachelor of Arts

Before the third semester begins: MATH:1460 (22M:016) Calculus for the Biological Sciences or MATH:1850 (22M:025) Calculus I or MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus, CHEM:1110 (004:011) Principles of Chemistry I, CHEM:1120 (004:012) Principles of Chemistry II, and BIOL:1411 (002:031) Foundations of Biology

Before the fifth semester begins: BIOL:1412 (002:032) Diversity of Form and Function, CHEM:2210 (004:121) Organic Chemistry I, STAT:2010 (22S:030) Statistical Methods and Computing or STAT:3510 (22S:101) Biostatistics, and three other courses in the major

Before the seventh semester begins: BIOL:2512 (002:128) Fundamental Genetics, BIOL:3172 (002:131) Evolution, PHYS:1511 (029:011) College Physics I and PHYS:1512 (029:012) College Physics II or equivalents, five or six more courses in the major, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in biology have the opportunity to graduate with honors in the major. The Biology Honors Program introduces students to the pursuits of practicing scientists. Honors students associate with one of the department's research groups and participate in an independent research project guided by a faculty member (the research supervisor).

Biology honors students write a thesis based on an interesting biological problem, which is usually identified by the research supervisor. The thesis should clearly document that the student has acquired the necessary experimental skills to address specific questions and test specific hypotheses related to the research problem. Honors Seminar in Biology [BIOL:4998 (002:198)], or an equivalent seminar, provides students with an ideal opportunity to improve their skills in seminar presentation and in writing scientific English. Throughout undergraduate residence, departmental honors students also may enroll in honors sections of courses offered by the Department of Biology and by other departments and programs.

To graduate with honors in the biology major, students must fulfill the following requirements:

- complete the requirements for a major in biology (either B.S. or B.A.) with a g.p.a. of at least 3.33 in all course work in the major taken at The University of Iowa (including all biology courses and cognates in chemistry, physics, biochemistry, mathematics, and statistics);

- complete 2 s.h. in either BIOL:4998 (002:198) Honors Seminar in Biology or an advanced biology seminar course;

complete a minimum of 6 s.h. (taken over two or more semesters) of BIOL:4999 (002:196) Honors Investigations;

write a brief research proposal summarizing the background and goals of their proposed honors research;

upon completion of their research, submit an acceptable honors thesis; and

give a brief oral presentation of their research findings to other biology honors students.

Students pursuing a B.S. in biology may apply 6 s.h. of BIOL:4999 (002:196) Honors Investigations toward the experiential elective requirement in an appropriate track. Students pursuing a B.A. in biology may apply 6 s.h. of BIOL:4999 (002:196) Honors Investigations toward the required course with a laboratory and count the 2 s.h. earned in BIOL:4998 (002:198) Honors Seminar in Biology toward the elective requirement.

Honors students in biology must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Biology majors interested in graduating with honors in the major should contact the biology honors advisor as early as possible, preferably during their sophomore or junior year, so that they may be matched with an appropriate lab. Visit Biology Honors Program to learn more about honors study in the department.

Joint B.A./M.A.T. with Science Education Subprogram

Bachelor of Arts students interested in pursuing a graduate degree in teaching may apply to the joint Bachelor of Arts/Master of Arts in Teaching program offered by the College of Liberal Arts and Sciences and the College of Education. Designed for undergraduates majoring in biology, chemistry, environmental sciences, or physics, the joint program enables students to earn a B.A. and an M.A.T. in five years by beginning to earn graduate credit during their fourth year of undergraduate study and by counting up to 18 s.h. of qualifying credit toward both degrees. For more information, see "Joint B.A./M.A.T. with Science Education Subprogram" in the Teaching and Learning (College of Education) section of the Catalog. Interested students should consult an advisor.

Joint B.A./Graduate Degrees in Epidemiology

Bachelor of Arts students majoring in biology who are interested in earning a Master of Science in epidemiology or a Master of Public Health with epidemiology subprogram may apply to the joint B.A./M.P.H. or joint B.A./M.S. program offered by the College of Liberal Arts and Sciences and the College of Public Health. The joint programs permit students to count 12 s.h. of credit toward the requirements of both degrees, enabling them to begin the study of public health before they complete the bachelor's degree. For information about the M.P.H., see "Epidemiology Subprogram" in the Master of Public Health

(p. 1225) section of the Catalog; for information about the M.S. program, see Epidemiology (p. 1208) in the Catalog.

Minor

The minor in biology requires a minimum of 15 s.h. in biology courses, including 12 s.h. in courses numbered 2000 or above offered by the Department of Biology at The University of Iowa or in approved Iowa Lakeside Laboratory (p. 1267) courses. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may not count transfer courses as courses numbered 2000 or above.

Graduate Programs of Study

- Master of Science in integrated biology, with or without thesis
- Doctor of Philosophy in integrated biology

The Department of Biology's graduate programs in integrated biology emphasize original research and the skills essential for publishing and communicating research findings to the scientific community. The programs prepare students for careers in the academic research community, education, industry, government, and a variety of other careers in which their scientific expertise can be used. Research programs in the department cover most areas of the biological sciences: cell biology, developmental biology, ecology, evolution, genetics, and neurobiology. Graduate study in the department provides students with a broad understanding of these basic areas.

When a new graduate student is admitted, he or she is assigned a temporary advisor. The student and advisor discuss the student's educational background and formulate a first-semester study plan before the student registers for courses. The programs allow each student to tailor course work to his or her research interest. Students may be advised to take specific course work in order to enhance their background in certain areas.

During the first year, students whose preparation in chemistry, genetics, mathematics, and physics does not meet the department's graduate entry requirements may need to remedy deficiencies by taking appropriate course work.

Minimum entry requirements are:

two semesters of organic chemistry, or one semester of organic chemistry and one semester of biochemistry;

one semester of calculus;

two semesters of college physics; and

20 s.h. of course work in biology.

A student with a bachelor's degree outside the biological sciences may request modification of certain area requirements; the Graduate Affairs Committee decides whether portions of the requirements may be waived.

Master of Science

The Master of Science in integrated biology requires 30 s.h. of graduate credit with thesis and 34 s.h. of graduate credit without thesis. Entering students are admitted only to the thesis program; the nonthesis degree is an exit program.

All M.S. students take a seminar (2 s.h.) with a substantial writing and oral presentation requirement and two advanced lecture-based courses in biology. Students receive academic credit for courses required for an M.S. or Ph.D. but not for courses taken to remedy undergraduate deficiencies.

Thesis students may count a maximum of 9 s.h. of research credit toward the 30 s.h. required for the master's degree with thesis. Remaining course work is tailored to the student's background and career goals and is selected in consultation with the student's advisory committee. The thesis is based on original research. After the thesis is accepted by the student's supervisor and advisory committee, the student must pass an oral examination based on the thesis research and on related subjects.

Nonthesis students must write a library research report for a maximum of 4 s.h. of credit. They may apply up to 8 s.h. of research credit toward the 34 s.h. required for the master's degree without thesis.

Visit Integrated Biology Graduate Program for more detailed information about the Master of Science program..

Doctor of Philosophy

The Doctor of Philosophy in integrated biology requires a minimum of 72 s.h. of graduate credit.

The department expects new Ph.D. students to do research in three laboratories on a rotating basis during their first semester (August-December). Students consult with their temporary advisors and with prospective faculty research sponsors before identifying their preferences for research rotations. Based on their rotations, they choose a laboratory affiliation for their thesis.

During the first year, students are required to enroll in BIOL:6298 (002:200) Concepts, Models, and Systems in Biology (COSMOS) Seminar, which introduces them to multiple levels of biological analysis and provides them with significant opportunities to hone their skills in written and oral communication. At the end of the first year, students take a qualifying exam that consists of essay questions based on major themes in biology; students must perform satisfactorily on this exam in order to continue in the program.

During the first two years, students must enroll in at least two advanced lecture courses, one seminar course (2 s.h.) that has a significant writing component, and a course on scientific writing designed for graduate students.

For the comprehensive examination, which is taken in summer of the second year in residence, students prepare a National Institutes of Health/National Science Foundation-style grant application on their planned thesis work and answer questions about the document in an oral exam. Students must demonstrate knowledge of biology fundamentals and the analytic and synthetic skills necessary to become creative, independent scientists. Once they complete the course work and proficiency requirements and pass the comprehensive examination, students may be admitted to full candidacy for the Ph.D.

Ph.D. students also must develop and demonstrate teaching skills by serving as teaching assistants for at least two semesters. The first teaching semester takes place during spring of the student's first year; it includes extensive departmental training in effective teaching skills.

The department also offers career seminars that explore types of employment outside of academic research, including teaching careers.

The program culminates in students' preparation of a dissertation based on original independent research. Students must pass a final examination that covers the thesis and its specialized field before the Ph.D. is awarded.

Visit Integrated Biology Graduate Program for more detailed information about the Doctor of Philosophy program.

Admission

Individuals who wish to pursue graduate study in integrated biology may apply to the Doctor of Philosophy program or the Master of Science with thesis program. The M.S. without thesis is an exit program; it does not admit entering graduate students.

Application materials for the graduate program must be sent both to the University's Office of Admissions and to the Department of Biology graduate admissions committee. For detailed instructions, visit Apply on the integrated biology graduate program web site.

Applicants should have official transcripts from each undergraduate and graduate institution they have attended sent to both the Office of Admissions and the Department of Biology. They also should arrange to have official scores from the Graduate Record Examination (GRE) General Test (verbal, quantitative, and analytical writing) sent to both offices. A valid B.A. or B.S. from an accredited institution is required.

Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL) and have their score sent to the Office of Admissions. International applicants who received their degrees (either bachelor's or master's) from a U.S. institution are exempt from this requirement. All international students whose first language is not English are required to take the on-campus English Proficiency Evaluation before they first enroll for classes.

Successful applicants for graduate admission typically have a g.p.a. of at least 3.00 (on a 4.00 scale) and a Graduate Record Examination (GRE) General Test score above 1200 (combined verbal and quantitative) on the old GRE or 308 (combined verbal and quantitative) on the revised GRE. The admissions committee also considers letters of recommendation, research experience, and other appropriate criteria.

Although most applicants have completed undergraduate programs in biology, the department also considers applicants with backgrounds in related sciences, providing they have taken the required course work.

Students applying for admission to the M.S. with thesis program should have a bachelor's degree in one of the biological sciences. Students with bachelor's degrees in other areas may need to register as nondegree students and complete the equivalent of the department's bachelor's degree program prior to consideration for admission. Nondegree students must complete chemistry, physics, and calculus requirements in addition to the biology courses listed in the undergraduate program. Nondegree students should consult the department's graduate program administrator before applying for admission.

Applications are due by January 1 (visit Integrated Biology Graduate Program for updated deadline information) and must include the applicant's GRE test scores. In order to meet the deadline, applicants must take the GRE in October or earlier. Late applications are considered as placement and funding permit.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

All graduate students making satisfactory progress toward the Ph.D. receive stipend and full tuition support from non-University of Iowa fellowships and from teaching assistantships or research assistantships available through individual research grants administered by faculty members or by the University. First-year Ph.D. students are supported by department fellowships during the research rotation period and by teaching assistantships during the spring semester. M.S. students generally are supported by available research or teaching assistantships. Offers of admission include information about offers of financial support.

Facilities

The department is housed in two contiguous buildings, with modern facilities and equipment for state-of-the-art research.

Facilities include the Keck Dynamic Image Analysis Facility, which couples sophisticated state-of-the-art microscopy and computerized motion analysis to permit three-dimensional real-time analysis of cell movement in vitro and in situ. The Roy J. Carver Center for Genomics houses the department's DNA sequencing, oligo synthesis, quantitative PCR, functional genomics/microarray facilities, and informatics facilities. The Roy J. Carver Center for Imaging is a microscopy and imaging facility; its confocal microscope is available for teaching and research.

A large greenhouse is used in plant research and education.

The department also houses animal-care facilities suitable for mice, rats, rabbits, *Xenopus laevis*, and zebra fish. These facilities are managed by the University's animal care unit, which is accredited by the Association for Assessment and Accreditation of Laboratory Animal Care. A central University facility provides assistance in the preparation of transgenic mice.

The department is home to the Developmental Studies Hybridoma Bank, which is affiliated with the National Institutes of Health. The hybridoma bank collects and distributes monoclonal antibodies that originate in laboratories all over the world. Its collection now contains more than 1600 monoclonal antibodies that are distributed to users internationally for a modest fee.

In addition to department facilities, the University offers a genomic sequencing service, a DNA oligonucleotide synthesis and enzyme lab, oligopeptide synthesis and sequencing equipment, and mass- and NMR spectroscopy facilities. The Center for Biocatalysis and Bioprocessing is available for growing large amounts of microorganisms (e.g., 100 liters) for use in protein isolation.

Iowa Lakeside Laboratory

The Iowa Lakeside Laboratory is a field station run cooperatively by The University of Iowa, Iowa State University, and the University of Northern Iowa. Located on West Lake Okoboji, in northwestern Iowa, the laboratory affords excellent conditions for summer study in field biology, limnology, phycology, aquatic ecology, pollination biology, and plant taxonomy. It offers a wide variety of summer courses at the undergraduate and graduate levels. Students should check with their advisors to determine whether specific courses may be counted toward requirements for graduation. See Iowa Lakeside Laboratory (p. 1267) (University College) in the Catalog or visit the Lakeside Laboratory web site.

Courses

Many courses include field and/or laboratory components.

Lower-Level Undergraduate

BIOL:1060 (002:050) Origins of Life in the Universe (Part 1) 3 s.h.

Fundamental questions (How old is the universe? What is the nature of life? How has life evolved on Earth? What are our human origins? Are there other habitable planets in the universe?) that revolve around understanding origins from different perspectives (i.e., astronomy, physics, geoscience, biology, chemistry, anthropology); work with faculty from several departments to investigate these questions; inquiry-based activities to build success in critical thinking, teamwork, effective written and oral communication; origin of the universe, biochemistry of life, and origin of life on Earth; first of a two-part sequence. Recommendations: first-year or sophomore standing. GE: Natural Sciences without Lab. Same as ASTR:1060 (029:040), EES:1060 (012:045).

BIOL:1061 (002:051) Origins of Life in the Universe (Part 2) 4 s.h.

Fundamental questions (How old is the universe? What is the nature of life? How has life evolved on Earth? What are our human origins? Are there other habitable planets in the universe?) that revolve around understanding origins from different perspectives (i.e., astronomy, physics, geoscience, biology, chemistry, anthropology); work with faculty from several departments to investigate these questions; inquiry-based activities to build success in critical thinking, teamwork, and effective written and oral communication; second of a two-part sequence. Prerequisites: ASTR:1060 (029:040) or BIOL:1060 (002:050) or EES:1060 (012:045). Recommendations: first-year or sophomore standing. GE: Natural Sciences with Lab. Same as ASTR:1061 (029:041), ANTH:1061 (113:041), EES:1061 (012:046).

BIOL:1141 (002:002) Introductory Animal Biology 4 s.h.

Fundamental principles: cells and macromolecules, energy metabolism, organismic physiology, genetics, development, ecology, and evolution. Requirements: one year of high school chemistry. Recommendations: CHEM:1070 (004:007). GE: Natural Sciences with Lab.

BIOL:1261 (002:001) Introduction to Botany 4 s.h.

Biology of plant life; emphasis on structure, function, reproduction, inheritance, diversity, evolution. Requirements: one year of high school chemistry. GE: Natural Sciences with Lab.

BIOL:1411 (002:031) Foundations of Biology 4 s.h.

Unifying concepts of living systems; emphasis on common properties and processes; chemical and cellular basis of life, genetics, and evolution. Prerequisites: CHEM:1110 (004:011). GE: Natural Sciences with Lab.

BIOL:1412 (002:032) Diversity of Form and Function 4 s.h.

Underlying unifying concepts of life; emphasis on diversity of living systems; the tree of life, cellular evolution, prokaryotic and eukaryotic diversity, plant and animal form and function; interactions among diverse forms of life and their environment. Prerequisites: BIOL:1411 (002:031). Requirements: grade of C- or higher in BIOL:1411 (002:031). GE: Natural Sciences with Lab.

BIOL:1808 (002:028) Ways of Knowing Science 1 s.h.

Science as a powerful way of knowing based on experimentation and observation of natural world; introduction to subdisciplines of scientific research; scope and methods of scientific research; questions that scientific research seek answers for; methods that scientists use to obtain answers to their questions; how science affects us personally and how it affects the rest of society; research seminars, discussion, and exploration.

BIOL:2254 (002:150) Endocrinology 3 s.h.

Production and effect of hormonal chemical messengers of secretory glands; emphasis on cell signaling in vertebrate systems; actions of hormones in regulating growth, physiology, and reproduction; organ to molecular levels. Prerequisites: BIOL:1411 (002:031) and BIOL:1412 (002:032). Recommendations: CHEM:2210 (004:121).

BIOL:2346 (002:108) Vertebrate Zoology 4 s.h.

Vertebrate diversity, success in relation to evolutionary history, and adaptive radiation of fish, amphibians, reptiles, birds, mammals; physiological, morphological, behavioral, life history adaptations; vertebrate zoogeography, systematics, patterns of reproduction, social systems. Prerequisites: BIOL:1411 (002:031) and BIOL:1412 (002:032).

BIOL:2374 (002:103) Biogeography 3 s.h.

Patterns of plant and animal distribution and their interpretation; historical geography including glaciation and plate tectonics; ecological geography, including physical factors (e.g., climate and geology); applications to conservation in diverse regions. Prerequisites: GEOG:1020 (044:003) or BIOL:1141 (002:002) or BIOL:1261 (002:001) or BIOL:1370 (002:022) or BIOL:1412 (002:032). Same as GEOG:2374 (044:103).

BIOL:2512 (002:128) Fundamental Genetics 4 s.h.

Nature, function of genetic material: classical, molecular, developmental aspects. Prerequisites: BIOL:1411 (002:031), BIOL:1412 (002:032), and CHEM:1120 (004:012). Corequisites: CHEM:2210 (004:121), if not taken as a prerequisite. Requirements: grade of C- or higher in BIOL:1412 (002:032).

BIOL:2603 (002:105) Mechanisms of Aging 3 s.h.

Evolutionary theories of aging, cellular and genetic basis of aging and repair, disruption of homeostasis in aging; focus on studies of biological and environmental causes of age-related diseases. Prerequisites: BIOL:1411 (002:031), and BIOL:1412 (002:032) or HHP:3500 (027:130).

BIOL:2673 (002:134) Ecology 3-4 s.h.

Adaptations of organisms to their physical and biological environments; organism-environment interactions; population biology; interactions between species; ecology of communities, ecosystems; human impact on ecosystems. Prerequisites: BIOL:1411 (002:031), BIOL:1412 (002:032), and MATH:1460 (22M:016) or MATH:1550 (22M:031) or MATH:1850 (22M:025). Recommendations: a basic statistics course. Same as ENV:2673 (159:134).

BIOL:2723 (002:114) Cell Biology 3 s.h.

Structures of cells and organelles in relation to their functions at molecular, cellular levels; emphasis on higher eukaryotic cells. Prerequisites: BIOL:1411 (002:031), BIOL:1412 (002:032), and CHEM:1120 (004:012).

BIOL:2753 (002:145) Introduction to Neurobiology 3 s.h.

Techniques of molecular biology, genomics, neuropharmacology, and functional brain imaging applied to understanding how the brain works. Prerequisites: BIOL:1411 (002:031) and BIOL:1412 (002:032).

Elementary Topics of General Interest, Lower-Level Undergraduate

These courses are not open to graduate students and do not provide credit toward a biology major.

BIOL:1000 (002:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Requirements: first- or second-semester standing.

BIOL:1140 (002:021) Human Biology 4 s.h.

Molecular and cellular basis of human life; integration of humans and the biosphere through photosynthesis, respiration; structure, function of human tissues, organs, organ systems; reproduction, genetics, impact of molecular biology and genetic engineering; lecture, laboratory. GE: Natural Sciences with Lab.

BIOL:1251 (002:040) How the Brain Works (and Why it Doesn't) 3-4 s.h.

Introductory survey of neuroscience; structure and function of the brain; nature of consciousness; brain function in mental illness and degenerative disorders; genes and the mind; perception, sensation, memory, and emotions. Requirements: non-biology major. GE: Natural Sciences without Lab.

BIOL:1260 (002:095) Plants and Human Affairs 2-3 s.h.

How plants are useful to people: food, clothing, shelter, medicines, psychoactive agents; plants' social, economic, ecological significance. GE: Natural Sciences without Lab.

BIOL:1311 (002:081) Human Genetics in the Twenty-First Century 3 s.h.

Analysis of human genes and genomes; genetic basis of simple and complex traits; genetic aspects of cancer; paleogenomics and tracing human migrations with DNA. GE: Natural Sciences without Lab. Same as ANTH:1310 (113:081).

BIOL:1360 (002:087) Spring Flora 3 s.h.

Recognition and identification of spring-flowering herbaceous plants, native woodland trees and shrubs, woody landscape plants; family characteristics, use of taxonomic key.

BIOL:1370 (002:022) Understanding Evolution 3 s.h.

Evolution and diversity of living things, their patterns on Earth, their organization in ecological systems; dynamics of evolutionary processes. GE: Natural Sciences without Lab.

BIOL:2211 (002:099) Genes, Genomes, and the Human Condition 3 s.h.

Organization, expression, and evolution of genes in context of genomes; focus on human genome; distribution and transmission of variation in human population. Prerequisites: BIOL:1411 (002:031). Recommendations: BIOL:1412 (002:032).

Upper-Level Undergraduate and Graduate**BIOL:3172 (002:131) Evolution** 4 s.h.

Nature, evidence, analysis, implications, molecular/genetic basis; historical record, phylogeny, speciation, adaptation, investigative methods. Prerequisites: BIOL:1411 (002:031), BIOL:1412 (002:032), BIOL:2512 (002:128), and MATH:1460 (22M:016) or MATH:1550 (22M:031) or MATH:1850 (22M:025) or STAT:2010 (22S:030) or STAT:3510 (22S:101). Requirements: grade of C- or higher in BIOL:2512 (002:128).

BIOL:3233 (002:104) Introduction to Developmental Biology 3 s.h.

Fundamental mechanisms in differentiation, organogenesis, morphogenesis; and pattern formation; mechanistic approach at molecular, cellular, tissue levels of organizations. Prerequisites: BIOL:1412 (002:032) and CHEM:1120 (004:012). Requirements: grade of C- or higher in BIOL:1412 (002:032). Recommendations: BIOL:2512 (002:128).

BIOL:3244 (002:143) Animal Behavior 4 s.h.

Genetics, sensory physiology, migration, development of behavior, circadian rhythms, foraging strategies, aggression, sexual and parental behavior, group selection, social behavior. Prerequisites: BIOL:1411 (002:031) and BIOL:1412 (002:032).

BIOL:3253 (002:180) Neurobiology 4 s.h.

Cellular neurobiology (cytoskeleton and transport, membrane physiology, synaptic transmission and plasticity, sensory transduction); systems neurobiology (peripheral and central sensory processing, autonomic and somatic motor systems); cognitive neurobiology (emotion, biological rhythms and sleep, memory, attention, language); developmental neurobiology. Prerequisites: BIOL:2753 (002:145). Recommendations: BIOL:2723 (002:114) and BIOC:3110 (099:110). Same as NSCI:7180 (132:180).

BIOL:3314 (002:178) Genomics 3 s.h.

Major areas of genomics, including DNA and protein sequence analysis, structural diversity of whole genomes, microarray applications, proteomics; computer workshop experience in applying bioinformatics tools. Prerequisites: BIOL:2512 (002:128) or BIOC:3120 (099:120).

BIOL:3343 (002:124) Animal Physiology 3 s.h.

Principles of cellular and systems physiology; emphasis on experimental and quantitative aspects. Prerequisites: BIOL:1411 (002:031), BIOL:1412 (002:032), and PHYS:1511 (029:011) or PHYS:1611 (029:081). Corequisites: PHYS:1512 (029:012) or PHYS:1612 (029:082), if not taken as a prerequisite.

BIOL:3363 (002:117) Plant Developmental Biology 3 s.h.

Developmental processes throughout life cycle of vascular plants; current knowledge of mechanisms, control; emphasis on molecular and genetic approaches to studying development. Prerequisites: BIOL:2512 (002:128).

BIOL:3373 (002:141) Human Population Genetics and Variation 3 s.h.

Principles of evolutionary change of genes and genomes applied to human populations and to comparisons between humans and their closest primate relatives; emphasis on consequences of mutation, natural selection, and demographic changes. Prerequisites: BIOL:2211 (002:099) or BIOL:2512 (002:128). Requirements: grade of C- or higher in BIOL:2211 (002:099) or BIOL:2512 (002:128), or graduate standing.

BIOL:3626 (002:133) Cell Biology Laboratory 4 s.h.

Conceptual understanding and technical skills in fluorescence microscopy and digital imaging, mammalian cell culture, tissue fractionation, centrifugation, electrophoresis, and expression of recombinant proteins. Prerequisites: BIOL:1411 (002:031), BIOL:1412 (002:032), and BIOL:2723 (002:114).

BIOL:3656 (002:186) Neurobiology Laboratory 4 s.h.

Principles and practice of neurobiology research, including microscopy and imaging, cellular and molecular neurobiology, and electrophysiology. Prerequisites: BIOL:2753 (002:145).

BIOL:3663 (002:139) Plant Response to the Environment 3 s.h.

Mechanisms of plant responses to environmental factors (biotic and abiotic) at organismal and molecular levels. Prerequisites: BIOL:2512 (002:128) or BIOC:3120 (099:120).

BIOL:3676 (002:132) Evolution Lab 4 s.h.

Methods of sampling and describing variation in natural populations; application of molecular genetic, bioinformatic, and computational techniques to describe genetic variation through sequence analysis; use of controlled laboratory experiments and computer simulations to illustrate evolutionary principles. Prerequisites: BIOL:2512 (002:128). Corequisites: BIOL:3172 (002:131), if not taken as a prerequisite. Recommendations: grade of C or higher in BIOL:3172 (002:131).

BIOL:3713 (002:171) Molecular Genetics 4 s.h.

Mechanism, regulation of RNA, DNA, protein biosynthesis, with emphasis on methods of genetic analysis; application of modern recombinant DNA techniques to basic problems. Requirements: BIOL:2512 (002:128) or BIOC:3120 (099:120) or first-year graduate standing.

BIOL:3716 (002:138) Genetics and Biotechnology Lab 4 s.h.

Expansion of genetic concepts introduced in BIOL:2512 (002:128); introduction to genetic/molecular techniques currently used in genetic analysis and biotechnology. Corequisites: BIOL:2512 (002:128), if not taken as a prerequisite. Recommendations: grade of C or higher in BIOL:2512 (002:128).

BIOL:3736 (002:135) Developmental Biology Lab 4 s.h.

Experimental manipulation of embryos to examine mechanisms of early development, including gametogenesis and fertilization, cleavage, gastrulation, pattern formation and organogenesis; in vivo imaging of development, methods to visualize gene expression and independent research; model organisms including sea urchin, fish, frog, chick, mouse. Prerequisites: BIOL:2512 (002:128) and BIOL:3233 (002:104).

BIOL:3743 (002:192) Basic Biology of Human Disease 2 s.h.

Basic problems of infectious disease; selected viral, bacterial, and fungal pathogens, with emphasis on fungal pathogenesis; DNA fingerprinting; epidemiological study of disease dynamics. Prerequisites: BIOL:2512 (002:128).

BIOL:3898 (002:101) Teaching Internship in Biology 2 s.h.

Training in teaching the laboratory component of a large General Education biology course; weekly session with instructor, shadowing and assisting a graduate teaching assistant in a lab section, leading laboratory exercises. Prerequisites: BIOL:1411 (002:031) and BIOL:1412 (002:032). Requirements: grades of B or higher in BIOL:1411 (002:031) and BIOL:1412 (002:032); and junior or senior standing.

BIOL:4213 (002:170) Bioinformatics 4 s.h.

Overview of bioinformatics topics, including access to sequence data, pairwise and multiple sequence alignment algorithms, molecular phylogeny, microarray data analysis, protein analysis, proteomics and protein structure analysis; emphasis on each topic includes biological motivation, computational approach (practical and theoretical), and interpretation of output. Prerequisites: BIOL:2512 (002:128) or BIOC:3120 (099:120). Recommendations: grade of B+ or higher in BIOL:2512 (002:128) or BIOC:3120 (099:120), or graduate standing. Same as GENE:6170 (127:170).

BIOL:4273 (002:162) Population Genetics and Molecular Evolution 3 s.h.

Nucleotide sequences, genes, and mutation; rates and patterns of nucleotide substitution; selection at the molecular level and the neutral theory; population genetics theory; genome evolution. Requirements: grade of C- or higher in BIOL:2211 (002:099) or BIOL:2512 (002:128), or graduate standing. Recommendations: grade of C- or higher in BIOL:3172 (002:131).

BIOL:4316 (002:175) Summer Practicum in Genomics 2 s.h.

Major areas of genomics, including sequence similarity searching, whole genome comparisons, phylogenetic analysis, and regulatory informatics; computer workshop experience in application of bioinformatics tools. Prerequisites: BIOL:3314 (002:178) or BIOL:4213 (002:170) or GENE:6170 (127:170).

BIOL:4333 (002:168) Genes and Development 3 s.h.

Mechanisms by which genes control development of multicellular animals; methodology of scientific research applied to developmental genetics. Requirements: grade of B or higher in BIOL:2512 (002:128). Recommendations: BIOL:3233 (002:104).

BIOL:4353 (002:181) Neurophysiology 3-4 s.h.

Physiological properties of nerve cells, nervous systems; axonal conduction, synaptic transmission, sensory transduction, integrative processes, higher functions. Prerequisites: BIOL:2753 (002:145) or BIOL:3253 (002:180), MATH:1460 (22M:016) or MATH:1850 (22M:025), and PHYS:1512 (029:012) or PHYS:1612 (029:082). Same as NSCI:4353 (132:181).

BIOL:4373 (002:160) Molecular Phylogenetics 3 s.h.

Theory underlying phylogenetic analysis with application of these methods to molecular data sets; analysis of multigene data, organellar, and nuclear genome sequences to reconstruct the history of cells. Requirements: grade of C- or higher in BIOL:3172 (002:131) or graduate standing.

BIOL:4753 (002:184) Developmental Neurobiology 3 s.h.

Neural induction and nervous system patterning; neurogenesis, axon and dendrite outgrowth and targeting; synapse formation, specificity, refinement; mechanisms of neuronal cell death; myelination; neural stem cells; introduction to cellular, molecular, and genetic techniques in studies of neural development. Prerequisites: BIOL:2753 (002:145). Corequisites: BIOL:3253 (002:180). Requirements: grade of B- or higher in BIOL:2753 (002:145) or graduate standing. Same as MPB:4753 (072:184), NSCI:4753 (132:184).

BIOL:4897 (002:188) Advanced Teaching Internship in Biology arr.

Teaching the laboratory component of a large introductory-level biology course; weekly training session with instructor; shadowing and assisting a graduate teaching assistant in a weekly lab section. Prerequisites: BIOL:1411 (002:031) and BIOL:1412 (002:032). Requirements: grades of B- or higher in BIOL:1411 (002:031) and BIOL:1412 (002:032), junior or senior standing, and interview with instructor.

BIOL:4898 (002:189) Entering Research 1 s.h.

Independent, investigative research experience; research process—establishing goals and expectations with a mentor, defining a research hypothesis, presentation of results in written and oral form; supportive learning environment to share research experiences and develop identities as scientists, explore relationships between medicine and research, and learn skills to become effective independent researchers. Corequisites: BIOL:4899 (002:199) or BIOL:4999 (002:196).

BIOL:4899 (002:199) Introduction to Research 2-3 s.h.

Conduct independent scientific research related to the field of biology.

BIOL:4998 (002:198) Honors Seminar in Biology 2 s.h.

Requirements: honors standing.

BIOL:4999 (002:196) Honors Investigations arr.

Conduct independent scientific research related to the field of biology. Requirements: honors standing in biology, UI g.p.a. of at least 3.33, and biology g.p.a. of at least 3.33.

Graduate

BIOL:5117 (002:191) Topics in Molecular Genetics 1-2 s.h.

Requirements: grade of C+ or higher in BIOL:2512 (002:128) or graduate standing.

BIOL:5127 (002:194) Topics in Cell and Development 1-2 s.h.

BIOL:5157 (002:195) Topics in Neurobiology 1-2 s.h.

Topics vary. Requirements: BIOL:3253 (002:180) or graduate standing.

BIOL:5177 (002:190) Topics in Evolution and Ecology 1-2 s.h.

Requirements: grades of B- or higher in BIOL:2512 (002:128) and BIOL:3172 (002:131), or graduate standing.

BIOL:5199 (002:215) Critical Readings in Biology arr.

BIOL:5211 (002:202) Genes, Genomes, and the Human Condition Graduate Lecture 3 s.h.

Organization, expression, and evolution of genes in context of genomes; focus on human genome; distribution and transmission of variation in human population. Recommendations: BIOL:1411 (002:031) highly recommended.

BIOL:5218 (002:218) Microscopy for Biomedical Research arr.

Basic microscopy methods for research including optics, preparation, and analysis of biomedical specimens; light, fluorescence, confocal, transmitting electron, scanning electron, atomic force microscopes, elemental analysis; immunochemistry and stereology techniques; individualized laboratory instruction. Prerequisites: BIOL:2723 (002:114). Same as ACB:5218 (060:218), MICR:5218 (061:218).

BIOL:5220 (002:220) Advanced Microscopy for Biomedical Research arr.

Technically advanced microscopy and instrumentation for research; individualized laboratory experience with opportunity to explore applications of microscopy methods. Requirements: for ACB:5220 (060:220) — an introductory microscopy course; for BIOL:5220 (002:220) — ACB:4156 (060:156) or ACB:5218 (060:218) or CBE:4156 (052:156) or EES:4156 (012:156) or MICR:5218 (061:218); for MICR:5220 (061:220) — an introductory EM course. Same as ACB:5220 (060:220), MICR:5220 (061:220).

BIOL:5270 (002:270) Biosciences Critical Thinking and Communication 2 s.h.

Selected papers and oral and written presentations tied to students' research rotations; introductory seminar. Same as BISC:5265 (156:265), MPB:5342 (072:342).

BIOL:5289 (002:207) Research Method and Theory 2 s.h.

Materials and methods of scientific investigation; lab techniques; library resources usage, NCBI data base training; lab safety; research ethics; reading, writing, presenting scientific papers. Requirements: new graduate standing in biology.

BIOL:5320 (002:174) Computational Genomics 3 s.h.

Introduction to computational methods used in genome analysis and functional genomics; biological sequence analysis, sequence database search, microarray data analysis, biological network analysis; in-depth coverage of principal genome science challenges and recent solutions. Prerequisites: BME:5320 (051:123), CS:3110 (22C:104), and BIOS:5110 (171:161) or STAT:3510 (22S:101). Same as BME:5330 (051:122), GENE:5173 (127:173), ECE:5220 (055:122).

BIOL:5412 (002:227) Fundamental Genetics—Graduate Lecture 3 s.h.

Nature and function of genetic material; classical, molecular, and developmental aspects. Corequisites: BIOL:5512 (002:228).

BIOL:5512 (002:228) Fundamental Genetics—Graduate Discussion 1 s.h.

Critical evaluation of classic genetics papers. Requirements: biology graduate standing.

BIOL:5653 (002:244) Fundamental Neurobiology 4 s.h.

Neurobiology from molecular/cellular to systems levels, including cell biology of neuron; membrane electrophysiology, synaptic transmission and plasticity, functional neuroanatomy, sensory systems from periphery to CNS, peripheral and central motor systems, autonomic systems emotion, memory, sleep, language, attention and cognition, development of nervous system; discussion of classic and recent journal articles. Same as PSY:5203 (031:255), NSCI:5653 (132:247).

BIOL:6188 (002:234) Seminar: Writing in Natural Sciences 2 s.h.

Writing and critiquing skills in the natural sciences.

BIOL:6199 (002:301) Research: Biology arr.

BIOL:6265 (002:265) Neuroscience Seminar 0-1 s.h.

Research presentations. Offered fall and spring semesters. Same as PSY:6265 (031:265), ACB:6265 (060:265), MPB:6265 (072:265), NSCI:6265 (132:265).

BIOL:6298 (002:200) Concepts, Models, and Systems in Biology (COSMOS) Seminar 1-2 s.h.

Primary research on central biological questions utilizing full array of organisms and analytical approaches; opportunity to improve skills in public speaking, presentation, and scientific writing. Requirements: integrated biology graduate standing.

BIOL:6759 (002:309) Molecular Neurobiology of Hearing Development, Function, and Disease 3 s.h.

Up-to-date overview of auditory system, function, and development; molecular basis for development, function, and disease; auditory system as basis for most human communication; prominent functional reduction during senescence; structure, function, development, and disease mechanisms that provide long-term solutions to cure or prevent beyond currently available treatment of hearing loss with a cochlear implant; series of lectures organized to provide an overview of various aspects of this system. Prerequisites: BIOL:3253 (002:180).

BIOL:6899 (002:303) Independent Study in Biology arr.

Biomedical Sciences

Chair

- Bernd Fritzsch

Undergraduate major: biomedical sciences (B.S.)
Biomedical sciences is an interdisciplinary major designed for students who plan to attend medical school or conduct biomedical research in graduate school and beyond. Its focus stretches across scientific and mathematical fields.

The Departments of Biochemistry, Biology, Chemistry, and Microbiology collaborate to present the major in biomedical sciences; the major is administered by the Department of Biology.

Undergraduate Program of Study

- Major in biomedical sciences (Bachelor of Science)

Bachelor of Science

The Bachelor of Science with a major in biomedical sciences requires a minimum of 120 s.h., including at least 79-81 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The interdisciplinary major provides an excellent foundation for medical training and for research and/or practice in the chemical, genetic, cellular, and physiological bases of human disease. The curriculum includes required and elective course work in biochemistry, biology, chemistry, health and human physiology, mathematics, microbiology, physics, psychology, sociology, and statistics. Students who wish to apply transfer credit toward the major should consult their departmental advisor.

The major in biomedical sciences requires the following course work.

REQUIRED COURSES

Students complete all of the following required courses (62-63 s.h.).

Chemistry

All of these:

BIOC:3120 (099:120) Biochemistry and Molecular Biology I	3 s.h.
BIOC:3130 (099:130) Biochemistry and Molecular Biology II	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.
CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
CHEM:2220 (004:122) Organic Chemistry II	3 s.h.

Life Sciences

All of these:

BIOL:1411 (002:031) Foundations of Biology	4 s.h.
BIOL:2211 (002:099) Genes, Genomes, and the Human Condition	3 s.h.

BIOL:3373 (002:141) Human Population Genetics and Variation	3 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.
MICR:2157 (061:157) General Microbiology	5 s.h.

Mathematics/Statistics

All of these:

MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

Physics

All of these:

PHYS:1511 (029:011) College Physics I	4 s.h.
PHYS:1512 (029:012) College Physics II	4 s.h.

Social Sciences

All of these:

PSY:1001 (031:001) Elementary Psychology	3 s.h.
PSY:2130 (031:030) Advanced Psychology for Pre-Medical Track	3 s.h.
SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.

ELECTIVE COURSES

Students complete a total of 17-18 s.h. of elective course work chosen from the following lists.

Lecture courses—two of these:

BIOC:5241 (099:241) Biophysical Chemistry I	3 s.h.
BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3343 (002:124) Animal Physiology	3 s.h.
BIOL:4213 (002:170) Bioinformatics	4 s.h.
MICR:3147 (061:147) Survey of Immunology	3 s.h.

Chemistry lab—one of these:

BIOC:3130 (099:130) Biochemistry and Molecular Biology II	3 s.h.
CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.

Experiential learning—one of these:

Honors research course	4 s.h.
Additional lab course	4 s.h.

Investigative lab—one of these:

BIOL:3626 (002:133) Cell Biology Laboratory	4 s.h.
BIOL:3656 (002:186) Neurobiology Laboratory	4 s.h.
BIOL:3676 (002:132) Evolution Lab	4 s.h.
BIOL:3716 (002:138) Genetics and Biotechnology Lab	4 s.h.
BIOL:3736 (002:135) Developmental Biology Lab	4 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

(Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the fifth semester begins: CHEM:1110 (004:011) Principles of Chemistry I, CHEM:1120 (004:012) Principles of Chemistry II, BIOL:1411 (002:031) Foundations of Biology, PSY:1001 (031:001) Elementary Psychology, SOC:1010 (034:001) Introduction to Sociology Principles, MATH:1460 (22M:016) Calculus for the Biological Sciences, CHEM:2210 (004:121) Organic Chemistry I, CHEM:2220 (004:122) Organic Chemistry II, MICR:2157 (061:157) General Microbiology, PHYS:1511 (029:011) College Physics I, PHYS:1512 (029:012) College Physics II, and HHP:3500 (027:130) Human Physiology

Before the seventh semester begins: BIOC:3120 (099:120) Biochemistry and Molecular Biology I, BIOC:3130 (099:130) Biochemistry and Molecular Biology II, BIOL:2211 (002:099) Genes, Genomes, and the Human Condition, BIOL:3373 (002:141) Human Population Genetics and Variation, STAT:3510 (22S:101) Biostatistics, and CHEM:2410 (004:141) Organic Chemistry Laboratory or BIOC:3140 (099:140) Experimental Biochemistry

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in biomedical sciences have the opportunity to graduate with honors in the major. Honors students in the major may enroll in honors sections of courses offered by the Department of Biology and by other departments and programs. They also are advised to participate in the Iowa Center for Research by Undergraduates (ICRU) and to apply for research scholarships.

To graduate with honors in the biomedical sciences major, students must fulfill the following requirements:

- complete the requirements for a major in biomedical sciences with a g.p.a. of at least 3.33 in all University of Iowa course work in the major;

- complete a minimum of 6 s.h. (taken over two or more semesters) of BIOL:4999 (002:196) Honors Investigations;

- write a brief research proposal summarizing the background and goals of their proposed honors research;

- upon completion of their research, submit an acceptable honors thesis; and

- give an oral presentation of their research findings.

Honors students in biomedical sciences must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Biomedical sciences majors interested in graduating with honors in the major should contact the biomedical sciences honors advisor as early as possible, preferably during their sophomore or junior year, so that they may be matched with an appropriate lab. Contact the Department of Biology to learn more about honors in the major.

Chemistry

Chair

- Sarah C. Larsen

Professors

- Mark A. Arnold (Edwin B. Green Chair in Laser Chemistry), M. Lei Geng, James B. Gloer (Roy J. Carver/Ralph L. Shriner Professor), Vicki H. Grassian (F. Wendell Miller Professor; Chemistry/Chemical and Biochemical Engineering/Occupational and Environmental Health), Amnon Kohen, Sarah C. Larsen, Leonard R. MacGillivray, Daniel M. Quinn, Gary W. Small, David F. Wiemer (F. Wendell Miller Professor; Chemistry/Pharmacology)

Associate professors

- Ned Bowden, Christopher M. Cheatum, Renee S. Cole, Gregory K. Friestad, Edward G. Gillan, Amanda J. Haes, Johna Leddy, Claudio Margulis, Louis Messerle (Chemistry/Radiology), Hien M. Nguyen, F. Christopher Pigge, Mark A. Young

Assistant professors

- Nicole M. Becker, Scott R. Daly, Mishtu Dey, Tori Z. Forbes, Sara E. Mason, Scott K. Shaw, Elizabeth A. Stone, Alexei V. Tivanski

Lecturers

- Russell G. Larsen, Amy E. Strathman

Adjunct associate professor

- Jan-Uwe Rohde

Professors emeriti

- Donald J. Burton, E. David Cater, Robert E. Coffman, Leodis Davis, John R. Doyle, H. Bruce Friedrich, Harold M. Goff, Donald J. Pietrzyk, Dwight C. Tardy

Associate professor emeritus

- Darrell P. Eyman

Undergraduate major: chemistry (B.A., B.S.)

Undergraduate minor: chemistry

Graduate degrees: M.S. in chemistry; Ph.D. in chemistry

Web site: <http://www.chem.uiowa.edu/>

Undergraduate Programs of Study

- Major in chemistry (Bachelor of Arts, Bachelor of Science)
- Minor in chemistry

The undergraduate major in chemistry provides a strong foundation for success in graduate and professional study and for positions in academic or industrial chemistry.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts with a major in chemistry requires a minimum of 120 s.h., including 53-54 s.h. of work for the major (20 s.h. in foundation chemistry courses, 12 s.h. in advanced chemistry, and 21-22 s.h. in supporting course work). The Bachelor of Science with a major in chemistry

requires a minimum of 120 s.h., including 69 s.h. of work for the major (20 s.h. in foundation chemistry courses, 30 s.h. in advanced chemistry, and 19 s.h. in supporting course work). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The chemistry major for the Bachelor of Arts provides a more general education than the B.S. program offers and may be the degree of choice for students who are interested in earning licensure to teach in secondary schools (see "B.A. or B.S. with Teacher Licensure" below). Advanced courses in chemistry, biology, mathematics, physics, or other science disciplines are recommended as electives for B.A. students. Those who choose appropriate electives may meet entrance requirements for graduate or professional programs such as chemistry, biochemistry, medicine, or dentistry. Graduates also may pursue careers and education in business, law, and other areas.

The chemistry major for the Bachelor of Science is certified by the American Chemical Society. Current and projected demand for Bachelor of Science graduates in chemistry is excellent in research and in control and process-development work. The program also provides all the prerequisites for graduate work in chemistry or biochemistry and in other biomedical areas with a molecular focus.

Bachelor of Arts and Bachelor of Science students take the same chemistry foundation courses, but their requirements in other areas are different. B.A. students must earn at least 11 s.h. in advanced chemistry courses at The University of Iowa; B.S. students must earn at least 20 s.h. in advanced chemistry courses at the University. Mathematics and preferred physics requirements also differ for the two degrees, and B.S. students may count undergraduate research toward the science electives requirement.

Courses in the chemistry major have prerequisites, so they must be taken in the correct order. Advanced chemistry courses are built on the chemistry foundation courses. Most advanced courses are taught only once a year. Students should consult their academic advisors and plan their course schedules carefully. They should take CHEM:2021 (004:021) Basic Measurements during the first semester of the second year.

Students may not use a course to fulfill more than one requirement.

The major in chemistry requires the following course work.

CHEMISTRY FOUNDATION COURSES (B.A. AND B.S.)

All students (Bachelor of Arts and Bachelor of Science) complete the following foundation courses.

All of these:

CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
CHEM:2021 (004:021) Basic Measurements	3 s.h.

One of these sequences:

CHEM:2230 (004:123) & CHEM:2240 (004:124) Organic Chemistry I for Majors - Organic Chemistry II for Majors (preferred)	6 s.h.
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CHEM:2210 (004:121) & CHEM:2220 (004:122) 6 s.h.
Organic Chemistry I-II

One of these:

CHEM:2420 (004:142) Organic Chemistry 3 s.h.
Laboratory for Majors (preferred)

CHEM:2410 (004:141) Organic Chemistry 3 s.h.
Laboratory

ADVANCED CHEMISTRY (B.A.)

Bachelor of Arts students complete one of these:

CHEM:3110 (004:111) Analytical Chemistry I 3 s.h.

CHEM:3120 (004:112) Analytical Chemistry II 3 s.h.
(preferred)

And all of these:

CHEM:3250 (004:125) Inorganic Chemistry 3 s.h.

CHEM:4430 (004:133) Principles of Physical 3 s.h.
Chemistry

CHEM:4450 (004:146) Synthesis and 3 s.h.
Measurement

ADVANCED CHEMISTRY (B.S.)

Bachelor of Science students complete one of these:

BIOC:3110 (099:110) Biochemistry 3 s.h.

BIOC:3120 (099:120) Biochemistry and 3 s.h.
Molecular Biology I

And all of these:

CHEM:3110 (004:111) & CHEM:3120 (004:112) 6 s.h.
Analytical Chemistry I-II

CHEM:3250 (004:125) Inorganic Chemistry 3 s.h.

CHEM:3430 (004:143) Analytical 3 s.h.
Measurements

CHEM:3440 (004:144) Physical Measurements 3 s.h.

CHEM:3530 (004:153) Inorganic Chemistry 3 s.h.
Laboratory

CHEM:4270 (004:170) Advanced Inorganic 3 s.h.
Chemistry

CHEM:4431 (004:131)-CHEM:4432 (004:132) 6 s.h.
Physical Chemistry I-II

MATHEMATICS (B.A.)

Bachelors of Arts students complete one of these:

MATH:1460 (22M:016) Calculus for the 4 s.h.
Biological Sciences (preferred)

MATH:1550 (22M:031) Engineering 4 s.h.
Mathematics I: Single Variable Calculus

MATH:1850 (22M:025) Calculus I 4 s.h.

And one of these:

MATH:1560 (22M:032) Engineering 4 s.h.
Mathematics II: Multivariable Calculus

MATH:1860 (22M:026) Calculus II 4 s.h.

STAT:2010 (22S:030) Statistical Methods and 3 s.h.
Computing

STAT:3510 (22S:101) Biostatistics (preferred) 3 s.h.

MATHEMATICS (B.S.)

Bachelor of Science students complete one of these sequences:

MATH:1850 (22M:025) & MATH:1860 8 s.h.
(22M:026) Calculus I-II (preferred)

MATH:1550 (22M:031) & MATH:1560 8 s.h.
(22M:032) Engineering Mathematics I: Single
Variable Calculus - Engineering Mathematics II:
Multivariable Calculus

INTRODUCTORY PHYSICS (B.A. AND B.S.)

All students complete one of these sequences:

PHYS:1511 (029:011)-PHYS:1512 (029:012) 8 s.h.
College Physics I-II (preferred for B.A.)

PHYS:1611 (029:081)-PHYS:1612 (029:082) 8 s.h.
Introductory Physics I-II (preferred for B.S.)

SCIENCE ELECTIVES (B.A.)

Bachelor of Arts students complete a total of 6 s.h. of elective courses chosen from the following list. Some of these courses may be used to fulfill other requirements for the major, as listed above; students who have used a course from this list to fulfill another requirement for the major may not use that course as an elective.

CHEM:3110 (004:111) Analytical Chemistry I 3 s.h.

CHEM:3120 (004:112) Analytical Chemistry II 3 s.h.

CHEM:3430 (004:143) Analytical 3 s.h.
Measurements

CHEM:3440 (004:144) Physical Measurements 3 s.h.

CHEM:3530 (004:153) Inorganic Chemistry 3 s.h.
Laboratory

CHEM:4171 (004:171) Advanced Analytical 3 s.h.
Chemistry

CHEM:4270 (004:170) Advanced Inorganic 3 s.h.
Chemistry

CHEM:4372 (004:172) Advanced Organic 3 s.h.
Chemistry

CHEM:4431 (004:131) Physical Chemistry I 3 s.h.

CHEM:4432 (004:132) Physical Chemistry II 3 s.h.

CHEM:4480 (004:180) Introduction to 3 s.h.
Molecular Modeling

CHEM:4760 (004:176) Radiochemistry: Energy, 3 s.h.
Medicine, and the Environment

CHEM:4873 (004:173) Atmospheric and 3 s.h.
Environmental Chemistry

CHEM:4875 (004:175) Introduction to Polymer 2-3 s.h.
Chemistry

BIOC:3110 (099:110) Biochemistry 3 s.h.

BIOC:3120 (099:120) Biochemistry and 3 s.h.
Molecular Biology I

BIOC:3130 (099:130) Biochemistry and 3 s.h.
Molecular Biology II

CEE:5152 (053:152)/CBE:5152 (052:231) 3 s.h.
Environmental Chemistry I

EES:4490 (012:149) Elements of Geochemistry 3 s.h.

EES:4520 (012:152) Isotope Geochemistry 3 s.h.

Students should consult their advisors to gain approval for a course that is not on the list.

SCIENCE ELECTIVES AND RESEARCH (B.S.)

Bachelor of Science students complete a total of 3 s.h. chosen from these:

CHEM:3999 (004:162) Undergraduate Research 1-4 s.h.

Advanced science elective courses

B.A. or B.S. with Teacher Licensure

Chemistry majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students who plan to use their work toward a minor in chemistry as academic background for earning teacher licensure should contact the Office of Education Services about requirements.

Students with a strong interest in science teaching may complete a major offered by the Science Education Program. Students choose one of five emphases—biology, chemistry, earth science, physics, and all-science—and earn a Bachelor of Science degree. They may apply for admission to the Teacher Education Program. See Science Education (p. 809) in the Catalog.

Joint B.A./M.A.T. with Science Education Subprogram

B.A. students majoring in chemistry who are interested in pursuing a graduate degree in teaching may apply to the joint Bachelor of Arts/Master of Arts in Teaching program offered by the College of Liberal Arts and Sciences and the College of Education. Designed for undergraduates majoring in biology, chemistry, environmental sciences, or physics, the joint program enables students to earn a B.A. and an M.A.T. in five years by beginning to earn graduate credit during their fourth year of undergraduate study and by counting up to 18 s.h. of qualifying credit toward both degrees. For more information, see "Joint B.A./M.A.T. with Science Education Subprogram" in the Teaching and Learning (p. 814) (College of Education) section of the Catalog. Interested students should consult an advisor.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Courses in the chemistry major have prerequisites, so they must be taken in the correct order. Most advanced courses are taught only once a year. Students should consult their academic advisors and plan their course schedules carefully. They should take CHEM:2021 (004:021) Basic Measurements during the first semester of the second year. Typical chemistry course schedules (B.A. and B.S.) and a regression list are available at Requirements for Major on the department's web site.

Bachelor of Arts

Before the third semester begins: math through MATH:1460 (22M:016) Calculus for the Biological Sciences or calculus I; CHEM:1110 (004:011) Principles of Chemistry I and CHEM:1120 (004:012) Principles of Chemistry II, or CHEM:1180 (004:018) Chemical Science I and CHEM:1190 (004:019) Chemical Science II and CHEM:1200 (004:020) Chemical Science Laboratory, or equivalent course work

Before the fifth semester begins: basic measurements; organic chemistry I, II, and lab; and biostatistics or calculus II

Before the seventh semester begins: two more courses in the major; physics I and II; and at least 90 s.h. earned toward the degree

Before the eighth semester begins: principles of physical chemistry and one more course in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Before the third semester begins: math through calculus I; CHEM:1110 (004:011) Principles of Chemistry I and CHEM:1120 (004:012) Principles of Chemistry II, or CHEM:1180 (004:018) Chemical Science I and CHEM:1190 (004:019) Chemical Science II and CHEM:1200 (004:020) Chemical Science Laboratory, or equivalent course work

Before the fifth semester begins: basic measurements; organic chemistry I, II, and lab; three other courses in the major; calculus II; physics I and II

Before the seventh semester begins: six more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in chemistry have the opportunity to graduate with honors in the major. Departmental honors students must complete an undergraduate research project acceptable to their research advisor and must write an honors thesis based on their research. Students register for CHEM:3999 (004:162) Undergraduate Research or HONR:3200 (143:100) Honors Research Practicum in order to earn credit for their research. They are encouraged, but not required, to present their research at local and regional meetings and to publish their results in professional journals.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in The University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in chemistry requires a minimum of 15 s.h. in chemistry courses, including 12 s.h. in courses numbered 2210 or above taken in the Department of Chemistry

at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

The following courses do not count toward the minor.

CHEM:3560 (004:156) Advanced Methods in Chemical Research: Special Topics	1-3 s.h.
CHEM:3999 (004:162) Undergraduate Research	1-4 s.h.
CHEM:4261 (004:161) Selected Topics in Chemistry	1-3 s.h.
CHEM:5091 (004:191) Graduate Chemistry Orientation	2 s.h.
CHEM:5092 (004:192) Ethics in Chemical Sciences	1 s.h.

Resources, Activities

The department offers undergraduate students majoring in chemistry and other students interested in chemistry a number of opportunities to enrich their classroom studies.

Undergraduate Chemistry Center

The Chemistry Center serves all students who take chemistry courses as well as the department's professors and teaching assistants. The center maintains waiting lists and offers other assistance with registration; returns examinations and homework assignments; schedules alternative exams; and provides information about all lower-level chemistry courses. Information about student organizations and departmental scholarships and awards also is available at the Chemistry Center.

Student Organizations

Students may join the University of Iowa undergraduate student chapter of the American Chemical Society (ACS). Chapter activities include dinner meetings with guest speakers; field trips to local industry; participation in local and national meetings of the ACS; and participation in chemistry outreach programs. Students in the ACS student chapter develop leadership, organization, and speaking skills valuable during their college experience and throughout their careers.

The department has a chapter of Alpha Chi Sigma, a co-ed chemistry fraternity. The Alpha Theta Chapter is open to students in chemistry, biochemistry, chemical engineering, and related fields. Alpha Chi Sigma sponsors many social and professional events throughout the year.

The department endorses the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE), which is committed to discovery, transmittal, and application of knowledge in science and engineering and to increasing the participation of underrepresented populations in these fields. NOBCChE sponsors diverse programs designed to foster professional development and to encourage students to pursue careers in science and technical fields.

The department also supports the activities of Women in Science and Engineering (WISE), whose aim is to increase women's participation and advancement as students, faculty members, and professional staff; promote a supportive study and work environment for women; integrate women's ideas, strengths, and approaches into research, teaching, and service; and inform the public of educational and career opportunities for women in

scientific and technical fields. WISE sponsors a living-learning community in Stanley Hall (a University residence hall) for first-year female students majoring in science or engineering, the Student-to-Student Support in Science mentoring program, a service learning program, and the WISE Discourse and Dining series.

Scholarships and Awards

A number of awards and scholarships are available to chemistry majors, including the American Institute of Chemists Award, the Undergraduate Award in Analytical Chemistry, the Chemistry Alumni Awards (one each for a sophomore, a junior, and a senior), the Merck Index Award, and the Viksnins, Harris & Padys PLLP Award.

Chemistry majors also may apply for the Donald J. and Margaret Burton Scholarship, Ken Sando Scholarship, Shoemaker-Strickler Scholarship, E. David Cater Scholarship, and Russell K. Simms Scholarship.

Graduate Programs of Study

- Master of Science in chemistry, with or without thesis
- Doctor of Philosophy in chemistry

Master of Science

The Master of Science in chemistry requires a minimum of 30 s.h. of graduate credit. The degree is offered with or without thesis. M.S. students must demonstrate minimal proficiency in analytical, inorganic, organic, and physical chemistry by passing specific examinations or by enrolling in suitable core courses. This requirement must be completed by the end of the second year of enrollment. A g.p.a. of at least 3.00 is required for admission to the master's examination.

Doctor of Philosophy

The Doctor of Philosophy in chemistry requires a minimum of 72 s.h. of graduate credit. Ph.D. in chemistry includes minimal proficiency examinations, core courses as necessary, a minimum of 11 s.h. of advanced course work, and research.

Students who meet the course requirements with a cumulative g.p.a. of 3.00 or higher are admitted to the oral comprehensive examination upon presentation and preliminary approval of their written research proposal and research progress report; they must take the oral comprehensive examination no later than the end of their second year of enrollment.

Upon completing Ph.D. research, candidates prepare the dissertation. The final examination consists of an oral defense of the thesis, at which time the candidate presents at least one manuscript of the publishable portion of his or her thesis.

Admission

Applicants for graduate admission should have a bachelor's degree with a major in chemistry or a related field, preferably with a g.p.a. of 3.00 or higher. Most admitted graduate students receive financial support. For application information, contact the Department of Chemistry or visit its web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations

of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Facilities

The Department of Chemistry office, support facilities, and faculty offices are located in the Chemistry Building, as is laboratory and classroom space dedicated to teaching and research activities. Several faculty members have offices and laboratories in the Iowa Advanced Technology Laboratories, across the street from the Chemistry Building. See the Department of Chemistry web site for information about facilities and advanced instrumentation available for instruction and research.

Courses

Lower-Level Undergraduate

Students planning to take more than one year of chemistry should take CHEM:1110 (004:011) Principles of Chemistry I and CHEM:1120 (004:012) Principles of Chemistry II.

Students who require only one year of chemistry with no laboratory component may take CHEM:1070 (004:007) General Chemistry I and CHEM:1080 (004:008) General Chemistry II.

Students who have not had high school chemistry or do not have strong math and/or chemistry preparation should consider taking CHEM:1070 (004:007) General Chemistry I before CHEM:1110 (004:011) Principles of Chemistry I; academic advisors and the Chemistry Diagnostic Test can help students determine which of these courses to take first.

CHEM:1000 (004:029) First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

CHEM:1050 (004:005) Technology and Society 3 s.h.
Nonmathematical exploration of selected areas of technology; basic science background, current technological applications, implications for society; for nonscience majors. Recommendations: closed to students who have taken college chemistry courses. GE: Natural Sciences without Lab.

CHEM:1060 (004:006) Technology and Society Laboratory 1 s.h.
Laboratory for CHEM:1050 (004:005); demonstrations, student experiments. Corequisites: CHEM:1050 (004:005), if not taken as a prerequisite. Requirements: closed to students who have earned more than 3 s.h. in chemistry courses. GE: Natural Sciences Lab only.

CHEM:1070 (004:007) General Chemistry I 3 s.h.
Atomic structure, chemical bonds, mole relations, stoichiometry, states of matter, acids and bases, reaction rates, electrochemistry, nuclear chemistry. Requirements: elementary algebra. GE: Natural Sciences without Lab.

CHEM:1080 (004:008) General Chemistry II 3 s.h.
Organic chemistry and biochemistry. Requirements: CHEM:1070 (004:007) or high school chemistry. GE: Natural Sciences without Lab.

CHEM:1090 (004:009) Supplemental Chemistry Lab 1 s.h.
Lab techniques, elementary synthesis, measurement, analysis, case-study lectures and experiments; safety glasses, appropriate dress, compliance with laboratory safety protocols required. Requirements: grade of C or higher in CHEM:1180 (004:018) or CHEM:1190 (004:019).

CHEM:1100 (004:010) Chemistry in Industry and the Economy 3 s.h.
Atomic structure, chemical bonding, acid and bases, polymers, pharmaceuticals, DNA, proteins, and basic economics. Requirements: non-science major. GE: Natural Sciences without Lab.

CHEM:1110 (004:011) Principles of Chemistry I 4 s.h.
Chemical bonding and chemical reactions; atomic and molecular structure, chemical equations, stoichiometry, gases, liquids, thermodynamics of phase changes, solutions, equilibrium, acids, bases, pH, elementary organic chemistry; the solid state, including modern materials; lecture, discussion, laboratory. Requirements: MATH:1005 (22M:008), or ACT math subscore of 24 and ALEKS score above 65%. Recommendations: Chemistry Diagnostic Test score of 16. GE: Natural Sciences with Lab.

CHEM:1120 (004:012) Principles of Chemistry II 4 s.h.
Continuation of CHEM:1110 (004:011); colligative properties of solutions, chemical thermodynamics, electrochemistry, chemical kinetics, chemical bonding, aspects of industrial chemistry, nuclear chemistry; lecture, discussion, laboratory. Prerequisites: CHEM:1110 (004:011). GE: Natural Sciences with Lab.

CHEM:1160 (004:016) Principles of Chemistry Lab 2 s.h.
Laboratory techniques. Requirements: grades of C or higher in CHEM:1180 (004:018) and CHEM:1190 (004:019). GE: Natural Sciences Lab only.

CHEM:1180 (004:018) Chemical Science I 3 s.h.
GE: Natural Sciences without Lab.

CHEM:1190 (004:019) Chemical Science II 3 s.h.
GE: Natural Sciences without Lab.

CHEM:1200 (004:020) Chemical Science Laboratory 2 s.h.
GE: Natural Sciences Lab only.

CHEM:2021 (004:021) Basic Measurements 3 s.h.
Continuation of CHEM:1120 (004:012); techniques of data collection and processing, including titrimetric and instrumental techniques for data collection and computer techniques for data processing. Prerequisites: CHEM:1120 (004:012) or CHEM:1200 (004:020). Requirements: chemistry major.

- CHEM:2210 (004:121) Organic Chemistry I** 3 s.h.
Carbon-containing compounds; structure, stereochemistry, physical properties, reactivity, reaction mechanisms, synthesis; emphasis on alkanes, alkenes, alkynes, alcohols, alkyl halides, aromatics. Prerequisites: CHEM:1120 (004:012) or CHEM:1190 (004:019).
- CHEM:2220 (004:122) Organic Chemistry II** 3 s.h.
Continuation of CHEM:2210 (004:121); use of spectroscopic techniques to determine chemical structures; chemistry of carbonyl compounds, amines, ethers, amino acids, carbohydrates, nucleosides. Prerequisites: CHEM:2210 (004:121).
- CHEM:2230 (004:123) Organic Chemistry I for Majors** 3 s.h.
Carbon-containing compounds; structure, stereochemistry, physical properties, reactivity, reaction mechanisms, synthesis; emphasis on alkanes, alkenes, alkynes, alcohols, alkyl halides, aromatics. Prerequisites: CHEM:1120 (004:012) or CHEM:1190 (004:019). Requirements: chemistry, biochemistry, or chemical engineering major.
- CHEM:2240 (004:124) Organic Chemistry II for Majors** 3 s.h.
Continuation of CHEM:2230 (004:123); use of spectroscopic techniques to determine chemical structures; chemistry of carbonyl compounds, amines, ethers, amino acids, carbohydrates, and nucleosides. Prerequisites: CHEM:2210 (004:121) or CHEM:2230 (004:123). Requirements: chemistry, biochemistry, or chemical engineering major.
- CHEM:2410 (004:141) Organic Chemistry Laboratory** 3 s.h.
Preparation, purification, identification, analysis of chemical compounds, principally organic compounds. Prerequisites: CHEM:1110 (004:011) and CHEM:1120 (004:012), or CHEM:1160 (004:016) or CHEM:1200 (004:020); and CHEM:2210 (004:121) or CHEM:2230 (004:123). Corequisites: CHEM:2220 (004:122) or CHEM:2240 (004:124).
- CHEM:2420 (004:142) Organic Chemistry Laboratory for Majors** 3 s.h.
Preparation, purification, identification, analysis of chemical compounds, principally organic compounds. Prerequisites: CHEM:1110 (004:011) and CHEM:1120 (004:012), or CHEM:1160 (004:016) or CHEM:1200 (004:020); and CHEM:2210 (004:121) or CHEM:2230 (004:123). Corequisites: CHEM:2240 (004:124). Requirements: chemistry, biochemistry, or chemical engineering major.
- Upper-Level Undergraduate and Graduate**
- CHEM:3110 (004:111) Analytical Chemistry I** 3 s.h.
Modern theory and practice; emphasis on chemical equilibria (acid-base chemistry, solubility, complexation) and electroanalytical chemistry (potentiometry, voltammetry, coulometry). Corequisites: CHEM:4431 (004:131) or CHEM:4432 (004:132), if not taken as a prerequisite.
- CHEM:3120 (004:112) Analytical Chemistry II** 3 s.h.
Continuation of CHEM:3110 (004:111); emphasis on instrumental methods, including atomic and molecular spectroscopy, mass spectrometry, chemical separations. Prerequisites: CHEM:1120 (004:012), MATH:1460 (22M:016) or MATH:1860 (22M:026), and PHYS:1512 (029:012) or PHYS:1612 (029:082).
- CHEM:3250 (004:125) Inorganic Chemistry** 2-3 s.h.
Modern principles; emphasis on descriptive chemistry of the main group and transition elements, ionic and covalent chemical bonding theories, symmetry, inorganic stereochemistry. Prerequisites: CHEM:1120 (004:012) or CHEM:1190 (004:019). Corequisites: CHEM:2220 (004:122) or CHEM:2240 (004:124).
- CHEM:3430 (004:143) Analytical Measurements** 3 s.h.
Modern theory and practice of laboratory methods; emphasis on experimental techniques and data analysis in spectroscopy, chromatography, electrochemistry. Prerequisites: CHEM:3110 (004:111). Corequisites: CHEM:3120 (004:112).
- CHEM:3440 (004:144) Physical Measurements** 3 s.h.
Laboratory experience using advanced instrumental and computational methods to generate and analyze data relevant to modern physical chemistry. Prerequisites: CHEM:2021 (004:021), and CHEM:4431 (004:131) or CHEM:4432 (004:132). Requirements: chemistry major.
- CHEM:3530 (004:153) Inorganic Chemistry Laboratory** 3 s.h.
Preparation and characterization of a variety of inorganic, organometallic, and coordination compounds of the main group and transition elements; emphasis on synthetic techniques, methods for characterization of inorganic species. Prerequisites: CHEM:2410 (004:141) or CHEM:2420 (004:142), and CHEM:3250 (004:125).
- CHEM:3560 (004:156) Advanced Methods in Chemical Research: Special Topics** 1-3 s.h.
Introduction to advanced research methods. Prerequisites: CHEM:1120 (004:012).
- CHEM:3999 (004:162) Undergraduate Research** 1-4 s.h.
- CHEM:4171 (004:171) Advanced Analytical Chemistry** 3 s.h.
Emphasis on fundamental aspects of electrochemistry, atomic and molecular spectroscopy, chemical separations. Prerequisites: CHEM:3120 (004:112), CHEM:4431 (004:131), and CHEM:4432 (004:132).
- CHEM:4261 (004:161) Selected Topics in Chemistry** 1-3 s.h.
Prerequisites: CHEM:2210 (004:121) or CHEM:2230 (004:123). Same as WRIT:3261 (220:161).
- CHEM:4270 (004:170) Advanced Inorganic Chemistry** 3 s.h.

Modern principles, including crystal field/ligand field/molecular orbital theory, inorganic reaction mechanisms, coordination chemistry, bioinorganic chemistry, main group and transition metal organometallic chemistry, solid-state inorganic chemistry. Prerequisites: CHEM:3250 (004:125) and CHEM:4432 (004:132). Corequisites: CHEM:3530 (004:153), if not taken as a prerequisite.

CHEM:4372 (004:172) Advanced Organic Chemistry 3 s.h.

Basic concepts from perspectives of structure, mechanism, synthesis, stereochemistry. Prerequisites: CHEM:2220 (004:122) or CHEM:2240 (004:124).

CHEM:4430 (004:133) Principles of Physical Chemistry 3 s.h.

Kinetics, transport properties, elementary thermodynamics, and selected topics in quantum mechanics and spectroscopy; emphasis on application of chemistry to areas of science including health and biosciences, environmental sciences, and related areas. Prerequisites: CHEM:1120 (004:012), MATH:1460 (22M:016) or MATH:1860 (22M:026), and PHYS:1512 (029:012) or PHYS:1612 (029:082).

CHEM:4431 (004:131) Physical Chemistry I 3 s.h.

Chemical thermodynamics and its application to chemical equilibrium, phase changes and chemical equilibria; ideal and real gases; kinetic theory; surface absorption and electrochemistry; thermodynamics. Prerequisites: CHEM:1120 (004:012) or CHEM:1190 (004:019), MATH:1560 (22M:032) or MATH:1860 (22M:026), and PHYS:1512 (029:012) or PHYS:1612 (029:082).

CHEM:4432 (004:132) Physical Chemistry II 3 s.h.

Quantum mechanics and its application to atomic and molecular structure; determination of structure and bonding by various spectroscopic methods; chemical kinetics. Prerequisites: CHEM:1120 (004:012) or CHEM:1190 (004:019), MATH:1560 (22M:032) or MATH:1860 (22M:026), and PHYS:1512 (029:012) or PHYS:1612 (029:082).

CHEM:4450 (004:146) Synthesis and Measurement 3 s.h.

Laboratory investigations integrating synthesis and measurement techniques from inorganic, analytical, and physical chemistry; emphasis on modern applications of chemistry in biology, medicine, environmental science, catalysis, and materials science. Prerequisites: CHEM:2021 (004:021), CHEM:2410 (004:141) or CHEM:2420 (004:142), CHEM:3110 (004:111) or CHEM:3120 (004:112), CHEM:3250 (004:125), and CHEM:4430 (004:133) or CHEM:4431 (004:131) or CHEM:4432 (004:132).

CHEM:4480 (004:180) Introduction to Molecular Modeling 3 s.h.

Theory and application of *ab initio* quantum mechanics, semiempirical molecular orbital theory, and molecular mechanics force fields to chemical research problems; underlying theory of these methods (with emphasis on *ab initio* theory) and their practical application to chemical problems; computational chemistry projects using modeling software. Corequisites: CHEM:4432 (004:132), if not taken as a prerequisite.

CHEM:4760 (004:176) Radiochemistry: Energy, Medicine, and the Environment 3 s.h.

Fundamental theoretical concepts of radiochemistry and their application in energy, medicine, and environmental sectors. Prerequisites: CHEM:1110 (004:011), CHEM:1120 (004:012), and CHEM:2210 (004:121).

CHEM:4873 (004:173) Atmospheric and Environmental Chemistry 3 s.h.

Fundamental chemical processes of importance in the atmosphere, soil, and water, with emphasis on kinetics and photochemistry of homogeneous and heterogeneous reactions, atmospheric structure and dynamics, global geochemical cycling, chemistry-climate relationships, environmental remediation strategies; experimental methods in field and laboratory studies. Corequisites: CHEM:4431 (004:131) or CHEM:4432 (004:132), if not taken as a prerequisite.

CHEM:4875 (004:175) Introduction to Polymer Chemistry 2-3 s.h.

Synthesis, structures, characterization, properties, and applications of polymers. Prerequisites: CHEM:2220 (004:122) or CHEM:2240 (004:124).

Graduate

CHEM:5091 (004:191) Graduate Chemistry Orientation 2 s.h.

Pedagogy, safety and research issues relevant to advanced chemistry careers. Requirements: senior standing.

CHEM:5092 (004:192) Ethics in Chemical Sciences 1 s.h.

Scholarly integrity for being a responsible chemist on graduate-level research; introduction to infrastructure of scientific scholarship with emphasis on interacting with peers, funding agencies, industrial entities; responsible conduct in research in the context of creation of knowledge, dissemination of scientific findings, intellectual property, and conflict of interest; workshops to study cases in chemical research to illustrate the principles of scholarly integrity.

CHEM:5107 (004:207) Electrochemistry 2-3 s.h.

Fundamental aspects, including mass transport and electron transfer, electrochemical methodology (e.g., voltammetry and potentiometry), determination of homogeneous and heterogeneous reaction mechanisms. Prerequisites: CHEM:3110 (004:111), CHEM:3120 (004:112), and CHEM:4171 (004:171).

CHEM:5108 (004:208) Spectroscopy 3 s.h.

Principles of atomic and molecular absorption and emission spectroscopy in ultraviolet, visible, and infrared regions of the spectrum, including fluorescence, phosphorescence, Raman spectroscopy; applications to analytical problems, with emphasis on modern instrumentation and methodology. Prerequisites: CHEM:3110 (004:111), CHEM:3120 (004:112), and CHEM:4171 (004:171).

CHEM:5109 (004:209) Separations	3 s.h.	CHEM:5203 (004:203) Organometallic Chemistry	3 s.h.
Analytical separations; basic theory, practical applications, instrumentation, modern techniques (extractions, gas and liquid chromatography, capillary electrophoresis), and detection (mass spectrometry). Prerequisites: CHEM:3110 (004:111), CHEM:3120 (004:112), and CHEM:4171 (004:171).		Emphasis on organometallic compounds of transition metal elements. Corequisites: CHEM:4270 (004:170).	
CHEM:5110 (004:210) Chemical Sensors	2 s.h.	CHEM:5204 (004:204) Physical Methods in Inorganic Chemistry	3 s.h.
Theory, practical limitations, analytical utility based on immobilized reagents with electrochemical, thermal, optical transduction mechanisms. Prerequisites: CHEM:3110 (004:111) and CHEM:3120 (004:112), or CHEM:4171 (004:171).		Application of physical methods to problems; recent developments; emphasis on magnetic resonance spectroscopy. Prerequisites: CHEM:4270 (004:170).	
CHEM:5114 (004:214) Chemical Systems Modeling	2 s.h.	CHEM:5205 (004:205) Bioinorganic Chemistry	2-3 s.h.
Basic processes and techniques; these methods applied to systems relevant to students' own research. Prerequisites: CHEM:3110 (004:111) or CHEM:3120 (004:112) or CHEM:4171 (004:171).		The role of metal ions in biology from an inorganic chemical perspective; emphasis on structure and mechanism for transition metal-containing metallo-enzymes.	
CHEM:5115 (004:215) Biophotonics	3 s.h.	CHEM:5206 (004:206) Solid-State and Materials Chemistry	3 s.h.
Structure, dynamics of biomolecules and their optical spectroscopy; ultrasensitive fluorescence spectroscopy, vibrational spectroscopy, optical activity and circular dichroism, time-resolved spectroscopy. Prerequisites: CHEM:3110 (004:111), CHEM:3120 (004:112), and CHEM:4171 (004:171).		Introduction to the chemical concepts of solid-state chemistry; focus on synthesis and characterization of various inorganic materials; structure/property relationships, real-world examples. Prerequisites: CHEM:4270 (004:170).	
CHEM:5118 (004:218) Nanomaterials	3 s.h.	CHEM:5290 (004:283) Seminar: Inorganic Chemistry	0-1 s.h.
Basic principles associated with nanoscience and nanotechnology; fabrication and synthesis, size dependent properties, characterization, applications of materials at nanometer length scales, recent technological breakthroughs in the field. Requirements: graduate standing or advanced undergraduate standing in engineering and science. Recommendations: knowledge of basic chemistry.			
CHEM:5120 (004:220) Electrochemistry of Polymer Films	1 s.h.	CHEM:5299 (004:201) Special Topics in Inorganic Chemistry	1-3 s.h.
Use of electrochemical methods to characterize polymer and thin films; transport through polymer films and composites, electrochemistry of polymer films. Requirements: physical chemistry course.		Prerequisites: CHEM:4270 (004:170).	
CHEM:5150 (004:250) Chemometrics	3 s.h.	CHEM:5321 (004:221) Spectroscopic Methods in Organic Chemistry	3-4 s.h.
Mathematical, statistical, and signal processing methods for analytical chemistry; hypothesis testing, experimental design, model building, optimization, digital filtering. Prerequisites: CHEM:4171 (004:171).		Methods and techniques of structure determination for organic compounds. Prerequisites: CHEM:4372 (004:172).	
CHEM:5190 (004:281) Seminar: Analytical Chemistry	0-1 s.h.	CHEM:5326 (004:226) Organic Reactions	3 s.h.
		Survey of organic reactions used in contemporary organic synthesis; emphasis on C-C bond forming reactions, functional group interconversions, oxidations and reductions; mechanistic details of reaction types; innovations in catalytic and asymmetric organic reactions. Prerequisites: CHEM:4372 (004:172).	
CHEM:5199 (004:213) Special Topics in Analytical Chemistry	arr.	CHEM:5328 (004:228) Mechanisms of Organic Reactions	3 s.h.
Content varies.		Application of basic mechanistic concepts.	
CHEM:5202 (004:202) Coordination Chemistry and Spectroscopy	1,3 s.h.	CHEM:5329 (004:229) Advanced Organic Synthesis	3 s.h.
Structure and bonding of d-block metal complexes, theory and application of relevant spectroscopic methods, inorganic reaction mechanisms, transition metals in catalysis. Prerequisites: CHEM:4270 (004:170).		Preparation of complex organic compounds. Prerequisites: CHEM:4372 (004:172).	
		CHEM:5390 (004:285) Seminar: Organic Chemistry	0-1 s.h.
		CHEM:5399 (004:225) Organic Chemistry Special Topics	1,3 s.h.
		Prerequisites: CHEM:4372 (004:172).	
		CHEM:5431 (004:231) Statistical Thermodynamics I	3 s.h.

Fundamentals of classical thermodynamics and equilibria; ensembles; noninteracting systems; theory of phase transitions; Monte-Carlo methods; classical fluids; nonequilibrium systems. Prerequisites: CHEM:4431 (004:131).

CHEM:5433 (004:233) Quantum and Computational Chemistry 3 s.h.

Fundamental principles of quantum chemistry; angular momentum; approximation methods; theory of atomic and molecular electronic structure; applications of computational quantum mechanics to chemical systems. Corequisites: CHEM:4432 (004:132), if not taken as a prerequisite.

CHEM:5434 (004:234) Molecular Spectroscopy 3 s.h.

Quantum mechanical theory of molecular spectroscopy; time-dependent perturbation theory, selection rules, lineshapes; selected applications in microwave, vibrational (infrared and Raman), electronic, optical, and magnetic resonance spectroscopy. Prerequisites: CHEM:5433 (004:233).

CHEM:5435 (004:235) Chemical Kinetics 3 s.h.

Potential energy surfaces, transition state theory, diffusion limited rates, linear free energy relationships, isotope effects, solvent effects, RRKM theory; connection between experiment and various theories in the gas and solution phases; emphasis on assignment of experimental error to derived quantities. Prerequisites: CHEM:4432 (004:132).

CHEM:5438 (004:238) Surface Chemistry and Heterogeneous Processes 3 s.h.

Fundamental and applied aspects of surface chemical processes; theories of molecular adsorption/desorption and surface complexation; kinetics; surface analysis and instrumentation; applications of surface chemistry in heterogeneous catalysis, heterogeneous environmental/atmospheric processes, and materials chemistry. Prerequisites: CHEM:4431 (004:131).

CHEM:5490 (004:286) Seminar: Physical and Environmental Chemistry 0-1 s.h.

CHEM:5499 (004:242) Physical Chemistry Topics 1-3 s.h.

Advanced topics relevant to modern physical chemistry. Prerequisites: CHEM:4432 (004:132) and MATH:1860 (22M:026).

CHEM:5875 (004:275) Perspectives in Biocatalysis 1-3 s.h.

Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Requirements: graduate standing in a participating department supported by the Predoctoral Training Program in Biotechnology. Same as PHAR:5875 (046:275), CBE:5875 (052:275), CEE:5875 (053:275), MICR:5875 (061:275), BIOC:5875 (099:275).

CHEM:5890 (004:287) Research Frontiers in Chemistry 1 s.h.

CHEM:5990 (004:288) Chemistry Colloquium 0-1 s.h.

Presentation and discussion of research by invited presenters.

CHEM:6990 (004:291) Research Seminar 0-1 s.h.

Presentation and discussion of thesis research for advanced degrees.

CHEM:7604 (004:604) Ethics in Chemical Sciences for Postdocs 0 s.h.

Introduction to infrastructure of scientific scholarship; emphasis on interacting with peers, funding agencies, industrial entities; scholarly integrity for being a responsible chemist on graduate-level research; responsible conduct in research in context of creation of knowledge, dissemination of scientific findings, intellectual property, conflict of interest; workshop cases in chemical research that illustrate principles of scholarly integrity.

CHEM:7999 (004:290) Research in Chemistry arr.

Thesis work for advanced degrees.

Cinematic Arts

Interim chair

- Kathleen Newman

Professors

- Lauren Rabinovitz (American Studies/Cinematic Arts), Steven Ungar

Associate professors

- Paula Amad, Corey Creekmur (English/Cinematic Arts), Kathleen Newman (Spanish and Portuguese/Cinematic Arts)

Assistant professors

- Steve Choe, Michael Gibisser, Jesse McLean

Lecturer

- Jason Livingston

Adjunct assistant professor

- Matthew Cohen

Professors emeriti

- Rick Altman, Franklin Miller, Leighton Pierce

Assistant professor emeritus

- Sandra Barkan

Undergraduate major: cinema (B.A.)

Undergraduate minor: cinema

Graduate degrees: M.F.A. in film and video production; M.A. in film studies; Ph.D. in film studies

Web site: <http://clas.uiowa.edu/ccl/>

The Department of Cinematic Arts provides students with opportunities to explore and gain insight into cinema as a subject of international and interdisciplinary study as well as creative practice. The curriculum emphasizes film and related media in their historical and cultural contexts as well as film and video production in a variety of modes. The department's faculty members offer expertise in film and video production; film history and theory, with emphasis on international film cultures; and the history, theory, and production of documentary media. Students conduct projects using state-of-the-art equipment and software that is updated regularly. Students and faculty members also have ready access to the extensive media holdings of University of Iowa Libraries and the Institute for Cinema and Culture.

The department offers undergraduate and graduate degree programs and an undergraduate minor. It also offers courses approved for the Literary, Visual, and Performing Arts area of the College of Liberal Arts and Sciences General Education Program (p. 323) and a First-Year Seminar designed for entering undergraduates.

Undergraduate Programs of Study

- Major in cinema (Bachelor of Arts)
- Minor in cinema

Bachelor of Arts

The Bachelor of Arts with a major in cinema requires a minimum of 120 s.h., including 33 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in cinema is an individualized, interdisciplinary study of film and the production of creative work in film, video, and interactive multimedia. It is designed to promote cultural and artistic awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning and effective production in cinema arts.

All students are expected to gain a perspective on both the study and the production of film, video, or digital media while becoming acquainted with the historical, critical, and theoretical issues of the area. In conjunction with an appropriate overall curriculum, the major in cinema can offer effective preparation for continuing study or creative work in the humanities, arts, and cinema; provide a solid foundation for careers in film, video, television, and digital production; and lead to careers in arts administration, advertising, and business.

Of the 33 s.h. required for the major, students must earn 21 s.h. in University of Iowa courses. They may count a maximum of 6 s.h. of course work from another major, minor, or certificate toward the major in cinema.

The course CINE:1834 (048:034) Modes of Film and Video Production is the only production course required for the major. Students may use more advanced production courses to complete the major, but admission to these courses is limited and depends on the student's achievement in prerequisite production courses.

The major in cinema requires the following course work.

One of these:

CINE:1025 (048:025) Introduction to Critical Reading and Viewing	3 s.h.
CINE:1615 (048:030) Introduction to Film Theory	3 s.h.

All of these:

CINE:1601 (048:001) Introduction to Film Analysis	3 s.h.
CINE:1834 (048:034) Modes of Film and Video Production	4 s.h.
CINE:3195 (048:188) Undergraduate Seminar	3 s.h.
Additional cinematic arts course work (prefix CINE), including at least 6 s.h. of film studies courses numbered 3000 or above	20 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Students must take CINE:1601 (048:001) Introduction to Film Analysis before or with CINE:1834 (048:034) Modes of Film and Video Production.

Before the fifth semester begins: at least two courses in the major, including CINE:1601 (048:001) Introduction to Film Analysis and CINE:1834 (048:034) Modes of Film and Video Production

Before the seventh semester begins: at least five more courses in the major (total of seven), including CINE:1025 (048:025) Introduction to Critical Reading and Viewing or CINE:1615 (048:030) Introduction to Film Theory, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in cinema have the opportunity to graduate with honors in the major, which requires that they complete an honors thesis. Once the student has earned 75 s.h., he or she submits a written proposal for the thesis. The proposal must be approved by the faculty member who heads the student's honors thesis committee; the committee must be composed of at least two faculty members from the Department of Cinematic Arts. The student must complete the honors thesis over the next two consecutive semesters. For specific honors thesis requirements in the cinema major, contact the Department of Cinematic Arts.

Departmental honors students must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in cinema requires 15 s.h. of University of Iowa cinema courses, including at least 12 s.h. earned in courses numbered CINE:1620 (048:051) or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Contact the Department of Cinematic Arts for a list of approved courses.

Graduate Programs of Study

- Master of Arts in film studies
- Master of Fine Arts in film and video production
- Doctor of Philosophy in film studies

Master of Arts: Film Studies

The Master of Arts program in film studies requires 36 s.h. of graduate credit. The program's focus is on film in an international context, with required distributions of course work in U.S. cinema, European cinema, world cinemas, and film production, documentary film, animation, or experimental film. Students meet formal degree requirements with course work and a written examination on two areas, which the student selects from one list focusing on film theory and another list focusing on film history. Exams are offered annually in January.

Master of Fine Arts: Film and Video Production

The Master of Fine Arts program in film and video production requires 54 s.h. of graduate credit. The curriculum consists of creative and scholarly course work aimed at producing a body of artistic work in film, digital media, multimedia installation, and/or animation. Degree requirements include advanced course work in film/media theory or history, annual public presentations and critiques, the development of an artist statement, a thesis paper, and a creative thesis project.

Doctor of Philosophy: Film Studies

The Doctor of Philosophy program in film studies requires a minimum of 72 s.h. of graduate credit. The program's course work is concentrated in film history and film theory. With the consultation and guidance of a faculty committee, students prepare for a qualifying examination in the first or second year, formulate and pursue a plan of study proposing areas to be mastered before the dissertation, present a predissertation exam on these areas, and write a dissertation in the area of advanced research.

Admission

Applications to graduate programs in the Department of Cinematic Arts are evaluated by faculty members. Application materials may include undergraduate and/or graduate transcripts, personal statements, writing samples, letters of recommendation, samples of creative work, and test scores. Admission decisions are based on the full range of an applicant's accomplishments and evidence that he or she will thrive in the department's programs. The department welcomes applicants with diverse academic backgrounds; previous experience in the area of planned graduate study is desirable but not required. Contact the department or its director of graduate study for information about how to apply.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Resources

The Institute for Cinema and Culture promotes international film culture on the University of Iowa campus by supplementing the curriculum of the Department of Cinematic Arts with regular film screenings and public events, often in collaboration with other departments and programs. The institute helps departments, faculty members, and student groups present films and relevant speakers to an interdisciplinary audience. It is especially dedicated to providing Iowa students and faculty members the opportunity to view and study important films from nations and cultures otherwise underrepresented in course offerings and at local theaters.

Each semester the institute offers CINE:3627 (048:112) Proseminar in Cinema and Culture, a course with public screenings devoted to a single national cinema or a focused topic in world film. It also regularly sponsors a range of campus film festivals and hosts the

Cinematheque series, which showcases rare and unusual films each semester.

Courses

Lower-Level Undergraduate

- CINE:1000 (048:029) First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Requirements: first- or second-semester standing.
- CINE:1025 (048:025) Introduction to Critical Reading and Viewing** 3 s.h.
Critical approaches to literature and audiovisual media (film, video, interactive multimedia); selected texts, scholarly and critical responses to them. Requirements: completion of rhetoric requirement. Same as CL:1025 (218:025).
- CINE:1185 (048:091) Internship** arr.
Opportunity to apply skills; faculty supervision, on or off campus. Requirements: cinema and comparative literature major.
- CINE:1601 (048:001) Introduction to Film Analysis** 3 s.h.
Formal analysis of film; narrative cinema and approaches to narrative structure; authorship and genre issues, other major topics.
- CINE:1602 (048:002) Introduction to Film Studies** 3 s.h.
Film history, theory, criticism; issues of form, technologies, and cultural functions of cinema; screenings of narrative, documentary, experimental films from varied periods and nations. GE: Literary, Visual, and Performing Arts.
- CINE:1610 (048:010) Contemporary Cinema** 3 s.h.
Current cinema; key genres, movements, filmmakers, technological changes; recent cultural contexts, industrial and economic factors, changes in the film viewing experience. GE: Literary, Visual, and Performing Arts.
- CINE:1615 (048:030) Introduction to Film Theory** 3 s.h.
Classical film theory—formalist and realist theories, authorship, genre; contemporary film theory—semiotics, feminism, psychoanalysis, ideological criticism, postmodernism, queer theory.
- CINE:1620 (048:051) Film Criticism** 3 s.h.
Evaluation and analysis of film, from journalistic reviews to academic scholarship; principles and theoretical positions.
- CINE:1625 (048:052) Gender and Film** 3 s.h.
Representations of femininity, masculinity, sexual identity, how they relate to society, culture; examples from feminist, psychoanalytic, queer theory.
- CINE:1630 (048:053) Introduction to Film Sound** 3 s.h.

Sound as an acoustic, technological, aesthetic, and historical issue; functions of voice, music, sound effects.

- CINE:1632 (048:062) Disney in America** 3 s.h.
How Walt Disney Corporation has influenced American cultural values, ideals, and experiences through its evolution from an animation company in the 1920s, to a theme park company and television producer in the 1950s, to a media conglomerate today; the corporation's national importance, Hollywood's contributions to the Depression and World War II, postwar urban and community planning, America's changing leisure behavior, advertising and childhood, modern business history, and exportation of American culture. Same as AMST:1065 (045:065).
- CINE:1635 (048:070) Styles and Genres** 3 s.h.
Major film types (musicals, science fiction, westerns, film noir) and their cultural significance.
- CINE:1640 (048:071) Film Authors** 3 s.h.
A major director or comparison of directors; director's role in industrial and collaborative contexts, relations between biography and criticism, function of individual styles.
- CINE:1645 (048:081) Film and Literature** 3 s.h.
Relationships among films, novels, plays, adaptations; shared and distinct formal elements of cinematic and literary texts, their cultural functions.
- CINE:1834 (048:034) Modes of Film and Video Production** 4 s.h.
Introduction to nonfiction, fiction, and experimental modes of film and video production; video exercises and nonlinear editing. Corequisites: CINE:1601 (048:001), if not taken as a prerequisite.
- CINE:2195 (048:099) Individual Study** arr.
- CINE:2198 (048:098) Honors Tutorial** arr.
- CINE:2620 (048:020) U.S. Film** 3 s.h.
American film industry; social and artistic perspectives.
- CINE:2621 (048:021) Introduction to European Film** 3 s.h.
Major works, movements, and recent developments in European cinema; German Expressionism, Soviet montage, Italian Neorealism, French New Wave; social, cultural, political contexts. GE: Literary, Visual, and Performing Arts.
- CINE:2622 (048:022) World Film** 3 s.h.
Filmmaking and film culture outside the United States; key works from Asia, Africa, the Middle East, Latin America; social, cultural, political contexts.
- CINE:2623 (048:023) Documentary Film** 3 s.h.
Key works and movements in international nonfiction film, from early cinema to present; formal, historical, philosophical issues in documentary practices.
- CINE:2624 (048:024) Introduction to Latin American Film** 3 s.h.

Introduction to filmmaking and films in Latin America through an overview, emphasis on one or more Latin American countries, or a specific theme in Latin American cinema.

CINE:2625 (048:026) Introduction to Asian Film 3 s.h.

Introduction to filmmaking and films in Asia through an overview, emphasis on one or more Asian countries, or a specific theme in Asian cinema.

CINE:2654 (048:054) U.S. Cinema and Culture 3 s.h.

Representation of race, ethnicity, class, gender, and sexuality in Hollywood movies. Same as AMST:2500 (045:053).

CINE:2861 (048:061) Introduction to Screenwriting: Short Form 3 s.h.

Principles of writing with an eye to the screen; develop, write, and workshop screenplays for short film/video projects including fiction, nonfiction, and experimental work; introduction to preproduction activities; exercises and journal assignments with diaries, dreams, and conceptual writing practice. Prerequisites: CINE:1834 (048:034). Requirements: grade of C or higher in CINE:1834 (048:034).

CINE:2863 (048:063) Film/Video Production: Microcinemas and DIY Distribution 3 s.h.

Nature and practice of film festivals; microcinemas and small-scale distribution in historical context of cinema culture and as audience-building and outreach for independently produced films, video, and new media; management and orchestration of the annual Iowa City International Documentary Festival. Prerequisites: CINE:1834 (048:034). Requirements: grade of C or higher in CINE:1834 (048:034).

CINE:2864 (048:064) Film/Video Production: Alternative Forms 3 s.h.

Hands-on workshops in alternative or innovative video/film practices and technologies; varied topics. Prerequisites: CINE:1834 (048:034). Requirements: grade of C or higher in CINE:1834 (048:034).

CINE:2865 (048:065) Film Production: Material of 16mm Film 3 s.h.

Basic 16mm motion picture camera, editing, and sound techniques; individual and group exercises. Prerequisites: CINE:1834 (048:034). Requirements: grade of C or higher in CINE:1834 (048:034).

CINE:2866 (048:066) Video Production: Nonfiction 3 s.h.

Single-camera shooting on location, with emphasis on editing; group exercises oriented to nonfiction forms. Prerequisites: CINE:1834 (048:034). Requirements: grade of C or higher in CINE:1834 (048:034).

CINE:2867 (048:067) Screenwriting: Long Form 3 s.h.

Visualization, sequencing, dialog; preparation of treatment, screenplay for fiction film; script problems. Prerequisites: CINE:1834 (048:034). Requirements: grade of C or higher in CINE:1834 (048:034).

CINE:2868 (048:068) Video Production: Fiction 3 s.h.

Development of fiction video making technique through group projects in the studio and on location, and nonlinear editing. Prerequisites: CINE:1834 (048:034). Requirements: grade of C or higher in CINE:1834 (048:034).

Upper-Level Undergraduate and Graduate

CINE:3135 (048:172) Narrative and the Cinema 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3135 (008:172).

CINE:3185 (048:185) Global Women's Cinema 3 s.h.

Introduction to contemporary women's cinema and feminist filmmaking from around the world; emphasis on post-1968 period and cinema produced outside the United States. Same as GWSS:3185 (131:185), WLLC:3185 (218:185).

CINE:3195 (048:188) Undergraduate Seminar 3 s.h.

Focus on a significant text or critical problem. Requirements: cinema major, and junior or senior standing.

CINE:3605 (048:105) French Cinema 3-4 s.h.

Taught in English. GE: Literary, Visual, and Performing Arts. Same as FREN:3510 (009:147).

CINE:3627 (048:112) Proseminar in Cinema and Culture 1-2 s.h.

A national cinema or topic in international film.

CINE:3647 (048:167) Gender and Sexuality in French Cinema 3 s.h.

Cultural, historical, semiotic approach to studying construction of gender identity and sexual codes in French cinema from 1920s to present. Taught in English. Prerequisites: FREN:3060 (009:111) or CINE:1601 (048:001) or CINE:1602 (048:002) or GWSS:1001 (131:010). Same as FREN:3540 (009:148), GWSS:3540 (131:167).

CINE:3750 (048:170) Topics in Cinema and Culture 3 s.h.

One or more national cinemas in relation to social, historical, and cultural contexts. Prerequisites: CINE:1601 (048:001).

CINE:3876 (048:136) Video for Performance 4 s.h.

Introduction to making video for use in a performance; how video can unlock new artistic possibilities for performance in theater, dance, and performing arts in general; focus on acquiring basic skills necessary to shoot and edit video, and project it during a performance; practices of animation, found or archival footage work, and live performance. No previous knowledge of cameras or editing equipment required. Same as THTR:3876 (049:104).

CINE:3877 (048:125) Screenwriting: Short Form 4 s.h.

Exercises and projects in writing, developing, and workshopping screenplays for short film or video; budgeting, location scouting, other preproduction activities. Prerequisites: CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2867 (048:067) or CINE:2868 (048:068). Requirements: grade of C or higher in CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2867 (048:067) or CINE:2868 (048:068).

CINE:3878 (048:138) Film and Media Practicum 1 s.h.

Research and production-oriented film and media practicum; individual and small-group work on a single film, video, or media production as determined by instructor; independent library and web-based research, group presentations, readings. Requirements: junior or senior standing.

CINE:4603 (048:103) Topics in Contemporary Film 3 s.h.

Specific issues or periods in contemporary film.

CINE:4604 (048:104) Topics in European Film 3 s.h.

Specific issues or periods in European film.

CINE:4606 (048:106) Topics in Asian Cinema 3 s.h.

Issues or topics in East or South Asian cinemas. Same as ASIA:4606 (039:145).

CINE:4608 (048:108) History of Documentary Film 3 s.h.

A period, type, or concern of nonfiction filmmaking. Prerequisites: CINE:1601 (048:001).

CINE:4616 (048:117) Topics in National Cinema 3 s.h.

Cinema's intersection with the nation; questions of representation, culture, and identity in the national, subnational, and/or transnational context. Prerequisites: CINE:1601 (048:001) and CINE:1602 (048:002).

CINE:4618 (048:118) Topics in World Cinemas 3 s.h.

Issues in international film history and film theory.

CINE:4620 (048:120) Issues in Film Theory 3 s.h.

Key theorists, approaches, topics in film theory.

CINE:4674 (048:174) Transnational Chinese Cinemas 3 s.h.

Films from Mainland China, Hong Kong, Taiwan, and Chinese diasporic communities, silent era to present; relationship of film to nation-state, cultural interflows, media technologies, ideologies. English subtitles. Same as CHIN:4206 (039:173).

CINE:4678 (048:178) Topics in Latin American Cinema 3 s.h.

Taught in English. Requirements: one Spanish literature or culture course numbered above SPAN:3200 (035:130) or one film studies course. Same as SPAN:4810 (035:191).

CINE:4690 (048:190) Chicano Cinema 3 s.h.

History of Chicano independent and industry film and television production since the Chicano political and cultural movement began in the 1960s. Taught in English. Requirements: one Spanish literature or culture course numbered SPAN:3200 (035:130) or above, or one film studies course numbered CL:2100 (218:100) or above. Same as SPAN:4800 (035:190).

CINE:4821 (048:121) Film and Video Production: Selected Topics 4 s.h.

Student productions focusing on a particular genre, issue, or process; 16mm, video, or audio, such as experimental film or video, collaborative projects, nonfiction, narrative, and so forth. Prerequisites: CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068) or CINE:4821 (048:121) or CINE:4843 (048:123) or CINE:4841 (048:131) or CINE:4862 (048:132) or CINE:4845 (048:133). Requirements: grade of C or higher in CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068) or CINE:4821 (048:121) or CINE:4843 (048:123) or CINE:4841 (048:131) or CINE:4862 (048:132) or CINE:4845 (048:133).

CINE:4825 (048:130) Digital Production: Animation 4 s.h.

Intermediate 3-D modeling, motion graphics; student projects culminating in CDR or video presentation. Prerequisites: CINE:1834 (048:034).

CINE:4835 (048:135) Issues in Film and Video Production 4 s.h.

Proposal and grant writing, conceptualization, budgeting, and research on varied distribution models for independent films. Prerequisites: CINE:2863 (048:063) or CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2867 (048:067) or CINE:2868 (048:068). Requirements: grade of C or higher in CINE:2863 (048:063) or CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2867 (048:067) or CINE:2868 (048:068).

CINE:4836 (048:127) Advanced Screenwriting 4 s.h.

Write a feature screenplay (105-115 pages) within the industry standard contract guidelines for independent and studio projects; completion of outline, beat sheet, treatment, first draft; one rewrite. Prerequisites: CINE:2867 (048:067).

CINE:4841 (048:131) Film/Video/Audio Production: Sound Design 4 s.h.

Concepts and techniques in sound design for film and video; exercises, projects in sound/image relationships using location recording equipment and digital audio workstation for editing, mixing. Prerequisites: CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068) or CINE:4821 (048:121) or CINE:4841 (048:131) or CINE:4843 (048:123) or CINE:4845 (048:133) or CINE:4862 (048:132) or CINE:4864 (048:124). Requirements: grade of C or higher in CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068) or CINE:4821 (048:121) or CINE:4841 (048:131) or CINE:4843 (048:123) or CINE:4845 (048:133) or CINE:4862 (048:132) or CINE:4864 (048:124).

CINE:4843 (048:123) Film and Video Production: Image Design 4 s.h.

Strategies, techniques, and technologies used in moving image production; emphasis on generic lighting practices, composition; short projects using film, videotape. Prerequisites: CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068). Requirements: grade of C or higher in CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068).

CINE:4845 (048:133) Film and Video Production: Editing 4 s.h.

Editing digital video for impact, mood, and story; hands-on exercises, screenings, readings, and workshops using a range of editing software. Prerequisites: CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068) or CINE:4821 (048:121) or CINE:4843 (048:123) or CINE:4841 (048:131) or CINE:4862 (048:132). Requirements: grade of C or higher in CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068) or CINE:4821 (048:121) or CINE:4843 (048:123) or CINE:4841 (048:131) or CINE:4862 (048:132).

CINE:4862 (048:132) Video Production: Advanced Video 4 s.h.

Exploration of personal filmmaking including diary, essay, and fiction forms; emphasis on hybrid approaches to documentary and fiction; independent video projects. Prerequisites: CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068) or CINE:4821 (048:121) or CINE:4843 (048:123) or CINE:4841 (048:131) or CINE:4845 (048:133). Requirements: grade of C or higher in CINE:2864 (048:064) or CINE:2865 (048:065) or CINE:2866 (048:066) or CINE:2868 (048:068) or CINE:4821 (048:121) or CINE:4843 (048:123) or CINE:4841 (048:131) or CINE:4845 (048:133).

CINE:4864 (048:124) Film Production: Advanced 16mm Film 4 s.h.

Processes and approaches to the short film; students produce a seven-minute, sync-sound project, including film shooting and digital editing. Prerequisites: CINE:2865 (048:065) or CINE:4821 (048:121) or CINE:4843 (048:123).

CINE:4890 (048:150) Media Production Workshop 4 s.h.

Individual film, video, interactive, or screenwriting project; common problems, screenings of work in progress, criticism. Requirements: grades of B- or higher in any two film and video production courses numbered above 3000, and submission and acceptance of written proposal by deadline.

Graduate

CINE:5673 (048:273) Advanced Film Theory 3 s.h.

A major figure, issue, or approach in film theory.

CINE:5675 (048:275) Advanced Film History 3 s.h.

A major period or topic in film history; issues in film historiography, research.

CINE:5677 (048:277) Studies in Sound and Image 3 s.h.

Theoretical and historical approaches to film sound, technology, style.

CINE:5890 (048:640) Colloquium in Film and Video Production 4 s.h.

Production and theory, with focus on varied theoretical issues; readings, projects. Recommendations: previous experience with video production.

CINE:6009 (048:409) Special Projects arr.

Requirements: doctoral candidate.

CINE:6080 (048:300) American Film and American Culture 3 s.h.

Relationships between film and culture as developed in a particular approach, period, subject. Same as AMST:6080 (045:300).

CINE:6605 (048:305) Special Topics in European Film 3 s.h.

Key issues, movements, periods, or figures in European film.

CINE:6632 (048:244) Crossing Borders Proseminar arr.

Same as HIST:6632 (016:244), POLI:6632 (030:243), GEOG:6632 (044:287), ANTH:6632 (113:248), GRMN:6632 (013:260), SPAN:6903 (035:271).

CINE:6635 (048:247) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), COMM:6635 (036:247).

CINE:6992 (048:199) Individual Study arr.

Requirements: advanced B.A. enrollment with international and comparative literary projects, or M.A. enrollment in comparative literature.

CINE:7615 (048:615) Seminar: Film Theory 3 s.h.

A major figure, issue, or approach in film theory.

CINE:7616 (048:616) Seminar: Film History 3 s.h.

A major period or topic in film history; issues in film historiography, research.

CINE:7992 (048:410) Thesis arr.

Classics

Chair

- John F. Finamore

Professors

- Helena Dettmer, John F. Finamore, Craig Gibson, Carin M. Green, Robert C. Ketterer, Arthur L. Spisak

Associate professors

- Mary J. Depew, Glenn R. Storey

Assistant professors

- Marquis S. Berrey, Sarah E. Bond, Robert R. Cargill, Paul C. Dilley

Lecturers

- Vasiliki Kostopoulou, Marcia Lindgren, Rosemary Moore

Adjunct professor

- Peter Green

Professors emeriti

- Erling B. Holtmark, Donald F. Jackson

Undergraduate majors: ancient civilization (B.A.); classical languages (B.A.)

Undergraduate minors: ancient civilization; classical languages; Greek; health and the human condition; Latin

Postbaccalaureate certificate: classics

Graduate degrees: M.A. in classics; M.A. in Greek; M.A. in Latin; Ph.D. in classics

Web site: <http://clas.uiowa.edu/classics/>

Classics is the study of ancient languages, literatures, and cultures of the Mediterranean basin from approximately 2000 B.C.E. to 600 C.E. It embraces three civilizations—the Minoan-Mycenaean, Greek, and Roman; two languages—Greek and Latin; and a geographical area including Europe, North Africa, Egypt, and the Near East. The Department of Classics provides a basis for understanding and interpreting the contribution of the ancient world to life in the present and the future.

The department offers a substantial selection of courses taught in English at the undergraduate and graduate levels; several are approved for the College of Liberal Arts and Sciences General Education Program (p. 323). Undergraduates in all majors may satisfy the World Languages requirement of the General Education Program with courses in Greek, Latin, or Sanskrit; see "Language for General Education" below. The department's First-Year Seminar introduces entering undergraduates to classics.

The Department of Classics also administers an interdisciplinary minor for undergraduates; see "Minor: Health and the Human Condition" below.

Undergraduate Programs of Study

- Major in ancient civilization (Bachelor of Arts)
- Major in classical languages (Bachelor of Arts)
- Minor in ancient civilization
- Minor in classical languages
- Minor in Greek

- Minor in Latin
- Minor in health and the human condition

The department's undergraduate majors provide a solid foundation for graduate study in classics, European literature, law, history, art, philosophy, and religion. The major in classical languages offers concentrations in Greek and/or Latin. Bachelor of Arts graduates have become secondary school and university teachers, lawyers, doctors, librarians, museum curators, and bankers.

Bachelor of Arts: Ancient Civilization

The Bachelor of Arts with a major in ancient civilization requires a minimum of 120 s.h., including at least 30 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major concentrates on the ancient civilization of the Mediterranean world, draws on courses offered by various University departments, and allows students to create individual programs. It offers an optional track for students with a particular interest in civilizations of the east Mediterranean from the earliest times through antiquity; see "Egypt and the Ancient Near East Track" below.

The major, including the Egypt and the ancient Near East track, is sponsored by the School of Art and Art History and the Departments of Classics, History, and Religious Studies.

Although the major is not preparation for graduate study in classics, it provides a sound basis for preparing individuals to teach at the secondary school and community college levels. It also provides a liberal arts and sciences foundation appropriate for further study in law, medicine, and other professions.

Students choose courses in consultation with their advisors. They must earn at least 15 s.h. of the credit required for the major in courses numbered 3000 or above, which may include classics in English courses numbered 3000 or above, the Greek language courses CLSG:2001 (20G:011) Second-Year Greek I and CLSG:2002 (20G:012) Second-Year Greek II, and the Latin language courses CLSL:2001 (20L:011) World of Cicero and CLSL:2002 (20L:012) Golden Age of Roman Poetry. Transfer credit is evaluated individually.

In addition to completing required course work, students maintain a required portfolio detailing their progress toward the major, which they must complete before graduation; see "Major Portfolio" below.

The major in ancient civilization requires the following course work.

MATERIAL CULTURE

At least 6 s.h. from these:

ANTH:3275 (113:196)/CLSA:3596 (20E:196) The Archaeology of Ancient Egypt	3 s.h.
ANTH:3276 (113:192)/CLSA:3235 (20E:118) Greek Archaeology and Ethnohistory	3 s.h.
ANTH:3277 (113:194)/CLSA:3240 (20E:119) Roman Archaeology	3 s.h.

ARTH:2320 (01H:026)/CLSA:2226 (20E:026)	3 s.h.
Introduction to Ancient Art	
ARTH:3161 (01H:109) Themes in Ancient Art	3 s.h.
ARTH:3320 (01H:110)/RELS:3704 (032:104)	3 s.h.
Egyptian Art	
ARTH:3330 (01H:127)/CLSA:3227 (20E:124)	3 s.h.
Classical Greek Art	
ARTH:3340 (01H:128) Greek Vase Painting	3 s.h.
ARTH:3350 (01H:132)/CLSA:3232 (20E:128)	3 s.h.
Art of Early Rome: Patrons and Politics	
ARTH:3360 (01H:133)/CLSA:3233 (20E:130)	3 s.h.
Art of the Ancient Roman Empire	
ARTH:3370 (01H:134)/CLSA:3234 (20E:129)	3 s.h.
Art and Culture in Ancient Pompeii	

ANCIENT HISTORY

At least 6 s.h. from these:

CLSA:1117 (20E:017) The First Caesars: Julius Caesar to Nero	3 s.h.
CLSA:1830 (20E:030) Greek Civilization	3 s.h.
CLSA:1840 (20E:031) Roman Civilization	3 s.h.
HIST:2461 (016:045)/RELS:2361 (032:061)/CLSA:2461 (20E:071) Middle East and Mediterranean: Alexander to Suleiman	3 s.h.
HIST:3151 (16E:115)/CLSA:3151 (20E:151) Roman Law	3 s.h.
HIST:3405 (16E:105)/CLSA:3144 (20E:144) Engineering and Technology in the Ancient Mediterranean	3 s.h.
HIST:3436 (16E:102)/CLSA:3836 (20E:136) Food in Ancient Mediterranean Society	3 s.h.
HIST:4400 (16E:100)/CLSA:4400 (20E:100) The Roman Empire	3 s.h.
HIST:4401 (16E:101)/CLSA:4101 (20E:101) Ancient Egypt and the Ancient Near East	3 s.h.
HIST:4403 (16E:103) Alexander the Great	3 s.h.
HIST:4404 (16E:104) The World of Ancient Greece	3 s.h.
HIST:4406 (16E:106)/CLSA:4106 (20E:106) Warfare in Ancient Mediterranean Society	3 s.h.
HIST:4407 (16E:107) The Hellenistic World and Rome	3 s.h.

ANCIENT PHILOSOPHY AND RELIGIOUS STUDIES

At least 6 s.h. from these:

CLSA:2461 (20E:071)/HIST:2461 (016:045)/RELS:2361 (032:061) Middle East and Mediterranean: Alexander to Suleiman	3 s.h.
CLSA:3338 (20E:138)/PHIL:3110 (026:110) Philosophy of Ancient Greece and Rome	3 s.h.
CLSA:3340 (20E:140) Magic in the Ancient World	3 s.h.
CLSA:3416 (20E:115)/RELS:3716 (032:164) Greek Religion and Society	3 s.h.
PHIL:3111 (026:111) Ancient Philosophy	3 s.h.
PHIL:4152 (026:152) Plato	3 s.h.
PHIL:4153 (026:153) Aristotle	3 s.h.
RELS:1001 (032:001) The Judeo-Christian Tradition	3 s.h.

RELS:1070 (032:011) Introduction to the Hebrew Bible/Old Testament	3 s.h.
RELS:1080 (032:012) Introduction to the New Testament	3 s.h.
RELS:2182 (032:082)/CLSA:2482 (20E:082) Ancient Mediterranean Religions	3 s.h.
RELS:2320 (032:094) Jesus and the Gospels	3 s.h.
RELS:2912 (032:112) The Bible in Film: Hollywood and Moses	3 s.h.
RELS:3103 (032:103) Biblical Archaeology	1-3 s.h.
RELS:3105 (032:105) The World of the Old Testament	3 s.h.
RELS:3243 (032:143)/CLSA:3443 (20E:146) Early Christianity: From Jesus to the Rise of Islam	3 s.h.
RELS:3245 (032:145)/CLSA:3445 (20E:145) Mythology of Otherworldly Journeys	3 s.h.
RELS:3247 (032:142)/CLSA:3247 (20E:147) Banned from the Bible: Introduction to Pseudepigrapha and Apocrypha	3 s.h.
RELS:3320 (032:107)/CLSA:3420 (20E:107) In Search of the Good Life	3 s.h.
RELS:3340 (032:109)/CLSA:3440 (20E:104) Recovering Eden: The Afterlife in Early Judaism and Christianity	3 s.h.
RELS:3716 (032:164)/CLSA:3416 (20E:115) Greek Religion and Society	3 s.h.
RELS:4352 (032:152)/CLSA:4452 (20E:152) The Dead Sea Scrolls	3 s.h.

CLASSICS IN ENGLISH AND LANGUAGE COURSES

At least 9 s.h. from these:

ARAB:2001 (195:111) Intermediate Modern Standard Arabic I	5 s.h.
ARAB:2002 (195:112) Intermediate Modern Standard Arabic II	5 s.h.
ARAB:2030 (195:120) Formal Spoken Arabic	2 s.h.
ARAB:3011 (195:130) Advanced Modern Standard Arabic I	3 s.h.
RELS:4001 (032:100) Biblical Hebrew I	4 s.h.
RELS:4002 (032:101) Biblical Hebrew II	4 s.h.
SOAS:2902 (039:111)/CLSA:2902 (20E:111) First-Year Sanskrit: Second Semester	4 s.h.
SOAS:3901 (039:112)/CLSA:3901 (20E:121) Second-Year Sanskrit: First Semester	3 s.h.
SOAS:3902 (039:113)/CLSA:3902 (20E:122) Second-Year Sanskrit: Second Semester	3 s.h.
Classics in English courses (prefix CLSA)	
Greek courses (prefix CLSG)	
Latin courses (prefix CLSL)	

ADDITIONAL COURSE

A course in material culture, history, philosophy, religion, or linguistics chosen in consultation with the advisor	3 s.h.
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MAJOR PORTFOLIO

To comply with the Board of Regents, State of Iowa, policy on student outcomes assessment, the Department of Classics has established a method to assess the achievement level of B.A. students completing one of

the department's majors. Each student must maintain a portfolio that details the student's progress in attaining the objectives of his or her major. Students must register for and complete the following course.

CLSA:3982 (20E:182) Graduation Portfolio	0 s.h.
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The student submits the portfolio to the undergraduate advisor by midterm of the semester in which the student intends to graduate. Formal approval of the portfolio is required for graduation. Consult the undergraduate advisor for details.

Egypt and the Ancient Near East Track

The Bachelor of Arts with a major in ancient civilization, Egypt and the ancient Near East track, requires a minimum of 120 s.h., including at least 30 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The Egypt and the ancient Near East track concentrates on the civilizations of the east Mediterranean, specifically Egypt and the cultures of Asia Minor, from the earliest times through late Antiquity.

The track is interdisciplinary; students select courses from archaeology, art, history, literature, and religion. The track provides a sound basis for preparing individuals to teach ancient civilizations of the Mediterranean and the Near East, ancient history, and ancient art history at the secondary school and community college levels. It also provides a strong liberal arts foundation suitable for further study in law, medicine, and other professions.

Students in the Egypt and the ancient Near East track choose courses in consultation with their advisors. They must earn at least 21 s.h. of the credit required for the ancient civilization major in courses listed under "Course Selection Requirements" below. They also must earn at least 15 s.h. for the major in courses numbered 3000 or above, which may include classics in English courses numbered 3000 or above, the Greek language courses CLSG:2001 (20G:011) Second-Year Greek I and CLSG:2002 (20G:012) Second-Year Greek II, and the Latin language courses CLSL:2001 (20L:011) World of Cicero and CLSL:2002 (20L:012) Golden Age of Roman Poetry. Transfer credit is evaluated individually.

In addition to completing required course work, students maintain a required portfolio detailing their progress toward the major, which they must complete before graduation; see "Major Portfolio" below.

The major in ancient civilization with the Egypt and the ancient Near East track requires the following course work.

MATERIAL CULTURE

At least 6 s.h. from these:

CLSA:3596 (20E:196)/ANTH:3275 (113:196) The Archaeology of Ancient Egypt	3 s.h.
ANTH:3242 (113:188) Archaeology of the Middle East—Prehistory and Early History	3 s.h.
ARTH:2320 (01H:026)/CLSA:2226 (20E:026) Introduction to Ancient Art	3 s.h.
ARTH:3320 (01H:110)/RELS:3704 (032:104) Egyptian Art	3 s.h.

ANCIENT HISTORY

At least 6 s.h. from these:

CLSA:1181 (20E:081)/GHS:1181 (152:081) Ancient Medicine	3 s.h.
CLSA:2461 (20E:071)/HIST:2461 (016:045)/ RELS:2361 (032:061) Middle East and Mediterranean: Alexander to Suleiman	3 s.h.
HIST:2401 (016:001) Western Civilization I	3-4 s.h.
HIST:3405 (16E:105)/CLSA:3144 (20E:144) Engineering and Technology in the Ancient Mediterranean	3 s.h.
HIST:3436 (16E:102)/CLSA:3836 (20E:136) Food in Ancient Mediterranean Society	3 s.h.
HIST:4400 (16E:100)/CLSA:4400 (20E:100) The Roman Empire	3 s.h.
HIST:4401 (16E:101)/CLSA:4101 (20E:101) Ancient Egypt and the Ancient Near East	3 s.h.
HIST:4403 (16E:103) Alexander the Great	3 s.h.
HIST:4406 (16E:106)/CLSA:4106 (20E:106) Warfare in Ancient Mediterranean Society	3 s.h.

ANCIENT PHILOSOPHY AND RELIGIOUS STUDIES

At least 6 s.h. from these:

CLSA:2482 (20E:082)/RELS:2182 (032:082) Ancient Mediterranean Religions	3 s.h.
CLSA:3340 (20E:140) Magic in the Ancient World	3 s.h.
CLSA:3440 (20E:104)/RELS:3340 (032:109) Recovering Eden: The Afterlife in Early Judaism and Christianity	3 s.h.
CLSA:3443 (20E:146)/RELS:3243 (032:143) Early Christianity: From Jesus to the Rise of Islam	3 s.h.
CLSA:3445 (20E:145)/RELS:3245 (032:145) Mythology of Otherworldly Journeys	3 s.h.
RELS:1001 (032:001) The Judeo-Christian Tradition	3 s.h.
RELS:1130 (032:030) Introduction to Islamic Civilization	3 s.h.

CLASSICS IN ENGLISH AND LANGUAGE COURSES

At least 9 s.h. from these:

ARAB:2001 (195:111) Intermediate Modern Standard Arabic I	5 s.h.
ARAB:2002 (195:112) Intermediate Modern Standard Arabic II	5 s.h.
ARAB:2030 (195:120) Formal Spoken Arabic	2 s.h.
ARAB:3011 (195:130) Advanced Modern Standard Arabic I	3 s.h.
RELS:4001 (032:100) Biblical Hebrew I	4 s.h.
RELS:4002 (032:101) Biblical Hebrew II	4 s.h.
SOAS:2902 (039:111)/CLSA:2902 (20E:111) First-Year Sanskrit: Second Semester	4 s.h.
SOAS:3901 (039:112)/CLSA:3901 (20E:121) Second-Year Sanskrit: First Semester	3 s.h.
SOAS:3902 (039:113)/CLSA:3902 (20E:122) Second-Year Sanskrit: Second Semester	3 s.h.

Classics in English courses (prefix CLSA)

Greek courses (prefix CLSG)

Latin courses (prefix CLSL)

ADDITIONAL COURSE

A course in material culture, history, philosophy, religion, or linguistics chosen in consultation with the advisor 3 s.h.

COURSE SELECTION REQUIREMENTS

Students in the Egypt and the ancient Near East track must earn at least 21 s.h. of the credit required for the ancient civilization major in courses chosen from the following list, with at least 15 s.h. required in courses numbered 3000 or above.

CLSA:1181 (20E:081)/GHS:1181 (152:081) Ancient Medicine	3 s.h.
CLSA:2482 (20E:082)/RELS:2182 (032:082) Ancient Mediterranean Religions	3 s.h.
CLSA:3443 (20E:146)/RELS:3243 (032:143) Early Christianity: From Jesus to the Rise of Islam	3 s.h.
CLSG:2001 (20G:011) Second-Year Greek I	3 s.h.
CLSG:2002 (20G:012) Second-Year Greek II	3 s.h.
CLSG:3001 (20G:120) Archaic and Classical Periods I	3 s.h.
CLSG:3002 (20G:121) Archaic and Classical Periods II	3 s.h.
CLSG:3003 (20G:122) Classical and Hellenistic Periods I	3 s.h.
CLSG:3004 (20G:123) Classical and Hellenistic Periods II	3 s.h.
CLSG:4076 (20G:176) Greek Composition	3 s.h.
CLSL:2001 (20L:011) World of Cicero	3 s.h.
CLSL:2002 (20L:012) Golden Age of Roman Poetry	3 s.h.
CLSL:3001 (20L:120) Latin Literature of the Republic I	3 s.h.
CLSL:3002 (20L:121) Latin Literature of the Republic II	3 s.h.
CLSL:3003 (20L:122) Latin Literature of the Empire I	3 s.h.
CLSL:3004 (20L:123) Latin Literature of the Empire II	3 s.h.
CLSL:3176 (20L:171) Elementary Latin Composition	3 s.h.
ARAB:2001 (195:111) Intermediate Modern Standard Arabic I	5 s.h.
ARAB:2002 (195:112) Intermediate Modern Standard Arabic II	5 s.h.
ARAB:2030 (195:120) Formal Spoken Arabic	2 s.h.
ARAB:3011 (195:130) Advanced Modern Standard Arabic I	3 s.h.
ARTH:2320 (01H:026)/CLSA:2226 (20E:026) Introduction to Ancient Art	3 s.h.
HIST:2401 (016:001) Western Civilization I (with Egyptian/Ancient Near Eastern component)	3-4 s.h.
HIST:2461 (016:045)/CLSA:2461 (20E:071)/ RELS:2361 (032:061) Middle East and Mediterranean: Alexander to Suleiman	3 s.h.
RELS:1001 (032:001) The Judeo-Christian Tradition	3 s.h.

RELS:1130 (032:030) Introduction to Islamic Civilization	3 s.h.
RELS:4001 (032:100) Biblical Hebrew I	4 s.h.
RELS:4002 (032:101) Biblical Hebrew II	4 s.h.
SOAS:2902 (039:111)/CLSA:2902 (20E:111) First-Year Sanskrit: Second Semester	4 s.h.
SOAS:3901 (039:112)/CLSA:3901 (20E:121) Second-Year Sanskrit: First Semester	3 s.h.
SOAS:3902 (039:113)/CLSA:3902 (20E:122) Second-Year Sanskrit: Second Semester	3 s.h.

MAJOR PORTFOLIO

To comply with the Board of Regents, State of Iowa, policy on student outcomes assessment, the Department of Classics has established a method to assess the achievement level of B.A. students completing one of the department's majors. Each student must maintain a portfolio that details the student's progress in attaining the objectives of his or her major. Students must register for and complete the following course.

CLSA:3982 (20E:182) Graduation Portfolio	0 s.h.
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The student submits the portfolio to the undergraduate advisor by midterm of the semester in which the student intends to graduate. Formal approval of the portfolio is required for graduation. Consult the undergraduate advisor for details.

Bachelor of Arts: Classical Languages

The Bachelor of Arts with a major in classical languages requires a minimum of 120 s.h., including at least 36 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). Transfer credit is evaluated individually.

The major trains students to read the ancient Greek and/or Latin languages and acquaints them with the major works of Greek and/or Roman literature. Classical languages students learn about the history of ancient Greece of the eighth through the fourth centuries B.C.E., where most of the modern Western notions of political, artistic, and social life are rooted. They also develop an understanding of the Roman republic and empire, when Rome established its hegemony over the Mediterranean basin, laid the foundation of law for the Western World, and spread Greece's culture to the West.

In addition to completing required course work, students maintain a required portfolio detailing their progress toward the major, which they must complete before graduation; see "Major Portfolio" below.

The major in classical languages requires the following course work.

REQUIRED COURSES

Intermediate or advanced Greek and/or Latin courses: CLSG:2001 (20G:011) through CLSG:4999, CLSL:2001 (20L:011) through CLSL:4999	18 s.h.
Greek or Latin prose composition: CLSG:4076 (20G:176) or CLSL:3176 (20L:171)	3 s.h.

Additional classics courses at any level, including a maximum of 9 s.h. in classics in English courses (prefix CLSA) 15 s.h.

The following advanced undergraduate Greek courses are offered every other year and may be repeated or taken in any sequence. They cover a broad range of prose and poetry in historical context.

CLSG:3001 (20G:120) Archaic and Classical Periods I	3 s.h.
CLSG:3002 (20G:121) Archaic and Classical Periods II	3 s.h.
CLSG:3003 (20G:122) Classical and Hellenistic Periods I	3 s.h.
CLSG:3004 (20G:123) Classical and Hellenistic Periods II	3 s.h.

The following advanced undergraduate Latin courses are offered every other year and may be repeated or taken in any sequence. They cover a range of Latin prose and poetry in historical context from the mid-republic to the third century C.E.

CLSL:3001 (20L:120) Latin Literature of the Republic I	3 s.h.
CLSL:3002 (20L:121) Latin Literature of the Republic II	3 s.h.
CLSL:3003 (20L:122) Latin Literature of the Empire I	3 s.h.
CLSL:3004 (20L:123) Latin Literature of the Empire II	3 s.h.

MAJOR PORTFOLIO

To comply with the Board of Regents, State of Iowa, policy on student outcomes assessment, the Department of Classics has established a method to assess the achievement level of B.A. students completing one of the department's majors. Each student must maintain a portfolio that details the student's progress in attaining the objectives of his or her major. Students must register for and complete the following course.

CLSA:3982 (20E:182) Graduation Portfolio	0 s.h.
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The student submits the portfolio to the undergraduate advisor by midterm of the semester in which the student intends to graduate. Formal approval of the portfolio is required for graduation. Consult the undergraduate advisor for details.

B.A. with Teacher Licensure

Students majoring in ancient civilization or classical languages who are interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for their major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order

to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A.: Ancient Civilization

Before the fifth semester begins: at least two courses in the major

Before the seventh semester begins: at least six courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A.: Classical Languages—Greek and Latin

Before the third semester begins: CLSL:1001 (20L:001) Elementary Latin I and CLSL:1002 (20L:002) Elementary Latin II, or CLSG:1001 (20G:001) Classical and New Testament Greek I and CLSG:1002 (20G:002) Classical and New Testament Greek II

Before the fifth semester begins: CLSL:2001 (20L:011) World of Cicero, CLSL:2002 (20L:012) Golden Age of Roman Poetry, CLSG:1001 (20G:001) Classical and New Testament Greek I, and CLSG:1002 (20G:002) Classical and New Testament Greek II; or CLSG:2001 (20G:011) Second-Year Greek I, CLSG:2002 (20G:012) Second-Year Greek II, CLSL:1001 (20L:001) Elementary Latin I, and CLSL:1002 (20L:002) Elementary Latin II

Before the seventh semester begins: sixth semester of Latin and fourth semester of Greek, or sixth semester of Greek and fourth semester of Latin; two more courses in the major; and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A.: Classical Languages—Greek Only

Before the third semester begins: CLSG:1001 (20G:001) Classical and New Testament Greek I and CLSG:1002 (20G:002) Classical and New Testament Greek II

Before the fifth semester begins: CLSG:2001 (20G:011) Second-Year Greek I and CLSG:2002 (20G:012) Second-Year Greek II

Before the seventh semester begins: three or four more courses in the major

Before the eighth semester begins: two or three more courses in the major and at least 90 s.h. earned toward the degree

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A.: Classical Languages—Latin Only

Before the third semester begins: CLSL:1001 (20L:001) Elementary Latin I and CLSL:1002 (20L:002) Elementary Latin II

Before the fifth semester begins: CLSL:2001 (20L:011) World of Cicero and CLSL:2002 (20L:012) Golden Age of Roman Poetry

Before the seventh semester begins: three or four more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in ancient civilization or classical languages have the opportunity to graduate with honors in the major. Departmental honors students must maintain a g.p.a. of at least 3.50 in their first three years of classics courses. To graduate with honors in the major, they must complete two courses in honors readings during their final year, one each semester of the year, earning 3 s.h. of credit for each course. The readings and discussions must be on an ancient author or a field in ancient history or literature chosen by the student and his or her instructor. At the end of the second semester, the student presents a substantial research project that has been approved by the department. The project is evaluated for honors by two members of the department. Students who write an honors thesis in classical languages must be enrolled at the same time in the appropriate advanced language courses.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor: Ancient Civilization

The minor in ancient civilization requires a minimum of 15 s.h., including at least 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. A maximum of 6 s.h. of work for another University of Iowa major, minor, or certificate and up to 3 s.h. of lower-level transfer credit may be counted toward the minor.

Department of Classics courses in Greek numbered CLSG:2001 (20G:011) Second-Year Greek I or above and in Latin numbered CLSL:2001 (20L:011) World of Cicero or above are considered advanced for the minor in ancient civilization. Appropriate courses in art, religion, history, and philosophy may be counted toward the minor in ancient civilization, if approved by the undergraduate advisor. Students who have taken high school Greek or Latin should consult the advisor.

Minor: Classical Languages

The minor in classical languages requires a minimum of 18 s.h., including 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may count one relevant classics department course taught in English (prefix CLSA) toward the minor. A maximum of 6 s.h. of work for another University of Iowa major, minor, or certificate and up to 3 s.h. of lower-level transfer credit may be counted toward the minor.

The sequences CLSG:2001 (20G:011) Second-Year Greek I and CLSG:2002 (20G:012) Second-Year Greek II, CLSL:2001 (20L:011) World of Cicero and CLSL:2002 (20L:012) Golden Age of Roman Poetry, and Department of Classics courses numbered 3000 or above are considered advanced for the minor in classical languages. Students may satisfy the requirements for the minor by completing CLSG:2001 (20G:011) Second-Year Greek I and CLSG:2002 (20G:012) Second-Year Greek II, CLSL:2001 (20L:011) World of Cicero and CLSL:2002 (20L:012) Golden Age of Roman Poetry, plus two courses numbered 3000 or above, one of which may be a relevant course in Greek or Roman history, culture, or literature (prefix CLSA). For a list of relevant courses, contact the undergraduate advisor. Students who have taken high school Greek or Latin should consult the advisor.

Minor: Greek

The minor in Greek requires a minimum of 15 s.h., including at least 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may count one relevant classics department course taught in English (prefix CLSA) toward the minor. A maximum of 6 s.h. of work for another University of Iowa major, minor, or certificate and up to 3 s.h. of lower-level transfer credit may be counted toward the minor.

The sequence CLSG:2001 (20G:011) Second-Year Greek I and CLSG:2002 (20G:012) Second-Year Greek II, and Department of Classics courses numbered 3000 or above are considered advanced for the minor in Greek. Students may satisfy the advanced courses requirement for the minor by completing CLSG:2001 (20G:011) Second-Year Greek I and CLSG:2002 (20G:012) Second-Year Greek II plus two courses numbered 3000 or above, one of which may be a relevant course in Greek history, culture, or literature (prefix CLSA). For a list of relevant courses, contact the undergraduate advisor. Students who have taken high school Greek should consult the advisor.

Minor: Latin

The minor in Latin requires a minimum of 15 s.h., including at least 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may count one relevant classics department course taught in English (prefix CLSA) toward the minor. A maximum of 6 s.h. of work for another University of Iowa major, minor, or certificate and up to 3

s.h. of lower-level transfer credit may be counted toward the minor.

The sequence CLSL:2001 (20L:011) World of Cicero and CLSL:2002 (20L:012) Golden Age of Roman Poetry, and Department of Classics courses numbered 3000 or above are considered advanced for the minor in Latin. Students may satisfy the advanced courses requirement for the minor by completing CLSL:2001 (20L:011) World of Cicero and CLSL:2002 (20L:012) Golden Age of Roman Poetry plus two courses numbered 3000 or above, one of which may be a relevant course in Roman history, culture, or literature (prefix CLSA). For a list of relevant courses, contact the undergraduate advisor. Students who have taken high school Latin should consult the advisor.

Minor: Health and the Human Condition

The minor in health and the human condition requires a minimum of 15 s.h., including at least 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

The minor in health and the human condition is interdisciplinary. It is administered by the Department of Classics and draws on courses from several units in the College of Liberal Arts and Sciences. It requires the following course work.

Ethics and values—at least 3 s.h. from these:

PHIL:1034 (026:034) Philosophy and the Just Society	3 s.h.
PHIL:2401 (026:001) Matters of Life and Death	3 s.h.
PHIL:2402 (026:102) Introduction to Ethics	3 s.h.
RELS:2771 (032:071)/GWSS:2771 (131:071) Sexual Ethics	3 s.h.
RELS:3320 (032:107)/CLSA:3420 (20E:107) In Search of the Good Life	3 s.h.

Historical Approaches—at least 3 s.h. from these:

CLSA:1181 (20E:081)/GHS:1181 (152:081) Ancient Medicine	3 s.h.
CLSA:4181 (20E:181) History of Western Medicine	3 s.h.
HIST:4160 (16W:137)/GHS:4160 (152:137) History of Public Health	3 s.h.
HIST:4162 (16W:138)/GHS:4162 (152:138) History of Global Health	3 s.h.
HIST:4203 (16A:106) Disability in American History	3 s.h.
HIST:4508 (16W:108)/GHS:4508 (152:109) Medicine and Public Health in Latin America, 1820-2000	3 s.h.
RELS:3580 (032:180)/ANTH:3113 (113:145)/GHS:3113 (152:145) Religion and Healing	3 s.h.

Diversity and global perspectives—at least 9 s.h. from these:

AMST:3162 (045:162) Drugs in American Popular Culture	3 s.h.
ANTH:2164 (113:091)/GHS:2164 (152:091) Culture and Healing for Future Health Professionals	3 s.h.

ANTH:2181 (113:147)/ASP:2181 (153:181)/GHS:2181 (152:147) The Anthropology of Aging	3 s.h.
ANTH:3111 (113:119)/GHS:3040 (152:119) Health in Mexico	3 s.h.
ASP:3135 (153:135)/GHS:3050 (152:153)/SSW:3135 (042:135) Global Aging	3 s.h.
GHS:3060 (152:154) Studies in Complementary and Alternative Medicine	3 s.h.
GWSS:2750 (131:075)/SOC:2750 (034:075) Fertility and Reproduction	3 s.h.
GWSS:3177 (131:177) Women and Their Bodies in Health and Illness	3 s.h.
HHP:3000 (027:120)/INTD:3020 (145:120) Equity Issues in the Health Sciences	3 s.h.
HIST:4605 (16W:140)/GHS:4605 (152:140) Disease, Politics, and Health in South Asia	2-4 s.h.
RELS:3431 (032:131)/GWSS:3131 (131:131) Gender and Sexuality in East Asia	3 s.h.
RHET:3610 (010:161)/ASP:3610 (153:161) Rhetorical Issues in Health Care	3 s.h.
SSW:3786 (042:186)/ASP:3786 (153:186) Death/Dying: Issues Across the Life Span	3 s.h.

Language for General Education

The Department of Classics offers course sequences in Greek, Latin, and Sanskrit that students in all majors may use to fulfill the World Languages requirement of the College of Liberal Arts and Sciences General Education Program (p. 323).

Students who have had previous course work or other experience with Greek or Latin should take the appropriate language placement test, which helps determine the level at which a student should begin Greek or Latin language study at The University of Iowa. The tests are offered during summer orientation programs and monthly by Evaluation and Examination Service.

Students with previous knowledge of Sanskrit should consult the department about appropriate placement.

GREEK

Students who wish to fulfill the General Education Program's World Languages requirement with Greek should complete the following sequence.

CLSG:1001 (20G:001) Classical and New Testament Greek I	3-5 s.h.
CLSG:1002 (20G:002) Classical and New Testament Greek II	3-5 s.h.
CLSG:2001 (20G:011) Second-Year Greek I	3 s.h.
CLSG:2002 (20G:012) Second-Year Greek II	3 s.h.

LATIN

Students who wish to fulfill the General Education Program's World Languages requirement with Latin should complete the following sequence.

CLSL:1001 (20L:001) Elementary Latin I	3-5 s.h.
CLSL:1002 (20L:002) Elementary Latin II	3-5 s.h.
CLSL:2001 (20L:011) World of Cicero	3 s.h.
CLSL:2002 (20L:012) Golden Age of Roman Poetry	3 s.h.

SANSKRIT

Students who wish to fulfill the General Education Program's World Languages requirement with Sanskrit should complete the following sequence.

CLSA:2901 (20E:110) First-Year Sanskrit: First Semester	4 s.h.
CLSA:2902 (20E:111) First-Year Sanskrit: Second Semester	4 s.h.
CLSA:3901 (20E:121) Second-Year Sanskrit: First Semester	3 s.h.
CLSA:3902 (20E:122) Second-Year Sanskrit: Second Semester	3 s.h.

Postbaccalaureate Program of Study

- Certificate in Classics

Certificate

The Postbaccalaureate Certificate in Classics requires 18 s.h. in Department of Classics courses numbered 3000 or above (upper-level and graduate courses). The program is designed for students who have a bachelor's degree and would like further study in Greek and Latin in order to be competitive for admission to a graduate program in classics. Entry to most graduate programs requires study of both Latin and Greek, normally a minimum of three years in one language and two years in the other.

The certificate is designed to be completed in two semesters by students who enter with two years of Latin and one to two years of Greek, or vice versa. It requires 18 s.h. in Department of Classics courses numbered 3000 or above (upper-level and graduate courses). At least 12 s.h. of the required credit must be earned in Greek and Latin language courses; the remaining 6 s.h. may be earned in approved advanced courses taught in English (prefix CLSA). Transfer credit is not accepted toward the certificate. Students must maintain a g.p.a. of at least 3.00 to remain in good standing and complete the program.

A suggested plan of study for a student who enters the program with two years of Latin and one year of Greek is as follows.

Fall semester:

CLSA:4085 (20E:198) Postbaccalaureate Seminar	0 s.h.
CLSG:2001 (20G:011) Second-Year Greek I	3 s.h.
CLSL:3001 (20L:120) Latin Literature of the Republic I	3 s.h.
CLSL:3176 (20L:171) Elementary Latin Composition	3 s.h.

Spring semester:

CLSG:2002 (20G:012) Second-Year Greek II	3 s.h.
CLSL:3002 (20L:121) Latin Literature of the Republic II	3 s.h.
One elective with prefix CLSA, CLSG, or CLSL numbered 3000 or above	3 s.h.

A suggested plan of study for a student who enters the program with two years of Latin and two years of Greek is as follows.

Fall semester:

CLSA:4085 (20E:198) Postbaccalaureate Seminar	0 s.h.
CLSG:3001 (20G:120) Archaic and Classical Periods I	3 s.h.
CLSL:3001 (20L:120) Latin Literature of the Republic I	3 s.h.
CLSL:3176 (20L:171) Elementary Latin Composition	3 s.h.
Spring semester:	
CLSG:3002 (20G:121) Archaic and Classical Periods II	3 s.h.
CLSL:3002 (20L:121) Latin Literature of the Republic II	3 s.h.
One elective with prefix CLSA, CLSG, or CLSL numbered 3000 or above	3 s.h.

Students who complete the program successfully receive a certificate from the College of Liberal Arts and Sciences and a letter from the Department of Classics.

Admission

Applicants must have a baccalaureate degree from an accredited college or university and a minimum of two years of language study (two years of Latin or two years of Greek, or one year of each). In unusual circumstances, students with less language preparation may be admitted.

Applicants who are not enrolled in a graduate or professional program may apply to The University of Iowa as undergraduate transfer students; they must state on their application that they are applying to the College of Liberal Arts and Sciences for admission to the classics postbaccalaureate certificate program. They must submit transcripts confirming preparation for certificate language study, a statement of purpose, scores on the Graduate Record Examination (GRE) General Test, a writing sample, and three letters of recommendation from faculty members at their baccalaureate institution.

Graduate Programs of Study

- Master of Arts and Doctor of Philosophy in classics
- Master of Arts in Greek
- Master of Arts in Latin

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Master of Arts

The Master of Arts program in classics, Greek, or Latin requires a minimum of 30 s.h. in courses numbered 3000 or above. Students may count a maximum of 12 s.h. earned in courses numbered 3000-4999 toward the degree. Courses taken to compete the Postbaccalaureate Certificate in Classics do not count toward the degree.

Students must pass a sight examination in the language(s) studied and an examination on literature and history.

Doctor of Philosophy

The Doctor of Philosophy program in classics requires a minimum of 72 s.h. of graduate credit, including the courses listed below (27 s.h.). Students may count no more than 12 s.h. earned in courses numbered 3000-4999

toward the degree. Courses taken to complete the Postbaccalaureate Certificate do not count toward the degree.

Students also must take precomprehensive and comprehensive examinations and write a dissertation.

REQUIRED COURSES

CLSG:4076 (20G:176) Greek Composition (or equivalent)	3 s.h.
CLSG:5001 (20G:204) Archaic Greek Literature	3 s.h.
CLSG:5002 (20G:205) Classical and Hellenistic Literature	3 s.h.
CLSL:5001 (20L:204) Republican Literature	3 s.h.
CLSL:5002 (20L:205) Imperial Literature	3 s.h.
CLSL:6076 (20L:272) Advanced Latin Composition (or equivalent)	3 s.h.
Two graduate-level courses in cognate subjects such as anthropology, art history, linguistics, philosophy, or rhetoric	6 s.h.
Other interdisciplinary courses (with approval of the graduate advisor)	

The remaining course work is made up of Department of Classics courses and other courses.

Ph.D. EXAMINATIONS

Ph.D. students must take precomprehensive exams in Latin sight reading and Greek sight reading and must attempt one sight reading exam by the end of their first year of graduate study. Competence in reading both German and French must be demonstrated by the end of the second year of study.

Students must take the second-year exam at the end of their second year. The remaining exams may be taken in any sequence. Students must file a request for the fourth-year comprehensive exam at least three weeks before the date of the exam.

Sight-reading exam:

Latin—four hours, written
Greek—four hours, written

Second-year exam:

Literature and history—four hours, written

Fourth-year comprehensive exam:

Greek and Roman history/material culture based on reading list—three hours, written
Latin literature, based on reading list—three hours, written
Greek literature, based on reading list—three hours, written

If a student performs unsatisfactorily on either or both of the Latin and Greek reading list exams, the director of graduate studies sets up an oral exam in order to review questions on which the student did not exhibit sufficient knowledge.

Oral exam:

Special field or author (Greek)—four hours, written
Special field or author (Latin)—four hours, written

Facilities

University of Iowa Libraries' Main Library and the Art Library house extensive collections of classical texts and uninterrupted runs of classical periodicals from 1850 that facilitate research in the major areas of Greek and

Roman civilization. The Department of Classics has a varied collection of slides on classical subjects and a small library of reference works, texts, and issues of classical and archaeological journals. The department's classical museum contains a small collection of coins, vases, and facsimiles in bronze from Mycenae, Pompeii, and Herculaneum.

The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Intercollegiate Center for Classical Studies in Rome. Consult the director of undergraduate studies for more information.

The department offers students the opportunity to participate in an archaeological dig during the summer. Contact the Department of Classics in mid-February for details.

Courses

Classics in English, Lower-Level Undergraduate

All readings for these courses are in English; previous knowledge of Greek or Latin is not required.

CLSA:1000 (20E:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

CLSA:1010 (20E:014) Hero, God, Mortal: Literature of Greece 3 s.h.

Ancient Greek literature and culture as it responded to Homer; may include genre (e.g., epic to tragedy), religion, changing concept of hero, interaction with Mediterranean cultures, myth versus history. GE: Literary, Visual, and Performing Arts.

CLSA:1020 (20E:015) Rome: Soldiers, Slaves, and Emperors 3 s.h.

Main themes and works of ancient Roman literature; works reflecting conflict of personal desire and public self in Rome. GE: Literary, Visual, and Performing Arts.

CLSA:1035 (20E:035) Greek Tragedy, Comedy, and the Invention of Democracy 3 s.h.

What is a citizen? How shall women and men act as members of a greater society? Greek tragedy and comedy asked these questions, Greek playwrights used ancient myth to discuss their modern polis; major Greek tragedies and comedies by Aeschylus, Sophocles, Euripides and Aristophanes; production practices, political and social influences, interpretations by ancient and modern scholarship; select film versions of tragedies; readings in English. GE: Literary, Visual, and Performing Arts.

CLSA:1117 (20E:017) The First Caesars: Julius Caesar to Nero 3 s.h.

Introduction to history, politics, and personalities of the first Caesars, the Julio-Claudians (Julius Caesar, Augustus, Tiberius, Caligula, Claudius, and Nero); conditions of the Roman social and political system that led to the Caesars; character of each emperor; changes each brought about in that system; primary and secondary sources.

CLSA:1181 (20E:081) Ancient Medicine 3 s.h.

Thematic examination of theories and practices of Greco-Roman physicians, which in turn became the medical tradition of medieval Islamic world and European medicine until mid-19th century; historical medical terms, theories, and practices. GE: Historical Perspectives. Same as GHS:1181 (152:081).

CLSA:1740 (20E:040) Writing Strategies: Word Origins and Word Choice 3 s.h.

Study of words, their meanings, and their origins combined with writing; words and word histories; role of English language in the world. GE: Literary, Visual, and Performing Arts.

CLSA:1805 (20E:005) Legends and Heroes of Ancient Rome 1 s.h.

Introduction to narratives of Roman heroes from Livy, Ovid, and Plutarch; background information for further study in classics.

CLSA:1809 (20E:009) Classics and Cinema 3 s.h.

Cinematic depictions of the classical world compared with scholarly views; selected films and primary ancient sources of the same period.

CLSA:1830 (20E:030) Greek Civilization 3 s.h.

History, literature, art, architecture, religion, social life ca. 3000 B.C.E. to second century B.C.E. GE: Historical Perspectives.

CLSA:1840 (20E:031) Roman Civilization 3 s.h.

History, literature, politics, religion, social structure from eighth century B.C.E. to second century C.E. GE: Historical Perspectives.

CLSA:1875 (20E:075) Ancient Sports and Leisure 3 s.h.

Sports, games, and hobbies in the ancient world, primarily Greece and Rome, 1500 B.C.E. to 500 C.E.; ancient Olympic games, Roman festival games; anthropology of sport. GE: Values, Society, and Diversity.

CLSA:1883 (20E:083) War 3 s.h.

Emotions soldiers have as they fight, what makes them continue voluntarily to face death, and how modern society memorializes these experiences; how literature and art transform the experience of war; human responses to war in Homer's *Iliad* and select Greek tragedies. GE: Values, Society, and Diversity. Same as HONR:1883 (143:083).

CLSA:2226 (20E:026) Introduction to Ancient Art 3 s.h.

Art and architecture of the Mediterranean world (ca. 3500 B.C.E.) to death of Constantine (337 C.E.); Egyptian, Cycladic, Minoan, Mycenaean, Greek, Etruscan, and Roman cultures; artistic responses to life and death; impact of breakthroughs in technology and engineering on visual culture; role of art in empire building; interrelationships of art, politics, religion. Same as ARTH:2320 (01H:026).

CLSA:2330 (20E:027) Introduction to Egyptian and Ancient Near Eastern Art 3 s.h.

Art and architecture of Egypt and the Near East (ca. 3500 B.C.E.) to advent of Islam; Egyptian, Sumerian, Assyrian, Babylonian, and Persian cultures; artistic responses to life and death; impact of breakthroughs in technology and engineering on visual culture; role of art in empire building; interrelationships of art, politics, and religion. Same as ARTH:2330 (01H:027).

CLSA:2340 (20E:028) Introduction to Greek and Roman Art 3 s.h.

Art and architecture of Greece and Rome (ca. 3000 B.C.E.) to death of Constantine (337 C.E.); Cycladic, Minoan, Mycenaean, Greek, Etruscan, and Roman cultures; artistic responses to life and death; impact of breakthroughs in technology and engineering on visual culture; role of art in empire building; interrelationships of art, politics, and religion. Same as ARTH:2340 (01H:028).

CLSA:2384 (20E:084) Killers, Crooks, and Deviants: Ancient Law and Society 3 s.h.

Transcripts of actual court cases from ancient Greece and Rome, from the seamy world of adultery and vigilante justice, insurance fraud, gang warfare, prostitution, and murder, to competitive spectacle of ancient courts where trained speakers used skills in rhetoric and facility with law to prosecute or defend crimes of presumed wrongdoers; ancient law, conceptions of justice, history, daily life, moral values, and role of public speaking in democratic Athens and Republican Rome.

CLSA:2420 (20E:094) Jesus and the Gospels 3 s.h.

How Jesus was depicted in the writings of the early church; reasons for the different portrayals. Same as RELS:2320 (032:094).

CLSA:2425 (20E:092) Messianic and Apocalyptic Prophecy in the Bible 3 s.h.

Literary, historical, and theological analysis of biblical prophecies and their impact. Same as RELS:2225 (032:092).

CLSA:2461 (20E:071) Middle East and Mediterranean: Alexander to Suleiman 3 s.h.

GE: Historical Perspectives. Same as HIST:2461 (016:045), RELS:2361 (032:061).

CLSA:2482 (20E:082) Ancient Mediterranean Religions 3 s.h.

Introduction to major religious traditions of ancient Mediterranean world; Mesopotamia, the Levant (Hebrew Bible), Egypt, Greece, and Rome; central aspects of mythology, ritual, and archaeology, individually and in comparative perspective; ancient Judaism and Christianity considered in their various cultural contexts; basic concepts for understanding cultural exchange; fundamental theories in the study of religion. GE: Values, Society, and Diversity. Same as RELS:2182 (032:082).

CLSA:2489 (20E:089) Jerusalem from the Bronze to the Digital Age 3 s.h.

Religious, political, and cultural history of Jerusalem over three millennia as a symbolic focus of three faiths—Judaism, Christianity, and Islam; integration of several digital learning technologies, including digital reconstructions and Google Earth tours of Jerusalem. Same as RELS:2289 (032:089).

Classics in English, Upper-Level Undergraduate and Graduate

CLSA:3008 (20E:108) Greek Drama in Translation 3 s.h.

Ancient Greek plays in relation to their original social and theatrical context; how Greek tragedy has been presented in modern film and theater.

CLSA:3015 (20E:112) Classical Mythology 3 s.h.

Ancient Greek and Roman myths, their interpretation by Western civilization; emphasis on flexibility of myth and its importance for art, literature, anthropological, psychological studies. GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity.

CLSA:3025 (20E:133) Advanced Topics in Mythology 3 s.h.

In-depth exploration of issues in mythology raised in CLSA:3015 (20E:112); theories of myth, comparative mythology, reception of myth; experience applying methodologies and approaches to specific myths or clusters of myths in Greco-Roman and world traditions. Prerequisites: CLSA:3015 (20E:112).

CLSA:3041 (20E:141) Studies in Latin Literature 3 s.h.

In-depth look at specific authors or genres, as indicated in the subtitle, focusing on Latin literary texts from second century B.C.E. to fifth century C.E. and the post-antique reception of those texts. Taught in English.

CLSA:3144 (20E:144) Engineering and Technology in the Ancient Mediterranean 3 s.h.

Technologies developed and used in the ancient Mediterranean—primarily in Greece and Rome, also in Egypt and the Ancient Near East; agriculture and food preparation; construction and architecture; technologies related to warfare. Same as HIST:3405 (16E:105).

CLSA:3151 (20E:151) Roman Law 3 s.h.

Case-based introduction to Roman law; principles of Roman law ranging from standards of evidence to trial procedures to various topics in civil and criminal law, including family law and the law of delict. Recommendations: some background in Roman history. Same as HIST:3151 (16E:115).

CLSA:3227 (20E:124) Classical Greek Art 3 s.h.

Art, sacred architecture from early Classical through late fourth century B.C.E.; Athens in the Golden Age. Same as ARTH:3330 (01H:127).

CLSA:3232 (20E:128) Art of Early Rome: Patrons and Politics 3 s.h.

Examination of architecture, sculpture, and painting in central Italy from c. 800 B.C. to the end of the Roman Republic in 27 B.C.; art in the service of social ideology and political propaganda; funerary art and its relationship to the living; artistic interactions between Etruria, Greece, and Rome. Same as ARTH:3350 (01H:132).

CLSA:3233 (20E:130) Art of the Ancient Roman Empire 3 s.h.

Major developments in architecture, sculpture, and painting from the ascension of Augustus to sole ruler in 31 B.C. to the death of Constantine in A.D. 337; influence of individual emperors on the development of artistic forms; relationship between public and private art; interdependency of Rome and the provinces. Same as ARTH:3360 (01H:133).

CLSA:3234 (20E:129) Art and Culture in Ancient Pompeii 3 s.h.

Art and architecture, as documents of ancient society and religion in towns destroyed by Mount Vesuvius in C.E. 79. Same as ARTH:3370 (01H:134).

CLSA:3235 (20E:118) Greek Archaeology and Ethnohistory 3 s.h.

Archaeology and ethnology of the Greek world, from end of Bronze Age to late Roman Empire; sociocultural processes that influence development and persistence of Greek civilization. Same as ANTH:3276 (113:192).

CLSA:3240 (20E:119) Roman Archaeology 3 s.h.

Archaeology and ethnology of Roman civilization from Iron Age eighth-century occupation of the Palatine Hill to the end of the Roman empire in the West, A.D. 476. Prerequisites: ANTH:1201 (113:012) or ANTH:1301 (113:013). Same as ANTH:3277 (113:194).

CLSA:3247 (20E:147) Banned from the Bible: Introduction to Pseudepigrapha and Apocrypha 3 s.h.

Introduction to biblical Pseudepigrapha and Apocrypha; writings dating from third century BCE to third century CE fictionally attributed to characters in the Hebrew Bible and New Testament, or written as though they originated in the First or Second Temple periods, not included in Jewish or major Christian canons of scripture; English translations of documents from this period; key themes and interpretative techniques common throughout biblical texts that provide tremendous insight into the worlds that produced the Hebrew Bible and New Testament. Same as RELS:3247 (032:142).

CLSA:3338 (20E:138) Philosophy of Ancient Greece and Rome 3 s.h.

Ancient Greek and Roman philosophy from its inception in Ionia in sixth century B.C.E. through the Neoplatonic philosophy of Plotinus in third century C.E., encompassing philosophies of Plato, Aristotle, the Stoics and Epicureans, and later Platonists. Same as PHIL:3110 (026:110).

- CLSA:3340 (20E:140) Magic in the Ancient World** 3 s.h.
Ancient Greek and Roman writings on magic, including ancient spells and charms. Requirements: completion of rhetoric requirement. GE: Values, Society, and Diversity.
- CLSA:3416 (20E:115) Greek Religion and Society** 3 s.h.
From Bronze Age to the Hellenistic period, in context of Mediterranean culture; evidence such as choral hymn, inscribed prayers, magical curses inscribed on lead, architecture, sculpted offerings to the gods. GE: Values, Society, and Diversity. Same as RELS:3716 (032:164).
- CLSA:3420 (20E:107) In Search of the Good Life** 3 s.h.
Works from Greco-Roman, Jewish, and Christian cultures to analyze various beliefs on how humans can live the good life and examine how these solutions are intimately connected to the specific conceptions of the divine world. Same as RELS:3320 (032:107).
- CLSA:3440 (20E:104) Recovering Eden: The Afterlife in Early Judaism and Christianity** 3 s.h.
Development of afterlife ideology in Jewish and Christian traditions; ideas that influenced this development, particularly as related to problem of suffering. Same as RELS:3340 (032:109).
- CLSA:3443 (20E:146) Early Christianity: From Jesus to the Rise of Islam** 3 s.h.
Introduction to the history of early Christianity, from the time of Jesus to the rise of Islam; focus on major movements, intellectuals, and institutions in this period; growth of Christianity in different geographical areas, including the Middle East, Greece, Western Europe, and Africa; Christian relations with Jews, pagans, and Muslims; conversion; orthodoxy, heresy, and the making of the biblical canon; martyrdom; women and gender roles; asceticism, monasticism, and sexuality; church and state; theological controversy and schisms; the cult of saints; the Holy Land and pilgrimage. Same as RELS:3243 (032:143).
- CLSA:3445 (20E:145) Mythology of Otherworldly Journeys** 3 s.h.
Examination of mythology of otherworldly journeys from earliest religions to Hellenistic period; historical context; comparison for common themes in their evolution over time; directed readings of mythological texts dealing with otherworldly journeys; ways in which past cultures confronted larger mysteries of life and death. Same as RELS:3245 (032:145).
- CLSA:3514 (20E:195) Roman Religion and Society** 3 s.h.
Roman religion of the Republic, from ca. 753 BCE to 44 BCE; highly organized priesthood of politically powerful men and women in religious colleges in Rome who moderated and interpreted city-wide religious practice; how Romans worshipped their gods; Roman theology—what Romans thought about the divine world—and their religious response to crises; evidence from festival calendar, temple architecture, religious art, poetry, inscriptions, plays, and various other texts.
- CLSA:3596 (20E:196) The Archaeology of Ancient Egypt** 3 s.h.
Introduction to the archaeology of ancient Egypt from predynastic times to Roman Egypt, including monumental architecture; patterns of everyday life; social, economic, and demographic considerations; history of archaeology in Egypt. Same as ANTH:3275 (113:196).
- CLSA:3650 (20E:150) Gender and Sexuality in the Ancient World** 3 s.h.
Survey of gender and sexuality issues in the social, political, and religious life of ancient Greece and Rome; evidence from literature, the visual arts, archaeology. Requirements: completion of rhetoric requirement and sophomore standing. GE: Values, Society, and Diversity. Same as GWSS:2651 (131:152).
- CLSA:3742 (20E:142) Word Power: Building English Vocabulary** 3 s.h.
Analysis of unfamiliar English words through knowledge of the history and meaning of word parts.
- CLSA:3743 (20E:143) Word Power II: Building English Vocabulary—Advanced** 3 s.h.
Continuation of CLSA:3742 (20E:142); vocabulary building through additional Latin and Greek bases; vocabulary recognition through analysis of Greek and Latin elements of English words; how words change over time. Prerequisites: CLSA:3742 (20E:142).
- CLSA:3750 (20E:103) Medical and Technical Terminology** 2 s.h.
Memorization of word stems and basic medical terms, practice on computer terminal; no formal classes.
- CLSA:3809 (20E:109) Women in Antiquity** 3 s.h.
Attitudes toward women and the role of women in ancient Greek and Roman society; ancient authors, male and female, and modern critics. Same as GWSS:3809 (131:109).
- CLSA:3820 (20E:120) Concepts of the City: Athens** 3 s.h.
Athens from Bronze Age to present; city's role in development of political democracy and religion.
- CLSA:3836 (20E:136) Food in Ancient Mediterranean Society** 3 s.h.
Practices and values influenced by consumption and production of food in ancient Mediterranean societies; varied topics, including methods of food production and distribution, hierarchies of status as associated with food, food and ethnic identity, food and health, food and religion; focus on classical Greek and Roman society, Egypt, the ancient Near East, and Persia. Recommendations: familiarity with Greek and Roman civilization and history. Same as HIST:3436 (16E:102).
- CLSA:3913 (20E:113) Middle Egyptian I** 3 s.h.
Introduction to the language (Middle Egyptian dialect, c. 2200-1350 B.C.E.), and script (hieroglyphic) of ancient Egypt; in-class readings from passages in the chrestomathie; Pennsylvania State University video conference.

- CLSA:3914 (20E:114) Middle Egyptian II** 3 s.h.
Continuation of CLSA:3913 (20E:113); introduction to the language (c. 2200-1350 B.C.E.) and script (hieroglyphics) of ancient Egypt. Prerequisites: CLSA:3913 (20E:113).
- CLSA:3980 (20E:180) Teaching in the Classics** 1,3 s.h.
Instructional approaches and issues in teaching ancient language and civilization at secondary and college levels. Prerequisites: CLSG:1002 (20G:002) or CLSL:1002 (20L:002).
- CLSA:3982 (20E:182) Graduation Portfolio** 0 s.h.
Submission of final graduation portfolio required for classical languages and ancient civilization majors. Requirements: classical languages or ancient civilization major, and senior standing.
- CLSA:4049 (20E:149) Undergraduate Seminar in Philosophy** 3 s.h.
Selected problems. Same as PHIL:4049 (026:149).
- CLSA:4085 (20E:198) Postbaccalaureate Seminar** 0 s.h.
Current work of postbaccalaureate students; preparation of writing sample and portfolio. Requirements: postbaccalaureate certificate enrollment.
- CLSA:4090 (20E:199) Private Assignments** arr.
Readings in classical literature in translation.
- CLSA:4095 (20E:190) Honors Readings** arr.
Discussion, readings, research for a paper on ancient civilization. Requirements: ancient civilization major.
- CLSA:4101 (20E:101) Ancient Egypt and the Ancient Near East** 3 s.h.
Same as HIST:4401 (16E:101).
- CLSA:4106 (20E:106) Warfare in Ancient Mediterranean Society** 3 s.h.
Same as HIST:4406 (16E:106).
- CLSA:4131 (20E:131) Digital Archaeological Modeling** 1-3 s.h.
Introduction to foundational theory, methodology, programming skills, and conceptual understanding necessary to model remains and reconstructions of archaeological sites in various three-dimensional digital modeling environments. Recommendations: background in archaeology. Same as RELS:4124 (032:124).
- CLSA:4181 (20E:181) History of Western Medicine** 3 s.h.
Development and systematization of medical thought and practice in European Middle Ages from late antiquity to Renaissance; transmission of ancient Greek and Arabic medieval thought into Latin; rise of hospitals; development of medical schools; influence of Christianity; special attention to university curricula (e.g., Articella, anatomy, semiotics, prognosis, therapeutics).
- CLSA:4400 (20E:100) The Roman Empire** 3 s.h.
History of Roman empire from assassination of Julius Caesar through 5th century A.D.; political, economic, cultural, and social developments from the transition to imperial power to the shift of power from west to east. Same as HIST:4400 (16E:100).
- CLSA:4403 (20E:132) Alexander the Great** 3 s.h.
History of Alexander the Great and the generals who succeeded him in ruling the lands he conquered; military, political, and social history. Same as HIST:4403 (16E:103).
- CLSA:4452 (20E:152) The Dead Sea Scrolls** 3 s.h.
Introduction to the Dead Sea Scrolls; reading of the scrolls in English translation; examination of Qumran site archaeology; survey of broader sociopolitical context of Second Temple Judaism (586 BCE to 135 CE) out of which the scrolls emerged. Same as RELS:4352 (032:152).
- CLSA:4501 (20E:183) Archaeological Methodology and Field Research** 3 s.h.
Beginning skills in archaeological site surveying and excavation, lab work, record keeping, pottery identification and classification, data visualization; basic archaeological theory and field methods for excavation, record keeping, and pottery identification for students with no prior archaeological experience; advanced archaeological field methods for students with prior archaeological field experience.
- CLSA:4502 (20E:185) Archaeology and History of Judea** 3 s.h.
History of the ancient province of Judea (modern Israel) from Early Bronze Age to Greco-Roman period.
- ## Classics in English, Graduate
- CLSA:5010 (20E:220) Proseminar in Classics** 1 s.h.
Texts, techniques, and trends in classical scholarship; areas and subtopics of classical scholarship.
- CLSA:6200 (20E:326) Seminar: Problems in Ancient Art** 3 s.h.
Key themes and issues in ancient art. Same as ARTH:6300 (01H:320).
- CLSA:6310 (20E:230) Classical Rhetoric** 3 s.h.
Discourse in the ancient world. Same as COMM:6310 (036:310).
- CLSA:6910 (20E:210) Graduate Pedagogy** 1 s.h.
Pedagogical theories on teaching classics in translation, practical application of those theories; classroom management, grading, syllabus development; university, college, and department regulations. Requirements: graduate standing, and teaching assistant or instructor in classics courses taught in English.
- CLSA:6990 (20E:201) Topics in Comparative Romance Linguistics** 3 s.h.

Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Recommendations: additional graduate course work in linguistics. Same as LING:6190 (103:262), SPAN:6190 (035:207), SLA:6302 (164:262).

Greek, Lower-Level Undergraduate

CLSG:1001 (20G:001) Classical and New Testament Greek I 3,5 s.h.

Introduction to ancient Greek; Greek readings from all periods, from Homer and classical Greek poetry and prose to Christian writings and beyond; focus on classical and New Testament works, Greek culture and thought; comprehension, vocabulary, structure of Greek words and sentences; first of two-semester sequence. GE: World Languages First Level Proficiency.

CLSG:1002 (20G:002) Classical and New Testament Greek II 3,5 s.h.

Continuation of CLSG:1001 (20G:001); focus on classical and New Testament works, Greek culture and thought, comprehension, vocabulary, structure of Greek words and sentences; increased emphasis on original texts. Prerequisites: CLSG:1001 (20G:001). GE: World Languages Second Level Proficiency.

CLSG:2001 (20G:011) Second-Year Greek I 3 s.h.

Focus on reading Greek prose authors, such as Xenophon and Plato. Prerequisites: CLSG:1002 (20G:002). GE: World Languages Second Level Proficiency.

CLSG:2002 (20G:012) Second-Year Greek II 3 s.h.

Continuation of CLSG:2001 (20G:011); focus on reading and interpretation of Greek poetry. Prerequisites: CLSG:2001 (20G:011). GE: World Languages Fourth Level Proficiency.

Greek, Upper-Level Undergraduate and Graduate

CLSG:3001 (20G:120) Archaic and Classical Periods I 3 s.h.

Readings in major Greek authors of the Archaic and Classical periods. Prerequisites: CLSG:2002 (20G:012).

CLSG:3002 (20G:121) Archaic and Classical Periods II 3 s.h.

Continuation of CLSG:3001 (20G:120). Prerequisites: CLSG:2002 (20G:012).

CLSG:3003 (20G:122) Classical and Hellenistic Periods I 3 s.h.

Readings in Greek literature of the Classical and Hellenistic periods. Prerequisites: CLSG:2002 (20G:012). Same as RELS:3003 (032:122).

CLSG:3004 (20G:123) Classical and Hellenistic Periods II 3 s.h.

Continuation of CLSG:3003 (20G:122). Prerequisites: CLSG:2002 (20G:012).

CLSG:4076 (20G:176) Greek Composition 3 s.h.
Review of Greek morphology, syntax, sentence structure; composition of sentences, short passages in Greek.

CLSG:4090 (20G:199) Private Assignments 1-3 s.h.
Directed reading and study with faculty member.

CLSG:4095 (20G:190) Honors Readings arr.
Discussion, readings, research for a paper on Greek literature, history, or civilization. Requirements: classical languages major.

Greek, Graduate

Courses numbered CLSG:6011 (20G:222) Archaic Greece and CLSG:6013 (20G:223) Hellenistic Greece cover topics from the major genres and periods of Greek literature. They are offered on a four-year cycle.

Courses numbered CLSG:6011 (20G:222) Archaic Greece, CLSG:6013 (20G:223) Hellenistic Greece, and CLSG:6012 (20G:228) Classical Greece cover authors, genres, and topics of the major periods of Greek history. Specific topics are determined by the instructor's expertise and research interests. Ph.D. students are exposed to topics in all major periods at least once in four years of course work.

CLSG:5001 (20G:204) Archaic Greek Literature 3 s.h.

Introductory survey of Greek literature and language from Homer to end of the fifth century.

CLSG:5002 (20G:205) Classical and Hellenistic Literature 3 s.h.

Introductory survey of Greek literature and language in and after the fourth century B.C.E.

CLSG:6011 (20G:222) Archaic Greece arr.
Topics chosen from Homer, Hesiod, Homeric hymns or lyric poetry.

CLSG:6012 (20G:228) Classical Greece arr.
Authors, genres, and topics from the fourth and fifth centuries B.C.E.

CLSG:6013 (20G:223) Hellenistic Greece arr.
Authors, genres, and topics from the death of Alexander to the accession of Augustus.

CLSG:6014 (20G:229) Roman Greece arr.
Greek authors of the Second Sophistic, including Plutarch, Lucian, and Philostratus; seminar.

CLSG:6910 (20G:210) Graduate Pedagogy 1 s.h.
Pedagogical theories on teaching classical languages, practical application of those theories; classroom management, grading, syllabus development; university, college, and department regulations. Requirements: graduate standing, and teaching assistant or instructor in Greek.

CLSG:7080 (20G:291) Greek Thesis arr.
For Ph.D. students writing a dissertation. Requirements: Ph.D. candidacy.

CLSG:7090 (20G:202) Advanced Reading arr.
Requirements: classics graduate standing.

Latin, Lower-Level Undergraduate

CLSL:1001 (20L:001) Elementary Latin I 3,5 s.h.
Focus on reading Latin and on Roman culture. GE: World Languages First Level Proficiency.

CLSL:1002 (20L:002) Elementary Latin II 3,5 s.h.
Continuation of CLSL:1001 (20L:001). Prerequisites: CLSL:1001 (20L:001). GE: World Languages Second Level Proficiency.

CLSL:2001 (20L:011) World of Cicero 3 s.h.
Focus on reading Latin prose authors, such as Caesar and Cicero. Prerequisites: CLSL:1002 (20L:002). GE: World Languages Second Level Proficiency.

CLSL:2002 (20L:012) Golden Age of Roman Poetry 3 s.h.
Focus on reading and interpretation of Roman poets, such as Vergil and Catullus. Prerequisites: CLSL:2001 (20L:011). GE: World Languages Second Level Proficiency.

Latin, Upper-Level Undergraduate and Graduate Student

CLSL:3001 (20L:120) Latin Literature of the Republic I 3 s.h.
Prose or poetry by major authors of the republic. Prerequisites: CLSL:2002 (20L:012).

CLSL:3002 (20L:121) Latin Literature of the Republic II 3 s.h.
Continuation of CLSL:3001 (20L:120). Prerequisites: CLSL:2002 (20L:012).

CLSL:3003 (20L:122) Latin Literature of the Empire I 3 s.h.
Prose or poetry by major authors of the empire. Prerequisites: CLSL:2002 (20L:012).

CLSL:3004 (20L:123) Latin Literature of the Empire II 3 s.h.
Continuation of CLSL:3003 (20L:122). Prerequisites: CLSL:2002 (20L:012).

CLSL:3176 (20L:171) Elementary Latin Composition 3 s.h.
Review of Latin morphology, syntax, sentence structure; composition of sentences, short passages in Latin. Prerequisites: CLSL:2002 (20L:012).

CLSL:4090 (20L:199) Private Assignments 1-3 s.h.
Directed reading and study with faculty member for advanced students.

CLSL:4095 (20L:190) Honors Readings 3 s.h.
Discussions, readings, research for a paper on Roman literature, history, or civilization. Requirements: classical languages major.

Latin, Graduate

Course CLSL:6012 (20L:222) Augustan Rome covers topics from the major genres and periods of Latin literature. It is offered on a four-year cycle.

Courses numbered CLSL:6011 (20L:220) Republican Rome, CLSL:6014 (20L:228) Later Empire, and CLSL:6013 (20L:229) Tiberius to Trajan cover authors, genres, and topics of the major periods of Roman history. Specific topics are determined by the instructor's expertise and research interests. Ph.D. students are exposed to topics in all major periods at least once in four years of course work.

CLSL:5001 (20L:204) Republican Literature 3 s.h.
Introductory survey of Latin literature and language from the early Republic to the end of the first century B.C.E.

CLSL:5002 (20L:205) Imperial Literature 3 s.h.
Introductory survey of Latin literature and language from the Augustan age through the second century C.E.

CLSL:6011 (20L:220) Republican Rome arr.
Authors and topics from the beginnings of Roman literature to the death of Julius Caesar.

CLSL:6012 (20L:222) Augustan Rome arr.
Authors and topics from the death of Caesar to the accession of Tiberius.

CLSL:6013 (20L:229) Tiberius to Trajan arr.
Authors and topics from the first and second centuries C.E. Same as RELS:6040 (032:229).

CLSL:6014 (20L:228) Later Empire arr.
Authors and topics from the third through fifth centuries C.E.

CLSL:6076 (20L:272) Advanced Latin Composition arr.
Writing of extended prose passages in Latin.

CLSL:6910 (20L:210) Graduate Pedagogy 1 s.h.
Pedagogical theories on teaching classical languages, practical application of those theories; classroom management, grading, syllabus development; university, college, and department regulations. Requirements: teaching assistant or instructor in Latin.

CLSL:7080 (20L:291) Latin Thesis arr.
For Ph.D. students writing a dissertation. Requirements: Ph.D. candidacy.

CLSL:7090 (20L:202) Advanced Reading arr.
Requirements: classics graduate standing.

Sanskrit, Lower-Level Undergraduate

CLSA:2901 (20E:110) First-Year Sanskrit: First Semester 4 s.h.
Grammar, basic vocabulary; elementary readings. Offered fall semesters of even years. Requirements: undergraduate standing. GE: World Languages First Level Proficiency. Same as SOAS:2901 (039:110).

**CLSA:2902 (20E:111) First-Year Sanskrit: 4 s.h.
Second Semester**

Readings in epic and story literature. Offered spring semesters of odd years. Prerequisites: SOAS:2901 (039:110). Requirements: undergraduate standing. GE: World Languages Second Level Proficiency. Same as SOAS:2902 (039:111).

**Sanskrit, Upper-Level
Undergraduate and Graduate****CLSA:3901 (20E:121) Second-Year Sanskrit: 3 s.h.
First Semester**

Readings in epic and puranic texts. Offered fall semesters of odd years. Prerequisites: SOAS:2902 (039:111). Requirements: undergraduate standing. GE: World Languages Second Level Proficiency. Same as SOAS:3901 (039:112).

**CLSA:3902 (20E:122) Second-Year Sanskrit: 3 s.h.
Second Semester**

The *Bhagavadgita* and related religious/philosophical texts. Offered spring semesters of even years. Prerequisites: SOAS:3901 (039:112). Requirements: undergraduate standing. GE: World Languages Fourth Level Proficiency. Same as SOAS:3902 (039:113).

Communication Sciences and Disorders

Chair

- Ruth A. Bentler

Professors

- Paul J. Abbas (Otolaryngology—Head and Neck Surgery/Communication Sciences and Disorders), Ruth A. Bentler, Carolyn Jane Brown (Otolaryngology—Head and Neck Surgery/Communication Sciences and Disorders), Kate E. Gfeller (Communication Sciences and Disorders/Music), Lenore Holte, Richard R. Hurtig (Starch Faculty Fellow), Karen Kirk, Karla K. McGregor, Jerald B. Moon, Ingo R. Titze (UI Foundation Distinguished Professor; Communication Sciences and Disorders/Biomedical Engineering/Music), J. Bruce Tomblin (Spriestersbach Professor; Otolaryngology—Head and Neck Surgery/Communication Sciences and Disorders), Chris W. Turner (Communication Sciences and Disorders/Otolaryngology—Head and Neck Surgery), Richard S. Tyler (Otolaryngology—Head and Neck Surgery/Communication Sciences and Disorders), Patricia M. Zebrowski

Associate professors

- Karen Bryant, Toni D. Cilek, Ann M. Fennell, Eileen Finnegan (Communication Sciences and Disorders/Otolaryngology—Head and Neck Surgery), Jean K. Gordon, Michael P. Karnell (Otolaryngology—Head and Neck Surgery/Communication Sciences and Disorders), Danielle Kelsay, Linda Louko, Diane P. Niebuhr, Amanda J. Owen VanHorne, Anne K. Wallace

Assistant professors

- Elizabeth Delsandro, Melissa Duff, Stephanie Fleckenstein, Shawn J. Goodman, Yu-Hsiang Wu

Adjunct professors

- Fariborz Alipour-Haghighi, Lorraine Ramig

Adjunct associate professors

- Carolyn Jean Brown, Charles A. Miller, Ronald C. Scherer, Katherine Verdolini, Gerald N. Zimmermann

Adjunct assistant professors

- Scott Dailey, Kathryn Mueller, Kelly Schmidt-Clay, Gail Takahashi

Adjunct instructors

- Barbara Anderson, Emily Andrews, Shea Becker, Julie Bridges, Paige Burden, Michele Cannon, Margaret Christiansen, Debora Downey, Suzanne Dunn, Jessica Egge, Kelly Macauley Frost, Julie Gasway, Paula Gay, Barbara A. Gienapp, Stephanie Gogel, Daniel Hansen, Diana Hanson, Emily Hart, Rebecca Hubbard, Angela Jenkins, Laura Kauth, Kathryn Keegan, Maura Kenworthy, Judith Knabe, Melissa Kreze, Joanna Chen Lee, Marcia Barth Leick, Kimberly Lestina, Lauren Lichty, Mary F. Lukas, Beth MacPherson, Joan Marttila, Lynn Maxfield, Elizabeth Merrifield, Aaron Packer, Lisa Paige, Ann Perreau, Debra K. Robin, Janette Rogers-Tschirren, Steffi Schopick, Elizabeth Stangl, Ann Stern, Michael Tyskland, Tanya Van Voorst, Kelly Varnum,

Elizabeth Walker, Beth Weis, Rachel J. White, Julie Wieland, Gina Wiley

Adjunct lecturer

- Eric Hunter

Professors emeriti

- Erich S. Luschei, Hughlett L. Morris, Arnold M. Small, Duane R. Van Demark

Associate professors emeriti

- Charles V. Anderson, Penelope K. Hall

Undergraduate major: speech and hearing science (B.A.)

Undergraduate minor: communication sciences and disorders

Graduate degrees: M.A. in speech pathology and audiology; Au.D.; Ph.D. in speech and hearing science

Web site: <http://clas.uiowa.edu/comsci/>

The courses and degree programs of the Department of Communication Sciences and Disorders are planned to meet the needs of students preparing for careers in clinical service, college and university teaching, and research concerned with speech, language, or hearing processes and disorders. The department also offers courses for students with vocational and professional goals in other fields—for example, engineering, psychology, education, speech, theatre arts, dentistry, and medicine—whose preparation may be enriched by the study of speech and hearing processes and their disorders.

Advanced degree holders in communication sciences and disorders provide clinical services for people with speech, hearing, or language problems in hospitals, community clinics, rehabilitation facilities, elementary and secondary schools, and private practice. They teach in colleges and universities and conduct research in laboratories concerned with communication processes and disorders.

The department's programs leading to the M.A. with professional emphasis and the Au.D. are accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association (ASHA).

Undergraduate Programs of Study

- Major in speech and hearing science (Bachelor of Arts)
- Minor in communication sciences and disorders

Students who intend to pursue professional careers in communication sciences and disorders must complete a graduate program comparable to the department's Master of Arts in speech pathology and audiology or its Doctor of Audiology (Au.D.). The undergraduate major in speech and hearing science emphasizes the normal processes of speech, hearing, and language and does not qualify an individual to work professionally in the field. Instead, it is designed primarily to prepare students for graduate work. It also may be an appropriate major for students earning College of Liberal Arts and Sciences degrees who are not planning careers in speech pathology and audiology.

Bachelor of Arts

The Bachelor of Arts with a major in speech and hearing science requires a minimum of 120 s.h., including 63-64 s.h. of work for the major. Students must maintain a

g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Requirements include 12 core courses offered by the department and eight cognate courses offered by other departments. Transfer students must complete a minimum of 15 s.h. toward the major at The University of Iowa.

The major in speech and hearing science requires the following course work.

CORE COURSES

All of these:

CSD:1015 (003:015) Introduction to Speech and Hearing Processes and Disorders	2 s.h.
CSD:2110 (003:110) Phonetics: Theory and Applications	3 s.h.
CSD:2111 (003:111) Basic Acoustics for Speech and Hearing	3 s.h.
CSD:3112 (003:112) Anatomy and Physiology of Speech Production	4 s.h.
CSD:3113 (003:113) Introduction to Hearing Science	4 s.h.
CSD:3116 (003:116) Basic Neuroscience for Speech and Hearing	3 s.h.
CSD:3117 (003:117) Psychology of Language	3 s.h.
CSD:3118 (003:118) Language Acquisition	3 s.h.
CSD:3185 (003:185) Hearing Loss and Audiometry	3 s.h.
CSD:4145 (003:145) Developmental Speech and Language Disorders	3 s.h.
CSD:4148 (003:148) Developmental Speech Disorders	3 s.h.
CSD:4244 (003:244) Rehabilitative Audiology	3 s.h.

COGNATE COURSES

Students may choose cognate courses that help fulfill the College of Liberal Arts and Sciences General Education Program (p. 323).

Both of these:

LING:3001 (103:100) Introduction to Linguistics	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.

One of these:

PSQF:1020 (07P:025)/STAT:1020 (22S:025) Elementary Statistics and Inference	3 s.h.
PSQF:4143 (07P:143)/STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.
STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

One of these:

CHEM:1070 (004:007) General Chemistry I	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
PHYS:1400 (029:008) Basic Physics (preferably with lab)	4 s.h.
PHYS:1511 (029:011) College Physics I	4 s.h.

One of these:

PSY:2301 (031:013) Introduction to Clinical Psychology	3 s.h.
PSY:2915 (031:050) Psychology of Aging	3 s.h.
PSY:2930 (031:063) Abnormal Psychology: Health Professions	3 s.h.
SSW:1800 (042:085) Basic Aspects of Aging	3 s.h.

One of these:

PSQF:4106 (07P:106) Child Development	3 s.h.
PSY:2401 (031:014) Introduction to Developmental Science	3 s.h.

One of these:

BIOL:1141 (002:002) Introductory Animal Biology (with lab)	4 s.h.
BIOL:1411 (002:031) Foundations of Biology (with lab)	4 s.h.

One of these:

MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.
MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.

This cognate requirement in mathematics may be fulfilled through an acceptable score on the Advanced Placement AB or BC Calculus exam; see Credit by Exam on the Office of Admissions web site. Students without AP credit are encouraged to take first-year calculus to satisfy this requirement, particularly those interested in earning a graduate degree in audiology.

CLINICAL OBSERVATION

Students have the opportunity and are encouraged to obtain 25 hours of supervised clinical observation, a prerequisite for participation in clinical practicums at the graduate level. This requirement is satisfied by completion of independent observations or required observations made for elective departmental courses.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: The major requires specific mathematics and science competencies that may be satisfied with courses approved for the General Education Program.

Before the fifth semester begins: three courses in the major

Before the seventh semester begins: nine courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: 12 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in speech and hearing science who have a g.p.a. of at least 3.50 may enter the department's honors program upon recommendation of the departmental honors advisor. To graduate with honors in the major, students must complete at least 10 s.h. of course work for the major by the beginning of their junior year and must maintain a cumulative University of Iowa g.p.a. of at least 3.50. They must complete both CSD:3097 (003:097) Honors Seminar and CSD:4098 (003:098) Honors Thesis, registering for CSD:3097 (003:097) in spring of their junior year and for CSD:4098 (003:098) in both fall and spring of their senior year.

Students who intend to graduate with honors in the speech and hearing science major must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in communication sciences and disorders requires a minimum of 15 s.h., including 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

Students must begin the minor with CSD:1015 (003:015) Introduction to Speech and Hearing Processes and Disorders (2 s.h.), which provides a broad overview of all aspects of the normal communication process and of various disorders. Students complete the minor by choosing from the courses listed below, according to their individual interests.

CSD:2110 (003:110) Phonetics: Theory and Applications	3 s.h.
CSD:2111 (003:111) Basic Acoustics for Speech and Hearing	3 s.h.
CSD:2140 (003:140) Manual Communication	1 s.h.
CSD:3112 (003:112) Anatomy and Physiology of Speech Production	4 s.h.
CSD:3113 (003:113) Introduction to Hearing Science	4 s.h.
CSD:3116 (003:116) Basic Neuroscience for Speech and Hearing	3 s.h.
CSD:3117 (003:117) Psychology of Language	3 s.h.
CSD:3118 (003:118) Language Acquisition	3 s.h.
CSD:3185 (003:185) Hearing Loss and Audiometry	3 s.h.
CSD:4145 (003:145) Developmental Speech and Language Disorders	3 s.h.
CSD:4148 (003:148) Developmental Speech Disorders	3 s.h.
CSD:4244 (003:244) Rehabilitative Audiology	3 s.h.

Graduate Programs of Study

- Master of Arts in speech pathology and audiology
- Doctor of Audiology
- Doctor of Philosophy in speech and hearing science

The Master of Arts program in speech pathology and audiology is offered with two emphases: research (general), and professional (speech-language pathology).

The M.A. with research emphasis and the Ph.D. are designed to train scholar-researchers; they do not provide preparation for professional work as speech-language pathologists or audiologists.

The M.A. with professional emphasis and the Au.D. provide training for individuals who wish to do clinical work in speech-language pathology or audiology. Graduates of the M.A. professional emphasis program meet all academic and practicum requirements for clinical certification by the American Speech-Language-Hearing Association (ASHA) and for licensure by the State of Iowa. The Au.D. is required for ASHA national certification in audiology. Students preparing for clinical positions in public schools must meet school licensure or certification requirements of the states in which they plan to work. See "M.A. with Professional Licensure" later in this section.

Master of Arts: Research Emphasis

The Master of Arts program in speech pathology and audiology with research emphasis (general emphasis) requires a minimum of 38 s.h. of graduate credit. The program is designed for students who intend to pursue a Ph.D. or who seek additional education but do not intend to work professionally in the United States as speech-language pathologists or audiologists. It typically includes a substantial portion of the courses in the M.A. with professional emphasis and Au.D. curricula.

Students in the M.A. research emphasis program are required to complete a thesis and defend their research successfully at a final oral examination.

The program typically requires two years to complete. Specific course work required depends on the student's background and interests.

Master of Arts: Professional Emphasis

The Master of Arts program in speech pathology and audiology with professional emphasis in speech-language pathology requires a minimum of 38 s.h. of graduate credit, although students typically earn 60-65 s.h. of credit by the time they complete the degree. The program prepares clinicians in speech-language pathology to be able to function independently in a variety of clinical settings. Graduates of the program meet all academic and practicum requirements for clinical certification by the American Speech-Language-Hearing Association and for licensure by the State of Iowa. The program is designed to ensure that upon graduation, the student will meet requirements for immediate professional employment.

M.A. students usually have a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior that is equivalent to an undergraduate major in speech and hearing science at The University of Iowa.

Before registering in the program, entering M.A. students receive descriptive materials about basic science core courses considered to be required preparation for the M.A. program, and required M.A. clinical core courses for which the department may accept comparable courses taken at

the undergraduate level. Decisions about incorporating background course work in these areas are made by the faculty advisor in consultation with the student and the instructors of the basic science or clinical core courses. Entering students must have completed the following courses or their equivalents.

All of these:

CSD:2110 (003:110) Phonetics: Theory and Applications	3 s.h.
CSD:2111 (003:111) Basic Acoustics for Speech and Hearing	3 s.h.
CSD:3112 (003:112) Anatomy and Physiology of Speech Production	4 s.h.
CSD:3113 (003:113) Introduction to Hearing Science	4 s.h.
CSD:3116 (003:116) Basic Neuroscience for Speech and Hearing	3 s.h.
CSD:3117 (003:117) Psychology of Language	3 s.h.
CSD:3118 (003:118) Language Acquisition	1-3 s.h.
CSD:3185 (003:185) Hearing Loss and Audiometry	3 s.h.
PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
Biology, physics, chemistry, or mathematics courses (must include at least one biology, physics, or chemistry course)	6 s.h.
Behavioral science or social science courses (must include at least one psychology course)	6 s.h.

Students pursuing the M.A. with professional emphasis must complete at least 4 s.h. of work related to research. This may be accomplished by any combination of enrollment in seminars (2 s.h. each) and/or research hours. Completion of the research hours may consist of work toward a thesis or preparation of a paper involving one or a combination of the following: literature review, prospectus development, and presentation of data. A paper is required at the end of each semester's enrollment. An exception to this requirement can be made in the case of research hours leading to a thesis.

Candidates for an M.A. with professional emphasis in speech-language pathology are not required to complete a thesis, although all students demonstrating research aptitude and interest are encouraged to do so. Students who do not elect the thesis option are required to take final written comprehensive examinations.

A typical M.A. professional emphasis program usually takes two calendar years to complete but may take longer, depending on the student's background and personal interests.

CORE REQUIREMENTS

All students seeking an M.A. with professional emphasis in speech-language pathology must take the following.

CSD:5135 (003:135) Foundations of Clinical Practice I	1-3 s.h.
CSD:5136 (003:136) Foundations of Clinical Practice II	1 s.h.
CSD:5137 (003:137) Foundations of Clinical Practice III	1 s.h.

In addition, they must take the following courses unless they completed equivalent courses as undergraduates.

CSD:2140 (003:140) Manual Communication	1 s.h.
CSD:3116 (003:116) Basic Neuroscience for Speech and Hearing	3 s.h.
CSD:3185 (003:185) Hearing Loss and Audiometry	3 s.h.
CSD:4114 (003:114) Introduction to Voice Disorders	2 s.h.
CSD:4115 (003:115) Structural Disorders	2 s.h.
CSD:4145 (003:145) Developmental Speech and Language Disorders	3 s.h.
CSD:4146 (003:146) Neurogenic Disorders of Language	3 s.h.
CSD:4147 (003:147) Neurogenic Disorders of Speech	2 s.h.
CSD:4183 (003:183) Introduction to Stuttering	2 s.h.
CSD:4244 (003:244) Rehabilitative Audiology	3 s.h.

Students must take CSD:5510 (003:510) Seminar: Introduction to Research in Speech and Hearing (0-1 s.h.) during the fall semester of their first year.

They must take CSD:6515 (003:515) Proseminar (0 s.h.) during the fall and spring semesters of their first year.

Also required are additional semester hours of practicum registration sufficient to meet supervised, direct clinical experience requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association and the Iowa license, and to provide broad, supervised practicum experience.

In addition to the core requirements listed above, all students preparing to be speech-language pathologists must earn a minimum of 12 s.h. from the following.

CSD:5201 (003:201) Principles of Voice Production	3 s.h.
CSD:5206 (003:206) Language Disorders: Birth to Five Years	3 s.h.
CSD:5222 (003:222) Speech and Hearing Anatomy (dissection)	2 s.h.
CSD:5233 (003:233) Aphasia	2 s.h.
CSD:5236 (003:236) Swallowing Disorders	2 s.h.
CSD:5237 (003:237) Cleft Palate and Related Disorders	2 s.h.
CSD:5260 (003:260) Designing Assistive Devices	1-3 s.h.
CSD:5282 (003:282) Phonological Development and Disorders	2 s.h.
CSD:5283 (003:283) Stuttering	2 s.h.
CSD:5350 (003:350) Preceptorship in Augmentative Communication	1 s.h.
CSD:6213 (003:213) Voice Habilitation	2 s.h.
EDTL:5104 (07E:104) Remedial Methods in Speech and Hearing	2 s.h.

Students also must earn a total of 4 s.h. in CSD:7590 (003:590) Research or 4 s.h. in a combination of research and seminar courses.

M.A. with Professional Licensure

M.A. with Licensure to Work Outside Public Schools

A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons

who work in settings outside the public schools. Students who meet the requirements listed above for the M.A. in speech pathology and audiology with professional emphasis also meet the academic requirements for the license in Iowa as well as in most other states. In 2007 the requirements to earn American Speech-Language-Hearing Association national certification in audiology changed. Certification now requires a clinical doctoral degree (Doctor of Audiology) or the equivalent. Students preparing for careers in audiology should consult their advisors.

M.A. with Public School Licensure

Students preparing for clinical positions in public schools typically must meet school licensure or certification requirements of the states in which they plan to work. The following criteria meet the requirements for endorsement as speech-language pathologists or audiologists in Iowa and most other states:

- a master's degree with professional emphasis in speech-language pathology or audiology or the equivalent;

- completion of an approved human relations component;

- completion of courses that cover the education of the disabled and the gifted and talented (e.g., exceptional persons, education of the gifted); and

- completion of the requirements in speech-language pathology or audiology and the 20 s.h. professional education sequence, including ECTL:5104 (07E:104) Remedial Methods in Speech and Hearing and ECTL:4192 (07E:192) Special Area Student Teaching as a speech-language pathologist or audiologist.

The professional education sequence requires course work in the following areas.

Curriculum (e.g., reading, methods, curriculum development)

Foundations (e.g., philosophy of education, foundations of education)

Educational measurement (e.g., tests and measurements, measures and evaluations of instruction)

Educational psychology (e.g., educational psychology, counseling theories and techniques)

Special education (e.g., introduction to special education, exceptional persons, learning disabilities)

Child development (e.g., human growth and development, principles and theories of child development, history and theories of early childhood education)

Note: General Education Program courses (e.g., introduction to psychology, sociology, history, literature, and humanities) do not meet the requirements of the professional education sequence.

Doctor of Audiology

The Doctor of Audiology (Au.D.) requires 95 s.h. of graduate credit. Individuals who wish to work as audiologists in the United States must hold a clinical doctoral degree or the equivalent.

The four-year Au.D. program is designed for students with an undergraduate degree in speech and hearing science.

Au.D. students must complete the following courses. They may be excused from taking courses whose equivalents they completed successfully during undergraduate study.

All of these:

CSD:4145 (003:145) Developmental Speech and Language Disorders	3 s.h.
CSD:4244 (003:244) Rehabilitative Audiology	3 s.h.
CSD:5135 (003:135) Foundations of Clinical Practice I	1-3 s.h.
CSD:5219 (003:219) Fundamentals of Laboratory Instrumentation	3 s.h.
CSD:5224 (003:224) System and Signal Theory for Speech and Hearing Science	3 s.h.
CSD:5240 (003:240) Hearing Aids I	3 s.h.
CSD:5246 (003:246) Advanced Audiology	3 s.h.
CSD:5255 (003:255) Educational Audiology	2 s.h.
CSD:5256 (003:256) Anatomy and Physiology of Hearing	3-4 s.h.
CSD:5311 (003:311) Clinical Practice in Audiology	2-3 s.h.
CSD:6230 (003:230) Advanced Hearing Science	2 s.h.
CSD:6242 (003:242) Hearing Aids II	3 s.h.
CSD:6245 (003:245) Pediatric Audiology	3 s.h.
CSD:6247 (003:247) Medical Audiology	2 s.h.
CSD:6249 (003:249) Cochlear Implants	1-3 s.h.
CSD:6290 (003:290) Auditory Evoked Potentials	3 s.h.
CSD:6291 (003:291) Vestibular Assessment and Rehabilitation	3 s.h.
CSD:6292 (003:292) Advanced Rehabilitative Audiology	1 s.h.
CSD:6317 (003:317) Audiology Business Practice Management	1 s.h.
CSD:6318 (003:318) Hearing Loss Prevention	2 s.h.
CSD:6519 (003:519) Seminar: Evidence-Based Practice	2 s.h.
CSD:7238 (003:238) Capstone Requirement	1 s.h.
MATH:1460 (22M:016) Calculus for the Biological Sciences (or one semester of calculus)	4 s.h.

One of these:

BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.

Students may select any of the following electives. With their advisors' consent, they may substitute other University of Iowa course work.

CSD:5222 (003:222) Speech and Hearing Anatomy	2 s.h.
CSD:6538 (003:538) Seminar: Hearing Science	2 s.h.
ASL:3200 (158:101) Topics in Deaf Studies	3 s.h.
ASLE:3905 (158:110) Teaching Deaf and Hard of Hearing Students	3 s.h.
ETDL:5104 (07E:104) Remedial Methods in Speech and Hearing	2 s.h.
NSCI:7180 (132:180) Neurobiology	4 s.h.

OTO:8199 (068:199) Basic Otolaryngologic Science 2 s.h.

Doctor of Philosophy

The Doctor of Philosophy program in speech and hearing science requires a minimum of 72 s.h. of graduate credit. The program provides flexible, comprehensive training for scholar-researchers interested in communication processes and their disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The Ph.D. program reflects the broad interests of its multidisciplinary faculty, whose members have diverse backgrounds in speech, language, hearing, engineering, physiology, physics, psychology, linguistics, and bioengineering. Faculty members are committed to an interdisciplinary approach to questions at every level of the speech and language production/perception system.

The purpose of the doctoral program is to provide the integrated knowledge necessary for a productive career in speech-language pathology and audiology, communication science, and related areas.

The department encourages candidates with special interests, goals, or backgrounds to develop individualized programs of study. There is no standard curriculum for the Ph.D.; rather, a program of study is developed by each student in consultation with a faculty committee. The course of study is developed from courses offered by the department, courses in other areas (e.g., physics, engineering, psychology, mathematics, statistics, physiology, neurology, anatomy, and others), and special reading and research experiences.

The following courses are offered by the department of Communication Sciences and Disorders primarily for Ph.D. students. (Students interested in specific areas of research and selected publication citations of the faculty are encouraged to write to the department.)

CSD:5201 (003:201) Principles of Voice Production	3 s.h.
CSD:5219 (003:219) Fundamentals of Laboratory Instrumentation	3 s.h.
CSD:5224 (003:224) System and Signal Theory for Speech and Hearing Science	3 s.h.
CSD:5256 (003:256) Anatomy and Physiology of Hearing	3-4 s.h.
CSD:5310 (003:310) Scientific Writing	3 s.h.
CSD:5511 (003:511) Introduction to Doctoral Research (taken spring of the first year)	1 s.h.
CSD:6230 (003:230) Advanced Hearing Science	2 s.h.

In addition, seminars offered by the department cover a broad range of topics relevant to doctoral study.

Students in the Ph.D. program usually are expected to register for research credit [CSD:7590 (003:590) Research] during each semester of residence and to register for and participate in CSD:6515 (003:515) Proseminar.

Knowledge in each of the areas of hearing, speech, language, mathematics, statistics, computer science, and instrumentation is required of all students. Decisions regarding the extent of this knowledge and how it is obtained (e.g., course work or independent study) are

made jointly by the student and the student's faculty committee.

Doctoral students who have not written a master's thesis must complete the equivalent of a master's thesis project as well as the comprehensive examination. They also must successfully complete and submit a dissertation based on original research.

Joint Au.D./Ph.D.

The Department of Communication Sciences and Disorders and the Graduate College offer the joint Doctor of Audiology/Doctor of Philosophy in speech and hearing science. The joint Au.D./Ph.D. program is especially appropriate for students who would like to practice audiology and hold a faculty position at a university. The program requires 137 s.h., permitting students to count 30 s.h. of the 95 s.h. required for the Au.D. degree toward the 72 s.h. required for the Ph.D. degree. Students complete all of the course work required for the Au.D.; the course of study for the Ph.D. is developed by each student in consultation with a faculty committee (see "Doctor of Philosophy" above). Consult the department to learn more about the joint degree program.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Each of the department's graduate programs requires that applicants take the Graduate Record Examination (GRE) General Test before they apply for admission.

Admission to the M.A. and Au.D. programs is competitive; applicants' credentials are considered in relation to those of others in the applicant pool, and a limited number of individuals are admitted to each program. Applicants whose undergraduate g.p.a. is below 3.00 or whose GRE General Test scores are lower than 450 in any area (verbal, quantitative, and analytic) rarely are admitted to either program. Admission is for fall; the application deadline is January 1. All applications to the M.A. and Au.D. programs must be submitted through CSDCAS (Central Application Service for Communication Science and Disorders).

Admission to the Ph.D. program is based on each individual's aptitudes and interests in research areas rather than on admitting a certain number of students. Applicants should be enrolled in a master's degree program or should have completed a master's degree or equivalent graduate work. They should have a g.p.a. of at least 3.00 and should have GRE General Test scores no lower than 500 in any area (verbal, quantitative, and analytic). For best consideration, applications should be received by January 1. All applications to the Ph.D. program must be submitted through the University of Iowa Biosciences Centralized Application System.

For detailed information regarding evaluation of applicants, applications materials and requirements, and other matters, see Graduate Program on the department's web site.

Financial Support

The following information applies to all financial appointments administered by the department. For more detailed information, contact the Department

of Communication Sciences and Disorders director of graduate studies.

Graduate appointments usually begin only in fall semester. Students beginning study spring semester or summer session are considered for appointments for the following fall semester.

Appointment applications must be received by January 15 to ensure consideration for an appointment beginning the following fall semester. Initial appointment offers generally are made between April 1 and June 1; however, the department continues to make offers after this time.

Scores on the Graduate Record Examination (GRE) General Test are required for consideration for financial assistance.

Facilities

Clinical Facilities

The clinical training program benefits greatly from Iowa City's standing as the most comprehensive health sciences center in Iowa and from the ready availability of health service facilities for clinical training of students in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the Wendell Johnson Speech and Hearing Clinic; the division of speech and hearing in the University of Iowa Hospitals and Clinics (UIHC) Department of Otolaryngology—Head and Neck Surgery; UIHC Consolidated Speech and Swallowing Services, which provides services to the Departments of Neurology, Child Psychiatry, and Otolaryngology—Head and Neck Surgery; speech and hearing services in the Center for Disabilities and Development; Pediatrics Regional Child Health Specialty Clinics; and the audiology and speech pathology service in the Iowa City Veterans Affairs Medical Center. Directors of these programs form the Council on Speech Pathology and Audiology at The University of Iowa.

The Wendell Johnson Speech and Hearing Clinic serves the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs for speech, hearing, and language problems; one-week intensive summer programs in stuttering, language development, reading, and aural rehabilitation; and a six-week summer preschool program for hearing-impaired children. These clinical programs give students supervised clinical experience with a wide variety of speech, hearing, and language disorders.

In addition to the clinical training in the Wendell Johnson Speech and Hearing Clinic, training also may be acquired in supervised clinical practice with elementary school children through various state area education agencies; and in supervised clinical practice in speech, language, and hearing services provided by the University of Iowa Hospitals and Clinics Consolidated Speech and Swallowing Services, the Regional Child Health Specialty Clinics, Center for Disabilities and Development, and the Veterans Affairs Iowa City Health Care System.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities

Facilities in the Wendell Johnson Speech and Hearing Center include audiometric testing suites, diagnostic and

remediation suites, equipment for diagnosis and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, physiologic, and perceptual studies of speech, and for audiologic, psychoacoustic, and neurophysiologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation with departments in the Carver College of Medicine, the Department of Psychology (College of Liberal Arts and Sciences), and the University of Iowa DELTA Center makes additional laboratory facilities available for research on problems in speech and hearing. The participation and cooperation of specialists from varied fields, including psychology, child development, education, engineering, statistics, and medicine, further broaden the scope of research activities in speech and hearing.

Courses

Lower-Level Undergraduate

CSD:1000 (003:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

CSD:1015 (003:015) Introduction to Speech and Hearing Processes and Disorders 2 s.h.

Introduction to communication sciences and disorders field; clinical and research works; wide range of readings; survey course with less emphasis on specific disorders.

CSD:1096 (003:096) Research Practicum arr.

Individual or small group participation in faculty research projects.

CSD:1800 (003:085) Basic Aspects of Aging 3 s.h.

Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. GE: Social Sciences. Same as LEIS:1800 (169:085), ASP:1800 (153:085), NURS:1800 (096:085), SSW:1800 (042:085).

CSD:2110 (003:110) Phonetics: Theory and Applications 3 s.h.

Basic concepts: articulatory and acoustic description of speech sound production, dialect variations, language differences; development of phonetic transcription skills with emphasis on English phonetics, clinical applications to developing and disordered speech. Offered fall semesters.

CSD:2111 (003:111) Basic Acoustics for Speech and Hearing 3 s.h.

Principles of sound, simple harmonic motion, sound pressure and intensity, decibels, complex waves, Fourier analysis, resonance and filters, distortion, transmission of sound. Requirements: completion of department math requirement.

CSD:2140 (003:140) Manual Communication 1 s.h.

Training in use of sign systems in manual communication.

Upper-Level Undergraduate and Graduate

- CSD:3097 (003:097) Honors Seminar** 2 s.h.
Research topics and procedures in speech and hearing sciences; ongoing faculty research, research opportunities, possible research projects. Requirements: honors standing with intent to complete an honors thesis.
- CSD:3101 (003:101) Mechanisms and Management of Hearing Loss** 3 s.h.
Basics of hearing intervention (e.g., hearing aids, cochlear implants, assistive devices) particularly important to classroom teachers at a level appropriate for that group; meets requirements for endorsement for teaching hearing impaired.
- CSD:3112 (003:112) Anatomy and Physiology of Speech Production** 4 s.h.
Normal anatomy, physiology of structures used to produce speech; principles, methods for instrumental study of speech production. Offered spring semesters. Prerequisites: CSD:2110 (003:110).
- CSD:3113 (003:113) Introduction to Hearing Science** 4 s.h.
Normal auditory process; anatomy and physiology of auditory system; subjective correlates of auditory stimuli. Offered fall semesters. Prerequisites: CSD:2111 (003:111).
- CSD:3116 (003:116) Basic Neuroscience for Speech and Hearing** 3 s.h.
Basic anatomy, physiology of central nervous system; emphasis on neural systems involved in normal and disordered communication. Offered fall semesters. Requirements: biology, zoology, or physiology course. Same as LING:3116 (103:177).
- CSD:3117 (003:117) Psychology of Language** 3 s.h.
Theoretical, empirical investigations of linguistic behavior; behaviorist, rationalist models in context of formal linguistic structure and context of models of speech perception and production. Offered spring semesters. Prerequisites: LING:3001 (103:100). GE: Social Sciences. Same as LING:3117 (103:172).
- CSD:3118 (003:118) Language Acquisition** 1-3 s.h.
Models of children's language acquisition; child language/communication development from infancy through school age, in context of current developmental research. Offered spring semesters. Requirements: for CSD:3118 (003:118) — LING:3001 (103:100) and PSY:1001 (031:001); for LING:3118 (103:176) — LING:3001 (103:100) or LING:3117 (103:172). GE: Social Sciences. Same as LING:3118 (103:176).
- CSD:3122 (003:122) Speech Production: Anatomy and Physiology** 4 s.h.
Anatomy and physiology of the respiratory, phonatory, and articulatory systems and the systems' roles during speech production; approaches to instrumental assessment of speech physiologic events.
- CSD:3126 (003:126) Neuroscience for Communication Science** 3 s.h.
Basic anatomy, physiology of central nervous system, emphasis on neural systems involved in normal and disordered communication.
- CSD:3127 (003:127) Introduction to Psycholinguistics** 3 s.h.
Theoretical and empirical investigations of linguistic behavior in the context of formal linguistic structure, models of speech perception and production; readings of text and research papers; audio-visual demonstrations of classical speech perception and production phenomena.
- CSD:3185 (003:185) Hearing Loss and Audiometry** 3 s.h.
Introduction to profession of audiology; overview of hearing disorders, evaluation, treatment; basic pure-tone and speech audiometry. Offered fall semesters. Prerequisites: CSD:3113 (003:113).
- CSD:3187 (003:187) Early Literacy Instruction for Young Children** 3 s.h.
Service-learning involving lecture, class discussion, and student participation in an early literacy program for preschoolers; concepts and skills necessary to conduct story time groups with young children that target development of print knowledge; application of learning by reading to small groups of preschool children. Corequisites: PSQF:4106 (07P:106) or PSY:2401 (031:014).
- CSD:4098 (003:098) Honors Thesis** 2 s.h.
Close work with a faculty mentor. Prerequisites: CSD:3097 (003:097).
- CSD:4114 (003:114) Introduction to Voice Disorders** 2 s.h.
Basic foundations for management of voice disorders. Offered spring semesters. Prerequisites: CSD:3112 (003:112).
- CSD:4115 (003:115) Structural Disorders** 2 s.h.
Therapy approaches used to treat speech production and swallowing disorders associated with disorders that affect structure and physiology of the speech and swallowing mechanism; basic knowledge necessary for clinical practice by clinicians who do not specialize in management of patients with head and neck cancer, cleft palate, or neurological disorders. Offered fall semesters. Prerequisites: CSD:2110 (003:110) and CSD:3112 (003:112).
- CSD:4120 (003:120) Clinical Observations in Communication Disorders** 2 s.h.
Diagnosis and treatment of a wide range of speech, language, or hearing disorders in a variety of settings; basic understanding of the evaluation process, goal setting, behavior management, pacing of therapy, shaping of behavior, tracking performance/learning, and professional and ethical behavior through observation of clinical interactions; completion of 25 hours of observation as required by the American Speech-Language-Hearing Association for obtaining national certification. Recommendations: senior or graduate standing in communication sciences and disorders.
- CSD:4145 (003:145) Developmental Speech and Language Disorders** 3 s.h.

Nature of developmental disorders; basic concepts including behavioral characteristics, developmental patterns, etiology theories; assessment and intervention principles in phonology, semantics, morphology, syntax. Offered fall semesters. Prerequisites: CSD:1015 (003:015), CSD:2110 (003:110) or LING:3005 (103:110), CSD:3112 (003:112), and CSD:3118 (003:118).

CSD:4146 (003:146) Neurogenic Disorders of Language 3 s.h.

Overview of communication disorders secondary to acquired brain damage in adults; focus on aphasia, communication disorders arising from dementia, right-hemisphere stroke, traumatic brain injuries; general principles of diagnosis and intervention. Offered fall semesters. Prerequisites: CSD:1015 (003:015), CSD:2110 (003:110) or LING:3005 (103:110), CSD:3112 (003:112), and CSD:3116 (003:116).

CSD:4147 (003:147) Neurogenic Disorders of Speech 2 s.h.

Speech disorders secondary to acquired brain damage in adults; clinical intervention issues. Offered spring semesters. Prerequisites: CSD:3116 (003:116).

CSD:4148 (003:148) Developmental Speech Disorders 3 s.h.

Review of typical phonological development in children; introduction to assessment and intervention practices for articulation and phonological disorders in children; may include apraxia, cerebral palsy, and cleft palate. Prerequisites: CSD:2110 (003:110) and CSD:3118 (003:118).

CSD:4165 (003:165) Communication Disorders and Aging 2 s.h.

Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communication and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech-language pathologists and audiologists. Offered spring semesters of even years. Same as ASP:4165 (153:165).

CSD:4183 (003:183) Introduction to Stuttering 2 s.h.

Theoretical perspectives on the nature of stuttering, including onset and development, basic phenomena, beginning treatment principles. Offered spring semesters. Prerequisites: CSD:3112 (003:112).

CSD:4186 (003:186) Problems: Speech/Hearing Processes and Disorders arr.

CSD:4244 (003:244) Rehabilitative Audiology 3 s.h.

Theory, procedures for assessment, rehabilitation of speech, hearing, language deficits of people with hearing impairment. Offered spring semesters. Prerequisites: CSD:3185 (003:185) and CSD:4145 (003:145).

Graduate

CSD:5135 (003:135) Foundations of Clinical Practice I 1-3 s.h.

Basic concepts of clinical practice, including models of diagnosis, fundamentals of clinical data collection and measurement, treatment planning, professional writing. Offered fall semesters. Prerequisites: CSD:1015 (003:015), CSD:2110 (003:110) or LING:3005 (103:110), CSD:3112 (003:112), CSD:3118 (003:118), and PSQF:1020 (07P:025). Corequisites: CSD:4145 (003:145).

CSD:5136 (003:136) Foundations of Clinical Practice II 1 s.h.

Advanced concepts of clinical practice, including principles of human behavior change, clinical decision making, generalization, transfer and maintenance, models of service delivery, ethical practice, advanced professional writing. Offered spring semesters. Prerequisites: CSD:5135 (003:135).

CSD:5137 (003:137) Foundations of Clinical Practice III 1 s.h.

Advanced principles of clinical practice, including risk management, public policy and models of third-party reimbursement, professional issues. Offered fall semesters. Prerequisites: CSD:5136 (003:136).

CSD:5201 (003:201) Principles of Voice Production 3 s.h.

Basic physical, physiological, pedagogical principles in understanding professional, nonprofessional, impaired voice production; vocal anatomy, voice classification; control of loudness, pitch, register, quality; efficient, inefficient use of voice; instrumentation for voice analysis, synthesis. Offered fall semesters of odd years. Same as MUS:5520 (025:201).

CSD:5203 (003:203) Counseling in Communication Disorders 1 s.h.

Collection and integration of case history information from clients/patients, family, caregivers, teachers, relevant others, other professionals; development of appropriate intervention plans that meet client/patient needs in collaboration with client/patient and relevant others; communicating effectively and recognizing needs, values, preferred mode of communication, and cultural linguistic background of client/patient, family, caregivers, relevant others; providing counseling to clients/patients, family, and caregivers regarding communication and swallowing disorders. Prerequisites: CSD:5135 (003:135).

CSD:5206 (003:206) Language Disorders: Birth to Five Years 3 s.h.

Disorders resulting from phonological, semantic, pragmatic, and morphosyntactic deficits; receptive, expressive problems; special assessment and intervention procedures. Offered fall semesters of even years. Prerequisites: CSD:4145 (003:145).

CSD:5219 (003:219) Fundamentals of Laboratory Instrumentation 3 s.h.

Electrical circuits, emphasis on application to instrumentation used in speech and hearing; laboratory focus on instrumentation. Offered spring semesters.

CSD:5222 (003:222) Speech and Hearing Anatomy 2 s.h.

Laboratory course in anatomy of speech and hearing mechanisms; instruction in dissection techniques. Offered summer sessions. Prerequisites: CSD:3112 (003:112).

CSD:5224 (003:224) System and Signal Theory for Speech and Hearing Science 3 s.h.

Principles of linear-systems theory applied to speech and auditory research, including system functions, filter properties, convolution, Fourier Series, Fourier transform. Offered fall semesters. Requirements: introductory calculus.

CSD:5233 (003:233) Aphasia 2 s.h.

Assessment, diagnosis, and treatment of aphasia and other acquired language and cognition-based communication disorders. Offered spring semesters. Prerequisites: CSD:3117 (003:117) and CSD:4146 (003:146). Corequisites: CSD:5136 (003:136).

CSD:5234 (003:234) Acquired Cognitive-Communication Disorders arr.

Cognitive, neuropsychological, and social aspects of communication and the management of acquired cognitive-communication disorders associated with traumatic brain injury, right hemisphere damage, and neurodegenerative diseases. Prerequisites: CSD:3116 (003:116) and CSD:4146 (003:146).

CSD:5236 (003:236) Swallowing Disorders 2 s.h.

Physiology of normal, abnormal swallowing; assessment, treatment of swallowing disorders in adults, children. Offered fall semesters. Prerequisites: CSD:3112 (003:112), CSD:4115 (003:115), and CSD:3116 (003:116).

CSD:5237 (003:237) Cleft Palate and Related Disorders 2 s.h.

Nature, etiologies, principles of treatment of common disorders associated with cleft lip and palate, associated disorders. Offered spring semesters. Prerequisites: CSD:4115 (003:115).

CSD:5240 (003:240) Hearing Aids I 3 s.h.

Hearing aids, diagnostic procedures; laboratory emphasis on measurement procedures. Offered spring semesters. Prerequisites: CSD:3185 (003:185).

CSD:5246 (003:246) Advanced Audiology 3 s.h.

Theory, procedures for assessment of hearing loss in adult and pediatric populations; experience in test administration through supervised laboratory sessions. Offered fall semesters. Prerequisites: CSD:3185 (003:185).

CSD:5253 (003:253) Speech Perception in Listeners with Hearing Loss 1-2 s.h.

Introduction to study of speech perception in listeners with normal hearing and those with hearing loss; overview of speech acoustics; theories of speech perception; contributions of auditory, visual, and indexical (talker-specific) information in speech signal; assessment techniques; benefits of hearing aid and/or cochlear implant use; factors influencing speech perception by children and adults with hearing loss.

CSD:5255 (003:255) Educational Audiology 2 s.h.

Training in skills necessary for working with the school-age population; case management and aural rehabilitation, amplification and classroom hearing technology, identification and assessment practices, federal legislation that affects services. Offered fall semesters. Prerequisites: CSD:3185 (003:185) and CSD:4244 (003:244). Requirements: CSD:5240 (003:240) for Au.D. students.

CSD:5256 (003:256) Anatomy and Physiology of Hearing 3-4 s.h.

Anatomy of auditory system, cochlear mechanics, electrophysiology of peripheral and central auditory nervous system; laboratory emphasis on physiological techniques for study of ear. Offered spring semesters. Prerequisites: CSD:3113 (003:113) and CSD:5224 (003:224).

CSD:5260 (003:260) Designing Assistive Devices 1-3 s.h.

System design (hardware and software) useful in building augmentative and alternative communication devices for the profoundly impaired; opportunity to build systems for theoretical and/or applied purpose; interdisciplinary, clinical perspectives. Offered summer sessions.

CSD:5282 (003:282) Phonological Development and Disorders 2 s.h.

Advanced topics in phonological development and disorders; current theoretical approaches to phonological analysis and typical phonological acquisition applied to assessment and intervention with children who have phonological disorders. Offered spring semesters. Prerequisites: CSD:2110 (003:110) or LING:3005 (103:110), CSD:3118 (003:118), CSD:4145 (003:145), and CSD:5135 (003:135).

CSD:5283 (003:283) Stuttering 2 s.h.

Issues, approaches to treatment of children, adults. Offered fall semesters. Prerequisites: CSD:4183 (003:183). Corequisites: CSD:5135 (003:135).

CSD:5301 (003:301) Practicum: Speech-Language Pathology arr.

Supervised clinical practice. Corequisites: CSD:5135 (003:135). Requirements: M.A. professional emphasis.

CSD:5303 (003:303) Evidence Based/ Emerging Practices in Communication/ Social Interaction for Individuals with Autism 1 s.h.

Evidence-based practices and emerging practices for promoting communication and social interaction skills in individuals with autism spectrum disorders; emphasis on intervention strategies specific to receptive and expressive language development, functional communication, social interaction, emotional regulation, play, structured learning environments, and opportunities.

CSD:5304 (003:304) Speech Pathology Outplacement: School 0-4 s.h.

Supervised teaching and observation in speech-language pathology in an elementary school setting.

CSD:5305 (003:305) Speech Pathology Outplacement: Non-School 0-4 s.h.

Supervised clinical work and observation in speech-language pathology in a non-school setting.

CSD:5310 (003:310) Scientific Writing 3 s.h.
Principles of writing for scientific posters, journal articles, grant proposals; effective communication of concepts and data.

CSD:5311 (003:311) Clinical Practice in Audiology arr.

Varied topics relevant to professional issues in audiology clinical practice; presentations by clinical faculty members and guest speakers. Requirements: M.A. professional emphasis or Au.D. enrollment.

CSD:5314 (003:314) Audiology Student Teaching arr.

Supervised teaching and observation in an area of audiology in the elementary schools.

CSD:5315 (003:315) Clinical Rotations in Audiology arr.

Supervised clinical practice in audiology. Corequisites: CSD:5311 (003:311). Requirements: Au.D. second- or third-year enrollment.

CSD:5350 (003:350) Preceptorship in Augmentative Communication 1 s.h.

Approaches to development of alternate modes of communication for individuals with limited oral communication. Offered fall semesters.

CSD:5510 (003:510) Seminar: Introduction to Research in Speech and Hearing 0-1 s.h.

Philosophy of science; basic principles of research; issues in conducting research; review of research opportunities in the department. Offered fall semesters.

CSD:5511 (003:511) Introduction to Doctoral Research 1 s.h.

Topics related to development and execution of research; doctoral program, use of library, human and animal subject issues, philosophy of science, use of common research tools, reading and writing research papers, research grant preparation. Offered fall and spring semesters.

CSD:6101 (003:273) Cognitive Science of Language Proseminar I 3 s.h.

Survey of five major disciplines within language sciences: formal linguistic, communication disorders, psychological, neuroscience, and computational approaches. Requirements: graduate standing in communication sciences and disorders, linguistics, psychology, or neuroscience. Same as PSY:6101 (031:273), LING:6101 (103:273).

CSD:6102 (003:274) Cognitive Science of Language Proseminar II 3 s.h.

Survey of five major disciplines within language sciences: formal linguistic, communication disorders, psychological, neuroscience, and computational approaches. Requirements: graduate standing in communication sciences and disorders, linguistics, psychology, or neuroscience. Same as PSY:6102 (031:274), LING:6102 (103:274).

CSD:6202 (003:202) Methods of Teaching Voice 3 s.h.

Attitude, musicianship, foreign language aptitude, physical and emotional characteristics; mental images used to modify respiratory, phonatory, articulatory behavior; vocal hygiene; performance anxiety; student-teacher relationships; administration in vocal schools, professional organizations. Offered spring semesters. Same as MUS:6520 (025:202).

CSD:6204 (003:204) Voice for Performers 2 s.h.

Comparison of Kinesthetic techniques for singing and acting voice; relaxation, posture, breathing, tone quality, diction, interpretation. Same as MUS:6525 (025:216), THTR:6525 (049:201).

CSD:6213 (003:213) Voice Habilitation 2-3 s.h.

Application of methods of intervention in development, training, rehabilitation of vocal behavior; motor learning, efficacy of treatment strategies, factors affecting compliance with recommended therapy. Offered fall semesters. Prerequisites: CSD:4114 (003:114) or CSD:5201 (003:201). Same as MUS:6555 (025:356).

CSD:6221 (003:221) Instrumentation for Voice Analysis 2 s.h.

Glottographic, videostroboscopic, electromyographic, and acoustic analysis for assessment of vocal and respiratory function; using these techniques in conjunction with perceptual evaluation of voice; through the Vocology Institute in Utah. Offered summer sessions of even years. Requirements: enrollment in Summer Vocology Institute, Salt Lake City, Utah. Same as MUS:6556 (025:357).

CSD:6230 (003:230) Advanced Hearing Science 2 s.h.

Basic properties of auditory perception or psychoacoustics from material covered in CSD:5256 (003:256); perception of loudness, masking frequency selectivity, temporal processing, and spatial perception; basic perceptual properties, methods of measurement, and physiological basis for performance; properties of perception in normal ears, hearing impairment, and auditory prostheses (e.g., cochlear implants). Prerequisites: CSD:3113 (003:113) and CSD:5256 (003:256).

CSD:6231 (003:232) Speech Perception in Listeners with Hearing Loss 2 s.h.

Introduction to study of speech perception in listeners with normal hearing and those with hearing loss; overview of speech acoustics; theories of speech perception; contributions of auditory, visual, and indexical (talker-specific) information in speech signal; assessment techniques; benefits of hearing aid and/or cochlear implant use; factors influencing speech perception by children and adults with hearing loss. Prerequisites: CSD:6230 (003:230).

CSD:6242 (003:242) Hearing Aids II 3 s.h.

Evaluation, verification procedures; emphasis on advanced technologies, strategies. Offered fall semesters. Prerequisites: CSD:5240 (003:240).

- CSD:6245 (003:245) Pediatric Audiology** 3 s.h.
Theory, procedures for assessment, rehabilitation of pediatric populations; laboratory emphasis on test administration. Offered spring semesters. Prerequisites: CSD:3185 (003:185).
- CSD:6247 (003:247) Medical Audiology** 2 s.h.
Genetic, acquired, traumatic pathologies that affect auditory systems; nature, etiology, principles of assessment, treatment. Offered spring semesters of odd years. Prerequisites: CSD:3185 (003:185).
- CSD:6249 (003:249) Cochlear Implants** 1-3 s.h.
Introduction to cochlear implantation; history of cochlear implantation, introduction to cochlear technology, basics of device programming and trouble shooting, candidacy issues, outcomes in children and adults, auditory rehabilitation specific to cochlear recipients, the auditory brainstem implant, future trends in cochlear implantation. Offered spring semesters. Prerequisites: CSD:3185 (003:185) and CSD:4244 (003:244).
- CSD:6290 (003:290) Auditory Evoked Potentials** 3 s.h.
Introduction to evoked potentials for assessing audiologic function. Offered spring semesters. Prerequisites: CSD:5219 (003:219).
- CSD:6291 (003:291) Vestibular Assessment and Rehabilitation** 1-3 s.h.
Introduction to otoacoustic emissions, vestibular theory, and testing techniques. Offered fall semesters.
- CSD:6292 (003:292) Advanced Rehabilitative Audiology** 1 s.h.
Current and developing procedures for assessment, habilitation of adults and children with hearing losses. Offered spring semesters.
- CSD:6316 (003:316) Advanced Externship in Audiology** arr.
Advanced clinical externship in audiology. Prerequisites: CSD:5311 (003:311) and CSD:5315 (003:315). Requirements: Au.D. fourth-year enrollment.
- CSD:6317 (003:317) Audiology Business Practice Management** 1 s.h.
Introduction to the development and management of an audiology practice; topics include short and long range business planning, general accounting, budgeting, establishing fees for service, coding and third party reimbursement, marketing, professional liability, certification and licensure; business and professional ethics. Requirements: Au.D. second-year or higher enrollment and 3.00 cumulative g.p.a.
- CSD:6318 (003:318) Hearing Loss Prevention** 2 s.h.
Incidence and prevalence of hearing loss; risk factors and assessment; noise exposure guidelines; hearing protection devices; education and motivation. Prerequisites: CSD:5219 (003:219).
- CSD:6515 (003:515) Proseminar** 0 s.h.
Presentation of research ideas, results by faculty, students.
- CSD:6519 (003:519) Seminar: Evidence-Based Practice** 2 s.h.
Introduction to design and conduct of research and evidence-based clinical practice, observation and measurement, population sampling, group and single-subject research designs, treatment research, data organization and analysis, and presenting research results in graphic and written form; issues concerning research ethics and the protection of human subjects in research. Recommendations: clinical graduate standing in audiology or speech-language pathology.
- CSD:6520 (003:520) Seminar: M.A. Language** 2 s.h.
Research literature related to language. Offered spring semesters of odd years.
- CSD:6522 (003:522) Clinical Speech Physiology** 2 s.h.
Current approaches to the study of speech physiology and application in clinical practice; focus on providing hands-on experiences with common instrumental approaches to studying speech physiology, developing an appreciation of the factors and limitations that must be considered in applying and interpreting the findings of these approaches clinically, and developing abilities to critically evaluate the literature in this area.
- CSD:6524 (003:524) International Service in Communication Disorders** 0-2 s.h.
International service in communication and related disorders; foundational knowledge and project-based learning; cultural diversity, international speech-language pathology and audiology practices, disability and poverty, advocacy for individuals with communication and related disorders, staff-caregiver-parent training; required course for students who applied and are accepted for international service projects through the Department of Communication Sciences and Disorders.
- CSD:6538 (003:538) Seminar: Hearing Science** 2 s.h.
Selected topics. Offered fall semesters of even years.
- CSD:7238 (003:238) Capstone Requirement** 1 s.h.
Individual work with a faculty member on audiology topics; final Au.D. project. Offered spring semesters.
- CSD:7528 (003:528) Seminar: Ph.D. Language** 2 s.h.
Theoretical issues related to language. Offered spring semesters.
- CSD:7590 (003:590) Research** arr.

Communication Studies

Chair

- Walid A. Afifi

Professors

- Tamara Afifi, Walid A. Afifi, Leslie Baxter, Steve Duck (Daniel and Amy Starch Distinguished Research Chair; Communication Studies/Psychology/Rhetoric), Kembreu McLeod, Kristine L. Muñoz, John Durham Peters (A. Craig Baird Professor)

Associate professors

- Jeff Bennett, Shelly Campo (Communication Studies/Community and Behavioral Health), Timothy Havens (Communication Studies/African American Studies), Joy Hayes, David Hingstman

Assistant professors

- Natalie Fixmer-Oraiz, Andrew High, Jiyeon Kang, Rachel McLaren, Jenna Supp-Montgomerie (Religious Studies/Communication Studies), Darrel Wanzer-Serrano, Isaac West, Rita Zajacz

Lecturer

- Mary High

Adjunct assistant professors

- Paul Bellus, Matthew Cohen

Adjunct lecturer

- Elizabeth Pearce

Professors emeriti

- David Depew, Robert Kemp

Associate professor emeritus

- George Klingler

Undergraduate major: communication studies (B.A.)

Undergraduate minor: communication studies

Graduate degrees: M.A. in communication studies; Ph.D. in communication studies

Web site: <http://clas.uiowa.edu/commstudies/>

The Department of Communication Studies focuses on the study of human communication as a social practice. Scholarship and teaching in the department center on the role that human communication processes play in the construction, maintenance, reinforcement, and reformation of various aspects of social, professional, and institutional life.

The department provides a liberal-arts-based undergraduate education that prepares students to meet the complex communication challenges of the 21st century. It provides top-ranked doctoral education and is a national and international leader in research and knowledge dissemination.

The department has three areas of specialization. The rhetoric and discourse specialization focuses on how citizens use public argumentation and other rhetorical processes to bring about cultural, social, and political changes. The media studies specialization focuses on modern media in their cultural, economic, historical, political, and social contexts to understand how society and social relations shape and are shaped

by media practices. The interpersonal communication and relationships specialization focuses on how the communicative practices of relating in everyday life construct, shape, sustain, and change who people are as individuals, as well as the quality of their lives.

The Department of Communication Studies encourages exploration of the practical, political, social, and aesthetic dimensions of symbolic exchange and awareness of the relationships among these dimensions. The department has produced many influential scholars and artists and has been a hub for the intersection of programs and projects of the University and other institutions.

Undergraduate Programs of Study

- Major in communication studies (Bachelor of Arts)
- Minor in communication studies

First-year students interested in completing a major in communication studies are advised at the Academic Advising Center. Students who have earned 24 s.h. or more and have declared the communication studies major are advised in the department by the communication studies academic advisor.

Bachelor of Arts

The Bachelor of Arts with a major in communication studies requires a minimum of 120 s.h., including 36 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). A cumulative g.p.a. of at least 2.30 is required for enrollment in most communication studies courses.

The curriculum is designed to encourage learning that progresses from foundation courses that teach the basics of communication to intermediate and advanced (capstone) courses. Students may choose to build creative combinations of course work that suit their individual learning and career goals.

Students may count up to 56 s.h. of Department of Communication Studies course work (prefix COMM) toward credit required for the Bachelor of Arts degree. Guided Independent Study and transfer courses may be applied toward the requirements of the major, with the department's approval. A maximum of 15 s.h. of transfer credit may be counted toward the major.

Students work with the communication studies academic advisor to develop study plans that meet the requirements of the major. Students may check their progress toward the degree on ISIS.

Students are encouraged to discuss their career goals and interests with faculty members.

The 36 s.h. required for the communications studies major consists of foundation courses (15 s.h.), intermediate courses (12 s.h.), a capstone course (3 s.h.), and an additional 6 s.h., which may be earned in courses listed under "Intermediate Courses," "Capstone Experience," and/or "Additional Courses," below. Students may not use a course to satisfy more than one requirement of the major.

FOUNDATIONS OF COMMUNICATION

Foundation courses cover introductory concepts in the field of communication. Students must complete five foundation courses (15 s.h.) and should take them early in their studies.

The following foundation courses are appropriate for first-year students. They do not require a minimum grade-point average for enrollment and do not have prerequisites, except COMM:1117 (036:017), which requires fulfillment of the General Education Program's Rhetoric requirement for enrollment. Students complete the first three foundation courses as follows.

One of these:

COMM:1112 (036:012) Interpersonal Communication	3 s.h.
COMM:1170 (036:070) Communication Theory in Everyday Life	3 s.h.

One of these:

COMM:1117 (036:017) Theory and Practice of Argument	4 s.h.
COMM:1130 (036:030) The Art of Persuading Others	3 s.h.

And one of these:

COMM:1168 (036:068) Media, Music, and Culture	3 s.h.
COMM:1174 (036:074) Media and Society	3 s.h.

The fourth and fifth foundation courses are appropriate for second-year students. Enrollment in these courses requires completion of 30 s.h. and a g.p.a. of at least 2.30 for University of Iowa and transfer course work.

Both of these:

COMM:1301 (036:001) Core Concepts in Communication Studies	3 s.h.
COMM:1305 (036:005) Studying Communication: Methods and Critiques	3 s.h.

INTERMEDIATE COURSES

Intermediate courses (those numbered 2000-2799) cover detailed aspects of the study of communication. Students must complete four intermediate courses (12 s.h.), usually during their third and fourth years of study. They must have completed four of five foundation courses listed above and must have a cumulative g.p.a. of at least 2.30 in order to enroll in intermediate courses.

Intermediate course—at least four of these (12 s.h.):

COMM:2000 (036:062) Feminist Critical Practice	3 s.h.
COMM:2011 (036:011) Group Communication	3 s.h.
COMM:2040 (036:040) Communication and Conflict	3 s.h.
COMM:2041 (036:041) Gender Roles and Communication	3 s.h.
COMM:2042 (036:042) Intercultural Communication	3 s.h.
COMM:2043 (036:043) Rhetoric, Science, and Technology	3 s.h.
COMM:2044 (036:044) Political Communication	3 s.h.

COMM:2048 (036:048) Transforming Media: From Telegraph to Internet	3 s.h.
COMM:2051 (036:051) Politics of Popular Culture	3 s.h.
COMM:2053 (036:053) Secrets, Confidences, and Lies: Privacy Management in Interpersonal Relationships	3 s.h.
COMM:2054 (036:054) Movements, Protest, Resistance	3 s.h.
COMM:2057 (036:057) Introduction to Computer-Mediated Communication	3 s.h.
COMM:2058 (036:058) Rhetoric and Past Public Controversy	3 s.h.
COMM:2061 (036:061) Persuasion in Society	3 s.h.
COMM:2064 (036:064) Media, Advertising, and Society	3 s.h.
COMM:2065 (036:065) Television Criticism	3 s.h.
COMM:2069 (036:069) Black TV Drama: The Wire	3 s.h.
COMM:2071 (036:071) Communication and Critical/Cultural Studies	3 s.h.
COMM:2075 (036:075) Gender, Sexuality, and Media	3 s.h.
COMM:2076 (036:076) Race, Ethnicity, and Media	3 s.h.
COMM:2077 (036:077) Writing and Producing Television	3 s.h.
COMM:2079 (036:079) Digital Media and Religion	3 s.h.
COMM:2085 (036:085) Media Industries and Organizations	3 s.h.
COMM:2086 (036:086) Global Media Studies	3 s.h.
COMM:2087 (036:087) Copyright Controversies	3 s.h.
COMM:2088 (036:088) Media and Democracy	3 s.h.
COMM:2089 (036:089) Nonverbal Communication	3 s.h.
COMM:2090 (036:090) Topics in Communication Studies	3 s.h.
COMM:2091 (036:091) Organizational Communication	3 s.h.
COMM:2095 (036:095) Queer Rhetorics	3 s.h.

CAPSTONE EXPERIENCE

Capstone courses (those numbered 3000-4999) provide a faculty-led experience in which students participate directly in producing knowledge, research, or creative work about communication. The capstone experience gives students a chance to synthesize what they have learned about the study of communication. Students must complete one capstone course (3 s.h.).

In order to enroll in a capstone course, students must have completed at least two of the required intermediate courses and must have a cumulative g.p.a. of at least 2.30. Most students take the capstone course during their senior year.

Capstone course—one of these (3 s.h.):

COMM:3600 (036:146) Issues in Rhetoric and Culture	3 s.h.
COMM:4131 (036:131) Globalization and Culture	3 s.h.

COMM:4135 (036:135) Media, Culture, and Relationships	3 s.h.
COMM:4140 (036:140) Communication and Relationships	3 s.h.
COMM:4142 (036:142) Advanced Intercultural Communication	3 s.h.
COMM:4143 (036:143) Classical Rhetoric and Greek Culture	3 s.h.
COMM:4145 (036:145) Argument and Law	3 s.h.
COMM:4147 (036:147) Family Communication	3 s.h.
COMM:4150 (036:150) Cultural History of Advertising	3 s.h.
COMM:4151 (036:151) Cultural History of Television	3 s.h.
COMM:4152 (036:152) Latin American Media	3 s.h.
COMM:4153 (036:153) Communication Technologies in History	3 s.h.
COMM:4156 (036:156) Feminist Visual Rhetoric	3 s.h.
COMM:4157 (036:157) Advanced Topics in Communication Studies	3 s.h.
COMM:4160 (036:160) The Talk of Everyday Life	3 s.h.
COMM:4163 (036:163) The Dark Side of Interpersonal Communication	3 s.h.
COMM:4164 (036:164) Life Happens. Don't Worry About It: The Communication of Social Support	3 s.h.
COMM:4165 (036:165) Criticism and Public Culture	3 s.h.
COMM:4166 (036:166) Life-Span Communication	3 s.h.
COMM:4167 (036:167) Communication, Cognition, and Emotion	3 s.h.
COMM:4168 (036:168) Rhetoric of the Body	3 s.h.
COMM:4169 (036:169) Feminist Rhetorics	3 s.h.
COMM:4170 (036:170) Theories of Persuasion	3 s.h.
COMM:4172 (036:172) Television and African American Culture	3 s.h.
COMM:4173 (036:173) Social Media, Culture, and Politics	3 s.h.
COMM:4174 (036:174) Communication, Technology, and National Security	3 s.h.
COMM:4176 (036:176) Advanced Relational Theory	3 s.h.
COMM:4181 (036:181) Legal Communication and Culture	3 s.h.
COMM:4183 (036:183) Networking America: The Cultural History of Broadcasting	3 s.h.

ADDITIONAL COURSES

Students earn an additional 6 s.h. to complete the 36 s.h. in communication studies courses required for the major. They may choose from the courses listed below and/or from the lists of intermediate and capstone courses above. However, students may not use one course to fulfill more than one requirement for the major, so in selecting the additional 6 s.h. of course work, they may not choose a course they already used to fulfill the intermediate or capstone course requirement.

The following courses are open to all students; they do not have prerequisites or require a minimum grade-point average requirement for enrollment.

COMM:1814 (036:014) Elements of Debate	3 s.h.
COMM:1816 (036:016) Business and Professional Communication	3 s.h.
COMM:1818 (036:018) Leadership and Organizational Procedures	2 s.h.
COMM:1819 (036:019) Organizational Leadership	2-3 s.h.

The following courses have prerequisites, a minimum grade-point average, or other requirements for enrollment.

COMM:1002 (036:002) Workshop in Debate and Forensics	3 s.h.
COMM:2813 (036:013) Practicum in Debate	1 s.h.
COMM:2821 (036:021) Oral Interpretation	3 s.h.
COMM:2828 (036:028) Communication Studies Internship	1-3 s.h.
COMM:2896 (036:096) Workshop in Teaching Communication and Forensics	arr.
COMM:2897 (036:097) Independent Study	arr.
COMM:2898 (036:098) Honors Workshop	1 s.h.
COMM:2899 (036:099) Honors Thesis	3 s.h.

Internships

Internships enable students to supplement their course work with professional experiences relevant to careers in communication-related fields. The department's internship program is open only to communication studies majors.

To earn academic credit for internships, students must obtain approval for their internship experience and site before they register for COMM:2828 (036:028) Communication Studies Internship (arr.). Internship academic credit is awarded for an analytical paper and daily log submitted at the end of the internship and for the number of hours worked. Internships can be completed during fall semester, spring semester, or summer session.

Visit the department's web site for information on communication studies internships.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. Students who have signed the four-year graduation agreement should consult the department for details.

Before the fifth semester begins: at least two courses in the major

Before the seventh semester begins: at least six courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in communication studies have the opportunity to graduate with honors in the major. Students begin work toward graduation with honors by choosing a faculty member to supervise their honors project and act as their honors advisor. They must maintain a cumulative University of Iowa g.p.a. of at least 3.33 and must complete the following courses.

COMM:2898 (036:098) Honors Workshop	1 s.h.
COMM:2899 (036:099) Honors Thesis	3 s.h.

In special cases, an independent study course may be substituted for COMM:2898 (036:098), with the honors advisor's permission. The advisor may require additional course work. Honors students also may take courses offered through the University of Iowa Honors Program and may add an honors designation to a departmental course by completing an agreement with the course instructor.

Departmental honors students must be members of the University's honors program, which requires students to have a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University of Iowa Honors Program.

Learn more about graduating with honors in the major; visit Honors on the department's web site.

Minor

The minor in communication studies requires a minimum of 18 s.h. in communication studies courses, including 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. In addition, enrollment in some courses for the minor requires a cumulative g.p.a. of at least 2.30. Course work in the minor may not be taken pass/nonpass. The minor must include the five courses (15 s.h.) listed under "Foundations of Communication" above and one (3 s.h.) listed under "Intermediate Courses" above.

Forensics/Debate

Students in the forensics/debate program have the opportunity to participate in on-campus debates, in developmental programs designed to improve speech activities in the state, and as members of competitive intercollegiate debate teams. Forensics scholarships are available. Students interested in debate should enroll in COMM:2813 (036:013) Practicum in Debate or COMM:1814 (036:014) Elements of Debate.

Graduate Programs of Study

- Master of Arts in communication studies
- Doctor of Philosophy in communication studies

The Doctor of Philosophy program in communication studies includes specializations in interpersonal communication and relationships, media studies, and rhetoric and discourse.

Graduate education in communication studies focuses on the Ph.D., but doctoral students may choose to earn a Master of Arts on their way toward the Ph.D. A terminal master's degree may be an option for some students already admitted to the doctoral program.

Master of Arts

The Master of Arts program in communication studies requires a minimum of 30 s.h. of graduate credit. It may be granted to students working toward the Ph.D.; it also may be granted as a terminal degree for doctoral students who decide not to complete the Ph.D. All master's students take COMM:5200 (036:200) Introduction to Research and Teaching (1 s.h.) and at least two courses numbered 5000 or above. They also prepare a graduate seminar paper that involves significant original research.

Doctor of Philosophy

The Doctor of Philosophy program in communication studies requires a minimum of 82 s.h. of graduate credit, including dissertation credit. All students take COMM:5200 (036:200) Introduction to Research and Teaching and earn at least 10 s.h. of dissertation credit in COMM:6399 (036:399) Ph.D. Dissertation.

Ph.D. students must take a 3 s.h. course in each of the program's three areas of specialization; successfully complete a qualifying examination during their second or third semester and a comprehensive (predissertation) examination in their major research area during their fifth or sixth semester; and write a substantial scholarly dissertation. Students must maintain a cumulative g.p.a. of at least 3.00 throughout the graduate program.

Admission usually is for fall semester entry. Applicants whose materials are received at the department by January 1 receive preference for admission and financial support. Admission decisions are based on undergraduate achievement, letters of reference, Graduate Record Examination (GRE) General Test scores, the statement of purpose, and samples of scholarly work.

Interpersonal Communication and Relationships

The communication and relationships program is centered on theory complemented by strength in quantitative and qualitative research methods. It focuses on scholarly issues that arise from face-to-face, everyday communication practices. It emphasizes personal relationship and family processes, identity construction, persuasion, and culture.

The goal of the program is to produce scholars who possess sophisticated knowledge of theory and methodology, who are careful consumers of theories and methods, and who can develop their own approaches to communication phenomena. The program emphasizes systematic analysis of the forms, functions, and meanings of messages within various contexts. Its broad social-scientific orientation springs from the belief that many methodological approaches are appropriate to studying and building theoretical explanations of communication.

Graduate students typically enter the program to earn a Ph.D. Advisors and committee members work closely with individual students to select courses from communication studies and other University departments and plan teaching and research experiences that will prepare students well for the employment they seek after graduation.

Media Studies

The graduate program in media studies focuses on the interplay of institutions, texts, and audiences in mediated

communication systems. Its central aim is to examine modern media—radio, television, advertising, music, new media, and a wide range of other popular cultural expressions—within their historical, social, political, economic, and cultural contexts. It also uses the mass media as sites for asking basic questions about culture, society, politics, and modernity.

Like the department's other graduate programs, media studies has a strong interdisciplinary flavor. Students draw not only on allied areas in the Department of Communication Studies but on fields across the University.

Rhetoric and Public Advocacy

The program in rhetoric and public advocacy is built on foundation courses in classical and 20th-century rhetorical theory and in an overview of 20th-century rhetorical criticism. Courses from a rhetorical perspective include rhetorical theory, rhetorical criticism, visual rhetoric and politics, public address and public culture, studies in argumentation and freedom of speech, work in science and technology as well as academic inquiry, and historical methods. Cognate work of interest to rhetoricians also can be found in interpersonal communication and relationship studies as well as media studies.

The Ph.D. in rhetoric and public advocacy is designed to give students a mature grasp of the specialties and perspectives embraced by the field and to develop research competence essential to a life of productive scholarship.

Work in related disciplines—political science, history, sociology, English, cinematic arts, anthropology, American studies, and journalism—complements rhetorical studies course offerings. Faculty from the Departments of Rhetoric, Political Science, and American Studies cross-reference their courses on rhetorical topics in this program.

Admission

Applicants to graduate programs in communication studies must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Facilities

The Samuel L. Becker Communication Studies Building is designed to meet the department's research and technological needs.

Courses

Courses numbered below 5000 are intended primarily for undergraduates; those numbered 5000 and above are for graduate students. Graduate students may take courses numbered 3000-4999 for credit, with their committee's approval.

Not all courses are offered each semester.

Lower-Level Undergraduate

To register for most undergraduate communication studies courses, students must have earned 30 s.h. and have a cumulative g.p.a. of at least 2.50. However, registration for the following General Education courses is open to all undergraduates, regardless of their grade-point average.

COMM:1117 (036:017) Theory and Practice of Argument 4 s.h.

COMM:1170 (036:070) Communication Theory in Everyday Life 3 s.h.

COMM:1174 (036:074) Media and Society 3 s.h.

Registration in COMM:1000 (036:029) First-Year Seminar is open to first- and second-semester students regardless of grade-point average.

COMM:1000 (036:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

COMM:1002 (036:002) Workshop in Debate and Forensics 3 s.h.

Public argument on questions of value and policy; opportunities for demonstration and practice in discussion and debate. Requirements: concurrent enrollment in the National Summer Institute in Forensics.

COMM:1112 (036:012) Interpersonal Communication 3 s.h.

Introduction to face-to-face communication in social and personal relationships; maximizing communicative effectiveness in relationships with knowledge about how communication functions; analysis of one's own and others' communication practices and experiences.

COMM:1117 (036:017) Theory and Practice of Argument 4 s.h.

Public arguments as practiced in law, politics, science, and other public arenas; improvement of skills in researching, constructing, organizing, and presenting arguments on disputed subjects; analyzing and refuting arguments of others; developing a better understanding of how scholars apply tools of formal and informal logic in a variety of disciplines to improve quality of academic argument. Requirements: completion of General Education Program rhetoric component. GE: Quantitative or Formal Reasoning.

COMM:1130 (036:030) The Art of Persuading Others 3 s.h.

Basic theoretical concepts of effective public communication; employ knowledge of concepts in analyzing texts; definition and influence of rhetorical situation, different elements of persuasion (message logic, appeal to feelings, character of speaker), ability of speakers to invent arguments; issues of judgment, public discourse, identity, and agency.

COMM:1168 (036:068) Media, Music, and Culture 3 s.h.

What makes popular music important for people; music's power to change culture; production, distribution, reception of popular music in cultural and historical contexts.

COMM:1170 (036:070) Communication Theory in Everyday Life 3 s.h.

General overview of everyday life communication, theories and research techniques used to understand it; sheer depth and complexity of processes in communication that occur in everyday lives and which appear to be trivial; how to observe conversations and identify what is really happening in them; ways in which scholars explain everyday communication and how it works; applications of theoretical thinking to explain processes of everyday communication. GE: Social Sciences.

COMM:1174 (036:074) Media and Society 3 s.h.

Processes and effects of mass communication; how mass media operate in the United States; how mass communication scholars develop knowledge. GE: Social Sciences; Values, Society, and Diversity.

COMM:1301 (036:001) Core Concepts in Communication Studies 3 s.h.

Introduction to communication topics; face-to-face interaction, public speaking, globally-distributed film, music, and television; ways of thinking, vocabulary, and overview of concepts used in other communication studies courses. Requirements: g.p.a. of at least 2.30 and 30 s.h. of credit.

COMM:1305 (036:005) Studying Communication: Methods and Critiques 3 s.h.

Social scientific methods used to generate knowledge about communication processes; basic tools necessary to conduct and evaluate communication research; epistemological perspectives, research procedures, and data analysis; readings and hands-on activities. Requirements: g.p.a. of at least 2.30 and 30 s.h. of credit.

COMM:1809 (036:009) Social Marketing Campaigns 3 s.h.

Introduction to theory, development, and practice of social marketing campaigns; public service announcements, political action to change smoking laws, community-led initiatives to increase availability of local foods; communication-centric format including research in public health, nursing, marketing, and other fields; group work to identify issues of local concern and develop a theoretically justified and practically realistic social marketing campaign with potential to positively impact communities.

COMM:1814 (036:014) Elements of Debate 3 s.h.

Debates that occur everyday in a wide variety of situations and settings; how to recognize when a debate is occurring and different procedures by which people conduct debates; emphasis on development of personal advocacy skills and how one goes about teaching those same skills to others by example and practice; examination of role of debate in achieving collective economic and political purposes in contemporary societies.

COMM:1816 (036:016) Business and Professional Communication 3 s.h.

Introduction to business and professional communication at individual and corporate levels; individual-level topics cover organizational communication, business vocabulary, speaking and writing, professionalism and interviewing; corporate-level topics focus on marketing, advertising, public relations, corporate communications, crisis communication management, business and communication plans, proposals; guest speakers from for-profit and not-for-profit organizations.

COMM:1818 (036:018) Leadership and Organizational Procedures 2 s.h.

Use of organizational procedures to facilitate discussion, from by-laws to full parliamentary procedure; how knowledge of effective organizational procedures enhances ability to participate in meetings and organizational business to run more smoothly; benefit to instructors of speech communication with inclusion of parliamentary procedure/debate units. Offered only through Guided Independent Study.

COMM:1819 (036:019) Organizational Leadership 2-3 s.h.

Introduction to nature of leadership, styles of leadership that are most effective, and ways in which obstacles may be overcome in groups or organizations; different approaches to qualities of leadership, role of visions and motivation, interpersonal and decision-making skills, meeting preparation and evaluation, and related communication skills. Offered only through Guided Independent Study.

COMM:2000 (036:062) Feminist Critical Practice 3 s.h.

Feminist approaches to communicative practices. Prerequisites: COMM:1301 (036:001), COMM:1305 (036:005), COMM:1112 (036:012) or COMM:1170 (036:070), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four or five Foundations of Communication courses.

COMM:2011 (036:011) Group Communication 3 s.h.

Study of relevant theory, research, and application to increase understanding of communication in small groups; critical thinking and communication skills; individual roles in groups, creativity, leadership, decision making, problem solving, and conflict resolution. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2040 (036:040) Communication and Conflict 3 s.h.

Conflict and its management as critical issues that pervade people's personal and professional lives; complexities of conflict; forces that make conflict challenging; skills for thinking about and managing conflict more effectively; central features that define conflict; behaviors, attributions, and emotions that are manifest during conflict; formal models of conflict management and their corresponding recommendations for handling conflict. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2041 (036:041) Gender Roles and Communication 3 s.h.

Interactive relationships between gender and communication in contemporary U.S. society; multiple ways families, schools, and media perpetuate, negotiate, and contest gender roles; how we are part of those processes by looking at how we enact socially-created gender differences in public and private settings. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as GWSS:2041 (131:041).

COMM:2042 (036:042) Intercultural Communication 3 s.h.

Culture defined as a system of taken-for-granted assumptions about the world that influence how people think and act; cultural differences that produce challenges and opportunities for understanding and communication; those differences from several theoretical perspectives; opportunities to examine culture and cultural differences in practical, experience-driven ways. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as SSW:2042 (042:042), IS:2042 (187:042).

COMM:2043 (036:043) Rhetoric, Science, and Technology 3 s.h.

How science and technology shape culture; media representations of technology; role of rhetoric in science and technology, especially in the physical and biological sciences; cultural implications of the information revolution. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2044 (036:044) Political Communication 3 s.h.

Relationship between media, cultural politics, and the American political system; focus on advertising, campaigns, and new media outlets; ways politicians, the press, and intermediaries create and disseminate messages into mainstream culture; how people generate their own discourses of political identity and dissent, creating a robust democratic practice that is both empowering and central to the contemporary political landscape. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2048 (036:048) Transforming Media: From Telegraph to Internet 3 s.h.

Communication media as global phenomena in which U.S. corporate and government interests play a major part; from electronic telegraph to broadcasting and cable, an investigation of historical contexts in which these media emerged; tracing ways in which they have been shaped by political, economic, and social relations of power. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2051 (036:051) Politics of Popular Culture 3 s.h.

How culture is political and how politics is cultural; overview of theories of culture and critical-cultural approaches to study of popular culture, past and present; specific topics of analysis vary, may include television, celebrity culture, music, film, games, and sports. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2053 (036:053) Secrets, Confidences, and Lies: Privacy Management in Interpersonal Relationships 3 s.h.

How individuals manage private information with regard to their interpersonal relationships; multiple theories of privacy management; how aspects of information, individual, and target of disclosure all contribute to decisions to reveal or conceal private information to friends and family. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2054 (036:054) Movements, Protest, Resistance 3 s.h.

Historical and contemporary study of social movements from a symbolic perspective (e.g., speeches, protests, propaganda, media events); social movements as interpersonal and group communication; relationships between media and social change: efficacy of individual and larger-scale forms of resistance. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2057 (036:057) Introduction to Computer-Mediated Communication 3 s.h.

Theoretical and practical introduction to concepts and research in computer-mediated communication; emphasis on study of social effects of communication and information technology; factors that distinguish mediated from face-to-face interaction, theories of mediated communication, self-presentation online; Internet-based relationships, online supportive communication, online communities; how the Internet influences communication and how to use computer-mediated communication for self-presentation. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2058 (036:058) Rhetoric and Past Public Controversy 3 s.h.

Role of rhetoric in public controversy in particular historical time periods; focus on various perspectives, diverse voices, and multiple arguments informing particular movements/issues. Requirements: for COMM:2079 (036:079) — communication studies major, g.p.a. of at least 2.30, and completion of four Foundation of Communication courses chosen from COMM:1112 (036:012) or COMM:1170 (036:070), COMM:1117 (036:017) or COMM:1130 (036:030), COMM:1168 (036:068) or COMM:1174 (036:074), COMM:1301 (036:001), and COMM:1305 (036:005). Same as RHET:2410 (010:099).

COMM:2061 (036:061) Persuasion in Society 3 s.h.

Introduction to concepts, theories, and methods designed to build critical understanding of mass persuasion processes; persuasion theory and research; theories that account for processes of social acculturation, maintenance, and change; specific mass persuasion processes (i.e., advertising, corporate advocacy or public relations, film and television programming, sociopolitical rituals, and social protest and change). Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2064 (036:064) Media, Advertising, and Society 3 s.h.

Introduction to the critical study of advertising in the United States; advertising contextualized as an industry and as a key part of media and culture; advertising as an institution and as a series of symbols, ideas, and fantasies; how advertising works, role and function of advertising in culture and society. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2065 (036:065) Television Criticism 3 s.h.

Introduction to scholarly study of television as a social institution; nature of television form and content; role of industry in creation, selection, and presentation of television programs; production conventions and textual conventions in defining the medium; application of genre and narrative theory, semiotics, political economy of media industries, and audience reception study. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2069 (036:069) Black TV Drama: The Wire 3 s.h.

Social and political impact of television dramas featuring people of African descent in the West; HBO's *The Wire* series—a social commentary, commercial, and aesthetic force—has pioneered new ways of thinking about the relationship between media and society at large while revolutionizing ways in which black urban life is portrayed in today's world; focus on complex intersections between urban poverty, education, and political system, crime, mediation in Western society. Same as AFAM:2070 (129:070).

COMM:2071 (036:071) Communication and Critical/Cultural Studies 3 s.h.

Engagement of cutting-edge rhetorical and social theories; ways in which rhetorical and social theories play out in daily life, especially in decision-making activities; weekly readings, class discussions. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2075 (036:075) Gender, Sexuality, and Media 3 s.h.

Mediated representations of gender and sexuality (television, film, and internet) to understand how these complex and complicated codes influence meaning of sex, sexuality, and gender; contemporary and historical examples used to engage texts that illuminate cultural conceptions of femininity, masculinity, heterosexuality, and homosexuality; cases that confuse and trouble the stability of these categories. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as GWSS:2075 (131:065).

COMM:2076 (036:076) Race, Ethnicity, and Media 3 s.h.

Introduction to debates about media portrayals of race and ethnicity; focus primarily on entertainment media; use of general analytic perspectives (stereotype analysis, aesthetic analysis, history) applied to real-world examples; address one or more racial/ethnic groups in the United States. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as AFAM:2076 (129:076).

COMM:2077 (036:077) Writing and Producing Television 3 s.h.

Introduction to basics of scripting and producing a conventional, three-camera television series; hands-on experience with production equipment and workshoping television scripts; students create one or more episodes of an original television series. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2079 (036:079) Digital Media and Religion 3 s.h.

Influences of digital media on religion and spirituality today. Requirements: for COMM:2079 (036:079) — communication studies major, g.p.a. of at least 2.30, and completion of four Foundation of Communication courses chosen from COMM:1301 (036:001), COMM:1305 (036:005), COMM:1112 (036:012) or COMM:1170 (036:070), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Same as RELS:2930 (032:093).

COMM:2085 (036:085) Media Industries and Organizations 3 s.h.

Trends in media industries as reflected in changes of ownership, different work conditions, media convergence, and globalization generally; focus on local, network, and cable television; examination of industry structures, business practices, economic fundamentals, and theoretical explanations of media industries in society. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2086 (036:086) Global Media Studies 3 s.h.

Key developments in contemporary international communication; impact of deregulation and privatization on ownership and control of global communication infrastructure; spread of American television abroad in terms of production, texts, and reception; cultural concerns surrounding the phenomenon. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2087 (036:087) Copyright Controversies 3 s.h.

How digital technologies have dramatically changed media and popular culture landscapes; advent of relatively cheap editing programs that allow anyone to collage media on their home computers and enable people to become cultural producers; technologies that allow more people to break law in the eyes of copyright industries; historical look at collage practices from pre-digital era to present; ethical and legal questions surrounding use and reuse of copyrighted materials; notion of free speech in a media age. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2088 (036:088) Media and Democracy 3 s.h.

Exploration of relationship between democracy and mass communication; why controversies regarding mass communication are also controversies about democracy; logical relationship between democracy and mass media; roots and history of ideas of democracy, contemporary obstacles to realization of these ideas, and varied issues of present; latest developments in world of politics and media. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2089 (036:089) Nonverbal Communication 3 s.h.

Introduction to theoretical study of nonverbal communication; focus on major principles and research trends; examination of role of nonverbal communication in communication as a whole; perception and interpretation of nonverbal communication (i.e., posture, eye movements, tone of voice); nonverbal behaviors (i.e., facial expression, eye movement) as used to persuade, impress, or deceive someone. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2090 (036:090) Topics in Communication Studies 3 s.h.

Topics vary. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2091 (036:091) Organizational Communication 3 s.h.

Theories and concepts of organizational communication; focus on issues of good communication at a number of levels—people within organization must be able to work with one another and communicate in effective ways; people, and especially leaders, need to be able to persuade one another effectively; organizations must be able to persuade outsiders, whether persuading them to buy organization's products, or in more complex circumstances, persuade outside world to accept apologies or statements of regret when the company does something wrong. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses.

COMM:2095 (036:095) Queer Rhetorics 3 s.h.

Overview of queer theory and its application to different communicative situations including television, film, and everyday life; development of critical thinking skills in relation to cultural constructions of gender, sexuality, race, and other identity categories. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as GWSS:2095 (131:095).

COMM:2813 (036:013) Practicum in Debate 1 s.h.

Practice of skills in research, reasoning, argument development, and argumentative performance in debate undertaken by members of the A. Craig Baird Debate Forum in preparation for and participation in intercollegiate debate competition. Requirements: participation in A. Craig Baird Debate Forum.

COMM:2821 (036:021) Oral Interpretation 3 s.h.

Weekly performances to develop and define communication skills for professional careers in teaching and business; poetry, prose, monologue, storytelling, duo interpretation, reader's theatre, and demonstration speeches. Requirements: for COMM:2821 (036:021) — g.p.a. of at least 2.30 and minimum 30 s.h. of credit. Same as EDTL:2821 (07E:021).

COMM:2828 (036:028) Communication Studies Internship 1-3 s.h.

Communication skills, knowledge in work assignments related to students' academic and career interests; full- or part-time, on or off campus. Requirements: g.p.a. of at least 2.30, communication studies major, and minimum of 12 s.h. of communication studies course work.

COMM:2896 (036:096) Workshop in Teaching Communication and Forensics arr.

Methods, materials, progression, evaluation in teaching and supervising students in courses and class activities; opportunities for observation, demonstration, practice in teaching theater, discussion and debate, individual speech, dramatic and forensic events. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:2897 (036:097) Independent Study arr.

Creative or research project under faculty supervision. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:2898 (036:098) Honors Workshop 1 s.h.

Preparation for honors thesis prospectus; coordination of student's individual thesis work, introduction to issues in research design, methods. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 3.33, honors standing, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:2899 (036:099) Honors Thesis 3 s.h.

Individual research, writing, or creative production under faculty supervision. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074), and COMM:2898 (036:098). Requirements: g.p.a. of at least 3.33, honors standing, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

Upper-Level Undergraduate and Graduate

COMM:3600 (036:146) Issues in Rhetoric and Culture 3 s.h.

Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Requirements: for COMM:3600 (036:146) — communication studies major, g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as RHET:3600 (010:160).

COMM:3834 (036:129) Arab Spring in Context: Media, Religion, and Geopolitics 3 s.h.

Protest movements that started in Tunisia in 2011 and swept across North Africa and the Middle East transforming Arab and Islamic societies in radically different ways; function of social media, satellite television, communication technology; influence of religious leaders and groups on some protest outcomes; impact of wealth and geopolitics on social fabric of Islamic societies within and outside Arab countries. Requirements: for COMM:3834 (036:129) — g.p.a. of at least 2.50, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as RELS:3834 (032:134), IS:3834 (187:126), WLLC:3834 (218:165), JMC:3146 (019:146).

COMM:4131 (036:131) Globalization and Culture 3 s.h.

How context for everyday experience has increasingly become globally determined (e.g., ever-increasing transnational migration of people, spread of American culture, growth of international corporations and trade, rise of international conflict and transnational activism); range of theoretical and critical readings on globalization; various phenomena and perspectives regarding topic; themes directly relevant to lives of modern youth; how globalization affects opportunities and risks, identities and relationships. Requirements: for COMM:4131 (036:131) — COMM:1301 (036:001), COMM:1305 (036:005), COMM:1112 (036:012) or COMM:1170 (036:070), COMM:1117 (036:017) or COMM:1130 (036:030), COMM:1168 (036:068) or COMM:1174 (036:074), g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as IS:4131 (187:132).

COMM:4135 (036:135) Media, Culture, and Relationships 3 s.h.

Intersections of interpersonal communication and media; often studied as separate phenomena, approached as integrated systems, and integration as a central issue of our times; application of theories of interpersonal communication, media, and culture to a project that identifies a communication problem involving interpersonal and media issues, and proposes a solution to a potential client or audience; students draw on skills central to communication studies major (critical thinking, identifying and solving problems, effective oral and written communication). Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:4140 (036:140) Communication and Relationships 3 s.h.

Communication process in personal relationships; how communication functions to initiate, sustain, and dissolve a variety of relationships including friendships, romantic couples, marital pairs, and family relationships. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:4142 (036:142) Advanced Intercultural Communication 3 s.h.

Defining culture as a historically-transmitted, socially-constructed system of meaning enacted in face-to-face interaction and mass media; focus on a specific topic within intercultural communication research and theory (i.e., cultural nature of personal relationships, built environment as culture, intersection of private with public cultural meaning); in-depth follow-up of general approach to intercultural communication covered in lower-level courses. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:4143 (036:143) Classical Rhetoric and Greek Culture 3 s.h.

Origins and development of the art of rhetoric from Sophists to Aristotle; significance to Greek culture from fifth to fourth century B.C. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

- COMM:4145 (036:145) Argument and Law** 3 s.h.
Practices of argumentation that have special legal significance; court practices in legal argumentation (constructing legal arguments and briefs, trial and appellate oral advocacy); structure of argumentation that creates categories and limits of freedom of expression. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4147 (036:147) Family Communication** 3 s.h.
Family relationships and various ways they develop and change, how they affect those who participate in them; theory and research on family communication; family conceived as a group of persons who share their lives over an extended period of time bound by ties of marriage, blood, or commitment. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4150 (036:150) Cultural History of Advertising** 3 s.h.
Cultural, historical, and critical approach to creating, maintaining, repairing, and transforming a consumption culture in the United States; material and ideological character of life in the United States as it evolved from a culture of production in Gilded Age (late 19th century) to a culture of consumption through first half of 20th century, culminating in a collective fantasy of the American Dream as articulated and celebrated in 1950s; emergence of corporate capitalism and its crucial ideological voice, national brand advertising. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4151 (036:151) Cultural History of Television** 3 s.h.
Cultural history of television in the United States; focus on rise of network television, relationship between networks and advertisers, imagery surrounding introduction of television into the home, and larger historical context; postwar era (1950s) and rise of genres that are still with us, especially sitcom (situation comedy); questions about desire, gender, family, nation, and the body. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4152 (036:152) Latin American Media** 3 s.h.
Development of media institutions, texts, and audiences across a number of Latin American countries; focus on broadcast media (radio and television) and situates them within larger historical context of 20th- and 21st-century Latin America; readings, discussions, and assignments with particular attention to influence of U.S. corporate and state interests on Latin American media; debates over cultural dependency, globalization, and hybridity in region. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4153 (036:153) Communication Technologies in History** 3 s.h.
How media has altered culture, society, and human consciousness throughout history with focus on last two centuries (or modernity); how communication has been shaped by a variety of media (i.e., gesture, language, writing, printing, calendars, clocks, photography, telegraph, telephone, phonograph, film, radio, television, computers); 21st-century questions concerning technology and how few communicate today without aid of some kind of machine or technique. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4156 (036:156) Feminist Visual Rhetoric** 3 s.h.
Exploration of connections among feminist rhetoric, visual rhetoric, and visual culture; critical analysis of scholarship on visual rhetoric; feminist theoretical and conceptual frameworks about the body; fields of visual culture and visual rhetoric; critiques of several feminist body artists' artworks as a means to concretize theories. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4157 (036:157) Advanced Topics in Communication Studies** 3 s.h.
Issues or problems in particular communication contexts. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4160 (036:160) The Talk of Everyday Life** 3 s.h.

In-depth study of various genres of talk that organize everyday communicative life; mundane interaction rituals (i.e., as small talk, gossip, face-saving talk, compliance-gaining, asking for and giving advice and support, and telling stories); formalized interaction rituals (i.e., rites of passage); functions of talk in constructing identities, building relationships, and sustaining social order more generally across all genres. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:4163 (036:163) The Dark Side of Interpersonal Communication 3 s.h.

Review of advanced communication theories and research; focus on dark side of interpersonal communication and close relationships; negative or difficult elements of developing and maintaining relationships; expression of difficult emotions; mundane communication that can function in destructive or negative ways. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:4164 (036:164) Life Happens. Don't Worry About It: The Communication of Social Support 3 s.h.

Advanced look at communication of social support as a research tradition in interpersonal communication scholarship; in-depth overview of theories, concepts, types, processes, and mechanisms that constitute different forms of comforting behaviors; emphasis on factors that change people's abilities, motivations, or perceptions of success during experiences of social support; Internet influences on social support by online support groups, Internet-based intervention programs, how process of communicating comfort is altered by conveying these messages online. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:4165 (036:165) Criticism and Public Culture 3 s.h.

How people formulate attitudes, beliefs, and values about an array of arenas in public culture; critical perspectives (i.e., feminism, Marxism, psychoanalysis, queer theory); sporting rituals, television programs, political speeches, museums, sacred cultural documents; practice of critical reading to engage various cultural texts (i.e., films, national memorials, social movement rhetoric). Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30,

completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:4166 (036:166) Life-Span Communication 3 s.h.

How communication processes (i.e., social support, language skills, interpersonal relationship management) change across the course of one's existence; normative and unexpected demographic and health events mapped out across a life span; how our communication processes influence and are influenced by social experiences; underlying premise of life-span perspective that our potential for human growth extends throughout our life course. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:4167 (036:167) Communication, Cognition, and Emotion 3 s.h.

Understanding how communication, cognition, and emotion are tied together; different theories of emotion and types of emotions (i.e., love, anger, jealousy, happiness, embarrassment, hurt). Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

COMM:4168 (036:168) Rhetoric of the Body 3 s.h.

Survey of a range of theories about the body and application to specific case studies; implications of how bodies are endowed with and convey meaning; theories of pollution, pain, ability, and normativity; diverse case studies that are seemingly disparate, but all preoccupy themselves with public conceptions of bodily meaning (i.e., beauty pageants, freak shows, plastic surgery, the wannabe movement, tattoos, the FDR Presidential Memorial, Deaf culture, fat bodies, illness, and torture). Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

- COMM:4169 (036:169) Feminist Rhetorics** 3 s.h.
Exploration of multiple, varied, and complex histories of U.S. feminisms from rhetorical perspectives; focus on primary documents, the letters, speeches, essays, and manifesto/as that shaped women's movements and inspire social change from late 18th century to present; social, political, and personal issues that feminists sought to address and transform, communicative and rhetorical methods utilized, and implications of these efforts for women's lives and broader U.S. American culture. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as GWSS:4169 (131:176).
- COMM:4170 (036:170) Theories of Persuasion** 3 s.h.
Theoretical examination of historical, psychological, social, and cultural perspectives on persuasion; analysis of persuasive attempts; questions of cultural persuadables and current problems in U.S. American culture (i.e., obesity, drunk driving, date rape). Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4172 (036:172) Television and African American Culture** 3 s.h.
Role of television in African American culture; examination of debates, stereotyping, authenticity, effects of programming, aesthetics, and television's relationship to other forms of cultural expression. Prerequisites: for communication studies majors or for those in COMM:4172 (036:172) — COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: for COMM:4172 (036:172) — g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as AFAM:4001 (129:195).
- COMM:4173 (036:173) Social Media, Culture, and Politics** 3 s.h.
Introduction to theoretical issues raised by social media for communication; particular emphasis on cultural and political implications; how social media is understood, forms of digital communication, individual and collective identity formations via social media, online communities, and intersection of social media and existing culture and politics. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001) or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4174 (036:174) Communication, Technology, and National Security** 3 s.h.
Relationship between communication technologies and national security via three main themes—use of communications infrastructure in previous and future wars for the purpose of securing and maintaining U.S. leadership in world system, uses of propaganda for domestic and foreign consumption, and representation of national security issues in popular media; historical and contemporary components. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4176 (036:176) Advanced Relational Theory** 3 s.h.
Relationships and how they significantly shape our experiences of the world, sense of identity, outlook on life, and way in which we think about experiences and life in general; premise that relationships are more than emotional attachments or bonds; relationships as happy, emotionally satisfying elements of life; demonstrations of a variety of communicative situations that establish, reconstitute, and demonstrate importance of membership of communities and relationships. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4181 (036:181) Legal Communication and Culture** 3 s.h.
Law and legal system as communicative networks of meaning-making; law viewed as a symbolic system, from courtroom arguments to judicial opinions to legal reporting to circulation of law in everyday life, in contrast with legal courses concerned with learning blackletter law; law from a rhetorical perspective that allows us to think in new and different ways about cultural implications of legal argument. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.
- COMM:4183 (036:183) Networking America: The Cultural History of Broadcasting** 3 s.h.

Exposure to different interpretations of cultural impact and legacy of U.S. broadcasting in 20th century; institutional practices, program genres, and audience formations of 1920s through the 1970s radio and television network eras; how historical contexts shape, and are shaped by, production and reception of broadcasting texts. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work.

Graduate

Graduate students also may take courses numbered 3000-4999 for credit, with approval of their committee.

COMM:5200 (036:200) Introduction to Research and Teaching 1 s.h.

Introduction to communication studies as a field of scholarship; selection of research problems, major lines of research represented in the department, bibliographical tools for scholarship in the field; issues, practical tasks, and concerns relevant to effective college or university classroom teaching.

COMM:5223 (036:223) Deliberation, Advocacy, and Civic Engagement 3 s.h.

Practices of public deliberation in governance and civil society; counterpublic sphere discourses.

COMM:5230 (036:230) Introduction to Rhetoric and Discourse 3 s.h.

Introduction to major theories, principles, and practices of rhetorical theory, rhetorical criticism, and discourse analysis.

COMM:5241 (036:241) Theories of Mass Communication 3 s.h.

Major concepts, theories, schools of thought in media studies, mass communication.

COMM:5299 (036:299) Graduate Independent Study arr.

COMM:6210 (036:270) Health Communication 3 s.h.

Theories, concepts, research associated with health communication; interpersonal and mass communication approaches. Same as CBH:6210 (172:240).

COMM:6215 (036:222) Feminist Cultural Studies 3 s.h.

Same as ENGL:6015 (008:243), RHET:6015 (010:243), GWSS:6015 (131:243).

COMM:6220 (036:379) Health Communication Campaigns 3 s.h.

Design and analysis of health campaigns; theory, practice, methods; mass media, community, organization, and interpersonal approaches. Same as CBH:6220 (172:246).

COMM:6310 (036:310) Classical Rhetoric 3 s.h.

Discourse in the ancient world. Same as CLSA:6310 (20E:230).

COMM:6319 (036:319) Practical Criticism 3 s.h.

Basics of rhetorical criticism; rhetoric as practice or technique; how to read rhetorically; fundamentals (i.e., figuration and tropes, form and genre, voice, style, topoi) and art of rhetorical critique.

COMM:6335 (036:335) Proseminar: Contemporary Rhetorical Studies 2-4 s.h.

Problems in contemporary rhetorical studies; may include works of Kenneth Burke, Wayne Booth, deconstructionists, feminist theorists and critics, critics of communication technologies.

COMM:6400 (036:317) Current Issues in Rhetoric 3 s.h.

Ethical, social, or cultural issues; rhetoric's role in their contemporary significance; traditional aspects of rhetoric, their pertinence to present concerns. Same as RHET:6400 (010:340).

COMM:6635 (036:247) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247).

COMM:6336 (036:336) Seminar in Rhetorical Theory 1-4 s.h.

Topics in history and development of rhetorical theory; theory construction and application to critical practice.

COMM:6339 (036:339) Seminar: Rhetoric and Culture 1-4 s.h.

Cultural theories, their utility in accounting for communication practices.

COMM:6340 (036:340) Media and Modernity 3 s.h.

Survey of classic and contemporary theoretical texts on cultural, social, political, and human consequences of 19th- and 20th-century media.

COMM:6341 (036:341) Topics in Mass Communication Scholarship 1-3 s.h.

Theory and research on problems in mass communication.

COMM:6342 (036:342) Critical Television Studies 3 s.h.

Introduction to canonical and contemporary readings in critical television studies; primary questions and theories associated with textual, industrial, ethnographic, and integrated approaches to studying television; how technological, economic, and cultural changes have altered television and how it is studied.

COMM:6346 (036:346) The Public Sphere 3 s.h.

Theories, intellectual history, critics, contemporary issues of the public sphere.

COMM:6350 (036:350) Seminar: Mass Communication 1-4 s.h.

Topics vary.

COMM:6351 (036:351) Global Media Seminar 3 s.h.

Theories and processes of globalization and the cultural implications of media globalization; local responses to globalizing processes with reference to questions of modernity and national/transnational identity.

COMM:6352 (036:352) Seminar: Media Theory 3 s.h.

Topics vary.

COMM:6354 (036:354) Media and Social Change in Latin America 3 s.h.

Cultural history and political economy of Latin American media; focus on U.S. influence and globalizing processes; media theory in Latin context; national and transnational audience formations.

COMM:6355 (036:355) Cultural History of Radio 3 s.h.

Cultural history, sound aesthetics, political economy, and audience studies of U.S. radio broadcasting; radio as a contested medium of local, regional, and national culture.

COMM:6365 (036:365) The Communication of Social Support 3 s.h.

Substantial knowledge base developed by scholars about types, processes, and mechanisms of social support used by humans to comfort one another; in-depth examination of theory and empirical research related to communication of social support; emphasis on types of support, verbal person-centered messages, and various strategies for social support; gender differences and social skills related to comforting; online supportive communication; development of detailed knowledge of this topic, critical assessment of extant research, and synthesis of class readings in written format.

COMM:6367 (036:367) Computer-Mediated Communication 3 s.h.

In-depth analysis of theory and research related to computer-mediated communication; factors that distinguish mediated from face-to-face interaction, theories of mediated interpersonal communication, self-presentation online, Internet-based relationships, and online supportive communication; how the Internet influences communication; online supportive communication, problematic Internet use, preference for online social interaction, the digital divide, mediated social networks, deception, and interventions on the Internet.

COMM:6370 (036:370) Quantitative Research Methods 3 s.h.

Primary methods for conducting quantitative research on interpersonal and group communication.

COMM:6371 (036:371) Communication Theory 3 s.h.

Survey of primary theories of interpersonal, cultural, group, and organizational communication.

COMM:6372 (036:372) Ethnographic Methods 3 s.h.

Qualitative methods used by ethnographers and interpretive researchers, including participant observation, field interviewing.

COMM:6373 (036:373) Persuasion Theory and Research 3 s.h.

Traditional social scientific approaches to research and theory; development of a cultural perspective on persuasion.

COMM:6374 (036:374) Relational Communication Theory and Research 3 s.h.

Communication in initiation, development, maintenance, breakdown, and repair of social and personal relationships.

COMM:6375 (036:375) Theories of Culture 3 s.h.

Research and theory on face-to-face communication, from ethnography of communication perspective.

COMM:6376 (036:376) Family Communication 3 s.h.

Theory and research on communication among and between family members (parents, children, marital partners, siblings); quantitative and qualitative research.

COMM:6380 (036:380) Seminar: Dialogic Communication 3 s.h.

Dialogic approaches to communication, including Bakhtin and Buber.

COMM:6381 (036:381) Seminar: Topics in Communication Research 3 s.h.

COMM:6383 (036:383) Seminar: Constructs, Communication, and Identity 3 s.h.

Concepts of identity and sociality in George Kelly's Personal Construct Theory; their connection to theories of rhetoric, especially Burke, and social community, especially Mead.

COMM:6387 (036:387) Communication, Cognition, and Emotion 3 s.h.

Theoretical and empirical work that integrates communication, cognition, emotion; role of social cognition in communication, theories of emotion, types of emotional experiences; approaches to understanding emotion from perspectives in psychology, social cognition, communication; emotion-related issues such as influence of gender, effects of mood.

COMM:6399 (036:399) Ph.D. Dissertation arr.

COMM:6660 (036:378) Critical Ethnography 3 s.h.

How power relations constitute the work of ethnographic research; ethnography as a rhetorical form—how ethnographic inscription renders self, other, culture, and the world intelligible in ways that reinscribe and/or challenge dominant social relations; axes of power such as race, class, gender, sexuality, and nation within postcolonial, feminist, and antiracist approaches to ethnographic/autoethnographic theory and praxis; negotiating researcher privilege and epistemic violence; crisis of representation. Same as GWSS:6660 (131:332).

Comparative Literature

Director, Division of World Languages, Literatures, and Cultures

- Russell Ganim

Coordinator, Comparative Literature Program

- Brian Gollnick

Professors

- Cinzia Blum (French and Italian/Comparative Literature), Cheryl Herr (English/Comparative Literature), Robert Ketterer (Classics/Comparative Literature), Christopher Merrill (English/Comparative Literature)

Associate professors

- Brian Gollnick (Spanish and Portuguese/Comparative Literature), Sabine Götz, Rosemarie Scullion (French and Italian/Comparative Literature), David Wittenberg (English/Comparative Literature)

Adjunct professor

- Aron Aji (Translation/Comparative Literature)

Adjunct assistant professors

- Anna Barker (Comparative Literature/International Programs/Asian and Slavic Languages and Literatures), Natasa Durovicova

Undergraduate major: comparative literature (B.A.)

Undergraduate minor: comparative literature

Graduate degree: Ph.D. in comparative literature

Web site: <http://clas.uiowa.edu/dwllc/comparative-literature/ba-comparative-literature>

The Comparative Literature Program addresses culture across regions and languages in relation to literature, social theory and philosophy, history, and other disciplines. Students draw resources from several University of Iowa arts and humanities units, including the Department of Cinematic Arts; the International Writing Program; the Department of English; and the Division of World Languages, Literatures, and Cultures. Study of comparative literature prepares students to engage with critical concepts of tradition, identity, and expression in an interdisciplinary and multilingual environment.

In addition to degree programs and an undergraduate minor, the Comparative Literature Program offers courses approved for the Literary, Visual, and Performing Arts areas of the College of Liberal Arts and Sciences General Education Program (p. 323).

Undergraduate Programs of Study

- Major in comparative literature (Bachelor of Arts)
- Minor in comparative literature

Bachelor of Arts

The Bachelor of Arts with a major in comparative literature requires a minimum of 120 s.h., including 33 s.h. of work for the major. Students must maintain a g.p.a. of at least

2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in comparative literature is designed to promote cultural awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning about literature. The program offers two tracks: language and literature, and literature and arts. Students work with faculty advisors close to their track to develop coherent, individualized programs of study that reflect their interests and developing skills.

Students share a common set of basic courses in the literatures of widely divergent cultures and historical periods, in translation, and in interaction among the arts. All students are expected to gain an international perspective on literature and the arts and to become acquainted with interdisciplinary approaches to cultural study.

The successful pursuit of comparative literature requires study of at least one foreign cultural tradition, with appropriate emphasis on language, literature, and the arts in historical context. Familiarity with the literatures and cultures of other nations goes hand-in-hand with theoretical inquiry and reflection on basic issues, such as the nature and value of storytelling in literature and other arts—for instance, film, song, and painting. Translation between languages and among different arts represents another basic center of theory and practice. Individual courses of study may extend into other disciplines, including history, philosophy, linguistics, anthropology, law, and psychology.

In conjunction with an appropriate overall curriculum, the major in comparative literature can offer effective preparation for professional studies in fields such as law and business, or for employment in fields that value critical thinking and international understanding. It also offers excellent preparation for graduate work in the humanities.

Of the 33 s.h. required for the major, students must earn 21 s.h. in University of Iowa courses. They may count a maximum of 6 s.h. of course work from another major, minor, or certificate toward the major in comparative literature. Students majoring in comparative literature with a second major in cinema may count a maximum of 12 s.h. of credit toward both majors.

The major in comparative literature requires the following course work.

COMMON COURSES

All students take these (total of 18 s.h.):

CL:1025 (218:025) Introduction to Critical Reading and Viewing	3 s.h.
CL:1240 (218:040) Major Texts of World Literature, Antiquity to 1700	3 s.h.
CL:1241 (218:041) Major Texts of World Literature, 1700 to the Present	3 s.h.
CL:2100 (218:100) Introduction to Criticism and Theory	3 s.h.
CINE:3195 (048:188) Undergraduate Seminar	3 s.h.
Comparative literature elective(s)	3 s.h.

Tracks

Students complete 15 s.h. of work in one of the following tracks.

LITERATURE AND ARTS TRACK

To complete this track, students take 12 s.h. of upper-level course work (courses numbered 3000 or above) in a single fine arts area. They may include one upper-level course in performance, practice, or production, with consent of the director of undergraduate studies.

Course work for the track also must include one 3 s.h. course that focuses explicitly on arts and literature in comparative perspective.

WORLD LANGUAGES AND LITERATURE TRACK

To complete this track, students take 9 s.h. of courses in one foreign literature, read in the original language. They may include one course in composition and conversation. (Language courses taken to complete the General Education Program do not count toward the major.)

Students take an additional 6 s.h. of course work in comparative literature or a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or in a second foreign literature.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: When requirements for the major in comparative literature include advanced work in a language, the student may need to acquire competence in the language by completing course work early in his or her plan of study. Such course work is not reflected in the following checkpoints.

Before the fifth semester begins: at least two courses in the major

Before the seventh semester begins: at least four more courses in the major (total of six) and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least three more courses in the major (total of nine)

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in comparative literature have the opportunity to graduate with honors in the major, which requires that they complete an honors thesis. Once the student has earned 75 s.h., he or she submits a written proposal for the thesis. The proposal must be approved by the faculty member who heads the student's honors thesis committee; the committee must be composed of at least two faculty members from the Comparative Literature Program. The student must complete the honors thesis over the next two consecutive semesters. For specific

honors thesis requirements in the comparative literature major, contact the Comparative Literature Program office.

Honors students in comparative literature must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in comparative literature requires 15 s.h. of University of Iowa comparative literature courses, including at least 12 s.h. earned in courses numbered CL:1240 (218:040) or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Contact the Comparative Literature Program office for a list of approved courses.

Graduate Program of Study

- Doctor of Philosophy in comparative literature

Admission to the Doctor of Philosophy program in comparative literature is suspended; for degree requirements, see the 2010-11 General Catalog. For information about the Master of Fine Arts in comparative literature—translation, see Translation (p. 651) in the Catalog.

Courses

Lower-Level Undergraduate

CL:1019 (218:019) Media Matters 3 s.h.

Development of basic creative and critical skills in the arts and humanities by examining transformations across literature, poetry, photography, and video; media of expression; telling a story in words or images; the difference between looking at a painting, watching a movie, or reading a book; how the soundtrack of a film affects the story; how looking at a musical score differs from performing it; key to producing exciting creative work; full engagement with any given medium.

CL:1025 (218:025) Introduction to Critical Reading and Viewing 3 s.h.

Critical approaches to literature and audiovisual media (film, video, interactive multimedia); selected texts, scholarly and critical responses to them. Requirements: completion of rhetoric requirement. Same as CINE:1025 (048:025).

CL:1205 (218:004) Introduction to World Literature 3 s.h.

Ways of reading world literature; varied emphases (i.e., thematic, geographical; may include poetry, short fiction, drama, novels, and critical works on importance of translation. Requirements: completion of rhetoric General Education requirement.

CL:1240 (218:040) Major Texts of World Literature, Antiquity to 1700 3 s.h.

Reading, analysis of major literary texts from writing's origins to 1700 in the Mediterranean, Asia, Africa; interrelationship of literature and history. GE: Literary, Visual, and Performing Arts.

CL:1241 (218:041) Major Texts of World Literature, 1700 to the Present 3 s.h.

Reading and analysis of major literary texts from 18th century to present in chronological sequence; emphasis on interrelationship of literature and history. Requirements: completion of rhetoric requirement. GE: Literary, Visual, and Performing Arts.

CL:1500 (218:055) Ukraine, a Country at the Crossroads: An Interdisciplinary Seminar on Ukrainian History and Culture 3 s.h.

Cultural specificity of Ukraine as a large multicultural European country; vital background information for analysis of present-day political events; strategic location between East and West; centuries-long history and culture; all readings in English, no knowledge of Russian or Ukrainian required. Same as SLAV:1500 (041:055).

CL:2100 (218:100) Introduction to Criticism and Theory 3 s.h.

Critical approaches to the phenomenon of literature. Requirements: junior standing.

CL:2531 (218:164) Topics in Russian, East European, and Eurasian Studies arr.

Same as SLAV:2531 (041:164).

CL:2618 (218:148) The Third Reich and Literature 3-4 s.h.

Nazi literature, literature of the Holocaust and the Opposition, exile literature, in English translation. Taught in English. GE: Values, Society, and Diversity. Same as GRMN:2618 (13E:118).

CL:2700 (218:075) Romani (Gypsy) Cultures of Eastern Europe 3 s.h.

Aspects of culture shared by most Roma (Gypsies) around the world; samples of folklore from Europe; impact of Roma on European literature, music, and culture; readings in English; no previous knowledge of Russian or Romani required. Same as SLAV:2232 (041:075).

Upper-Level Undergraduate and Graduate

CL:3101 (218:193) The Iowa Review Reading Group in Contemporary Fiction 0-3 s.h.

Reading and discussion of unsolicited submissions to *The Iowa Review* of fiction, poetry, and nonfiction; reading groups formed under supervision of editors; preparation of a portfolio that documents student's work, with a short commentary reflecting on the process and their role in it.

CL:3102 (218:194) The Iowa Review Reading Group in Contemporary Poetry 0-3 s.h.

Reading and discussion of unsolicited submissions to *The Iowa Review* of fiction, poetry, and nonfiction; reading groups formed under supervision of editors; preparation of a portfolio that documents student's work, with a short commentary reflecting on the process and their role in it.

CL:3103 (218:198) The Iowa Review Reading Group in Contemporary Nonfiction 0-3 s.h.

Reading and discussion of unsolicited submissions to *The Iowa Review* of fiction, poetry, and nonfiction; reading groups formed under supervision of editors; preparation of a portfolio that documents student's work, with a short commentary reflecting on the process and their role in it.

CL:3104 (218:199) Topics in International Literature and Culture 3 s.h.

Focus on significant texts or critical problems related to international literature and culture. Requirements: junior or senior standing. Recommendations: two or more courses in literary study.

CL:3107 (218:151) Literature and Anthropology 3 s.h.

Topics vary. Same as ENGL:3107 (008:151), ANTH:3107 (113:109).

CL:3122 (218:149) Tolstoy and Dostoevsky 3-4 s.h.

Tolstoy's *War and Peace*, *Anna Karenina*; Dostoevsky's *Crime and Punishment*, *The Brothers Karamazov*, and short stories. Taught in English. Same as SLAV:3122 (041:155).

CL:3152 (218:152) America in Other Words 1-3 s.h.

Current idea of America in its imaginary form: post-1989 world fiction, poetry, and film in original language, in translation, and via online translation resources. Same as IWP:3152 (181:152).

CL:3203 (218:142) Modern Japanese Fiction in Translation 3 s.h.

Nineteenth century to present. Same as JPNS:3203 (39J:142).

CL:3204 (218:143) Traditional Japanese Literature in Translation 3 s.h.

From seventh century to early modern times. Same as JPNS:3202 (39J:141).

CL:3206 (218:147) Warriors Dreams 3 s.h.

Images of the warrior in traditional Japanese literature, from poetry of the eighth century to romances of the 19th century; readings in English. Same as JPNS:3206 (39J:146).

CL:3210 (218:110) Comparative Arts 3 s.h.

Cultural and aesthetic issues arising from side-by-side investigation of several art forms, including literature, cinema, painting, music, opera, architecture; periods, schools, styles, and their theories. Same as IWP:3210 (181:110).

CL:3221 (218:154) Twentieth-Century Czech Authors 3 s.h.

Twentieth-century prose literature of Czechoslovakia; philosophical works of Capek, Hrabal, Kundera, Klima, Havel. Taught in English. Same as SLAV:3221 (041:168).

- CL:3222 (218:122) City as Text/Text as City** 3 s.h.
Ways of reading cities: how built environments are shaped by history; how European cities differ from American or postcolonial cities; how to map, inhabit, remember, touch, smell, and experience a city; what is a global city; what is a sustainable city; how city spaces are felt in terms of gender, class, race, and ethnicity; models that architects, planners, politicians, and designers use to create habitable spaces; how to think of texts as cities (i.e., as spaces where people congregate, meet, live); research paper that combines class readings with independent research on a city of students' choice.
- CL:3223 (218:116) Reading European Poetry** 3 s.h.
Development of literary reading skills and critical imagination; increase awareness of the complexity of poetry translation, introduction to works of major canonical poets from several European traditions and languages.
- CL:3262 (218:162) Pan-Caribbean Literary Currents** 3 s.h.
Twentieth-century fiction, film, and cultural practices in the Hispanic, Francophone, and Anglophone Caribbean; cultural essays to complement literary readings; pan-Caribbean cultural practices—music and carnival celebrations. Taught in English. Requirements: for CL:3262 (218:162) —junior or senior standing; for SPAN:3270 (035:146) — two literature courses. Same as SPAN:3270 (035:146).
- CL:3263 (218:163) Studies in 20th Century European Literature** arr.
Evolving practices explored through genre, period, movement, or topic, in conjunction with relevant models of analysis; readings in English. Requirements: rhetoric.
- CL:3277 (218:177) Literature and Art** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:3155 (008:177).
- CL:3302 (218:107) Russian Literature in Translation 1860-1917** 3 s.h.
Survey of major works, figures, and trends of 19th- and 20th-century Russian literature; age of the Russian novel; development of short fiction, drama, poetry of the Silver Age. Same as SLAV:3202 (041:102).
- CL:3341 (218:141) Chinese Literature: Poetry** 3 s.h.
Readings in classical and modern Chinese poetry in English translation. Same as CHIN:3341 (039:141).
- CL:3379 (218:179) Literature and Society** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3152 (008:179).
- CL:3396 (218:196) Cuban American Literature and Culture** 3 s.h.
Experiences of Cuban exiles in the United States; emergence of a literature and culture based on sense of dispossession, marginality, and memory of island past. Taught in English. Prerequisites: ENGL:1200 (08G:001). GE: Values, Society, and Diversity. Same as SPAN:3420 (035:143).
- CL:3570 (218:161) Transnational and Postcolonial Writing by Women** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3570 (008:161).
- CL:4201 (218:144) The Tale of Genji** 3 s.h.
Close reading in English of Murasaki Shikibu's *Tale of Genji*; tale's literary and social contexts, and later reception. Same as JPNS:4201 (39):145).
- CL:4203 (218:183) Modern Chinese Writers** 3 s.h.
Readings in modern and contemporary Chinese fiction; in English translation. Same as CHIN:4203 (039:180).
- CL:4266 (218:166) Topics in Literature and Theory** 3 s.h.
Same as GRMN:4266 (13E:166).
- CL:4368 (218:168) Post-Colonial Literature in France** 3 s.h.
Literatures and cultures of Arabo-French (Beur) and Afro-French immigrations. Prerequisites: FREN:3060 (009:111) and FREN:3300 (009:112). Same as FREN:4080 (009:168).
- CL:4648 (218:169) Issues in Gender and Sexuality** 3 s.h.
Significance of gender and/or sexuality to cinema, in general or in a period, genre, film type, or national cinema; theoretical approaches, including feminist and queer theory.
- CL:4700 (218:153) Latin American Studies Seminar** 3 s.h.
Interdisciplinary approach. Taught in English. Recommendations: Spanish or Portuguese sufficient for background readings. Same as ANTH:4700 (113:132), SPAN:4900 (035:176), PORT:4700 (038:176), LAS:4700 (130:176), HIST:4504 (16W:109).
- CL:4900 (218:192) Independent Study** arr.
- ## Graduate
- CL:5201 (218:233) Seminar in Chinese Fiction** 3 s.h.
Novels, novelettes; 16th to 18th centuries (Ming and Qing periods). Requirements: ability to read original texts. Same as CHIN:5201 (039:240).
- CL:5202 (218:441) Seminar in Chinese Literature** arr.
Requirements: two years of modern Chinese and one year of classical Chinese. Same as CHIN:5202 (039:241).
- CL:5219 (218:219) The Iowa Review Teacher's Workshop: Contemporary Literature** 1 s.h.

Collaboration with *The Iowa Review* on adapting materials for classroom use; participants help select poetry, fiction, and literary nonfiction from pages of recent issues and develop curricular materials for use in 9th-12th grade language arts courses on the basis of selected materials; teaching portfolio of selected curricular materials; intended for working teachers in secondary school language arts courses.

CL:5510 (218:211) Comparative Stylistics 3 s.h.
Translation from English to French, including literary texts. Same as FREN:5020 (009:210).

CL:6105 (218:217) Introduction to Contemporary Literary Theory 3 s.h.
How major theories construct literary text; structuralist, semiotic, psychoanalytic, Marxist, reader response, Derridian criticism. Taught in English. Same as SPAN:6905 (035:281).

CL:6323 (218:223) Romantic Literature 3 s.h.
Same as ENGL:6400 (008:223).

CL:7000 (218:250) Thesis arr.

CL:7054 (218:454) Seminar: Postcolonial Studies 3 s.h.
Same as ENGL:7800 (008:450).

CL:7105 (218:355) Seminar: Comparative Topics arr.
Comparative topics in literature, theory, media, cultural studies Same as FREN:7105 (009:350).

CL:7260 (218:460) Seminar: Problems in Aesthetics and Literary Theory arr.

CL:7272 (218:462) Seminar in Comparative Literature 3 s.h.
In-depth study of a comparative topic or a current theoretical debate in the discipline.

CL:7302 (218:402) Seminar: Medieval Literature and Culture arr.
Same as ENGL:7100 (008:402).

CL:7307 (218:407) Seminar: Early Modern Literature and Culture arr.
Same as ENGL:7200 (008:407).

CL:7500 (218:500) Independent Study arr.

Computer Science

Chair

- Alberto Segre

Professors

- Kurt Anstreicher (Management Sciences/Computer Science), James Cremer, Sukumar Ghosh, Ted Herman, Joseph Kearney, Suely Oliveira, Sriram Pemmaraju, Daniel Reed, Alberto Segre, Padmini Srinivasan, W. Nick Street (Management Sciences/Computer Science), Cesare Tinelli, Kasturi Varadarajan, Hantao Zhang

Associate professors

- Juan Pablo Hourcade, Douglas Jones, Aaron Stump

Assistant professor

- Octav Chipara

Lecturers

- Ines Curto, Denise Szecsei

Adjunct instructor

- Raman Aravamudhan

Professors emeriti

- Donald Alton, Kendall Atkinson, Robert Baron, Steve Bruell, Donald Epley, Arthur Fleck, Gregg Oden, Teodor Rus

Undergraduate majors: computer science (B.A., B.S.); informatics (B.A., B.S.)

Undergraduate minors: computer science; informatics
Graduate degrees: M.C.S.; M.S. in computer science; Ph.D. in computer science

Web site: <http://www.cs.uiowa.edu/>

The Department of Computer Science offers undergraduate programs in computer science and in informatics as well as graduate degree programs in computer science. It also offers courses that students in all majors may use to satisfy the General Education Program (p. 323)'s Quantitative or Formal Reasoning requirement and a First-Year Seminar designed for entering undergraduate students.

Undergraduate Programs of Study

- Major in computer science (Bachelor of Arts, Bachelor of Science)
- Major in informatics (Bachelor of Arts, Bachelor of Science)
- Minor in computer science
- Minor in informatics

The majors in computer science and informatics provide students with the necessary training for employment in careers such as software development and information management. Both majors provide good preparation for graduate study in a variety of disciplines. The minor in each discipline helps students acquire fundamental knowledge of the use and applications of computers.

The department encourages students majoring in computer science or informatics to consider earning a second major, certificate, or minor.

Students may declare a major in computer science or in informatics when they are admitted to the University or afterward. All students begin the majors as Bachelor of Arts students but may switch to the Bachelor of Science programs at any time.

Undergraduates majoring in computer science develop competence in programming principles and methodologies, problem-solving techniques, mathematics, and computer systems. Computer science training is critical for many careers in science, engineering, business, and health care.

The informatics major combines fundamental and practical computing knowledge with a choice of cognate areas from the liberal arts and sciences, providing students with the necessary background and specialized skills to work at the interface of computing and another discipline. Informatics students may begin the major without a chosen cognate area; they may declare a cognate at any time. Some cognates are available only with the Bachelor of Arts, others are available only with the Bachelor of Science. So a student's choice of cognate determines whether he or she will earn a B.A. or a B.S.

All students are advised at the Academic Advising Center until they have completed CS:2210 (22C:019) Discrete Structures (computer science students) or CS:2110 (22C:080) Programming for Informatics (informatics students). Students being advised at the Academic Advising Center are welcome to consult with a computer science or informatics faculty advisor, as well.

Transfer students who have taken a course approved as equivalent to a required computer science or informatics course are exempt from that course. Transfer course grades are included in the computer science or informatics grade-point average.

Students should consult the Department of Computer Science web site or visit the department's office for information about general policies, elective areas, and internships, scholarships, and student groups, such as the University's chapter of the Association for Computing Machinery (ACM) and Women in Informatics and Computer Science (WICS).

ADVANCED PLACEMENT

The Computer Science Advanced Placement Program test may be used to satisfy requirements. See Advanced Placement Credit Policy under Prospective Students on the Department of Computer Science web site.

JOINT BACHELOR'S/MASTER'S DEGREE PROGRAMS

Qualified computer science undergraduate students who plan to earn the Master of Computer Science degree may apply for the joint Bachelor of Arts/Master of Computer Science program or the joint Bachelor of Science/Master of Computer Science program. The joint programs allow students to earn both degrees in five years. See "Joint B.A./M.C.S. and B.S./M.C.S." later in this section.

EARLY ADMISSION TO THE GRADUATE COLLEGE

Undergraduate computer science or informatics students who have 6 s.h. or less to earn toward graduation may apply for early admission to the Graduate College. Early

admission allows students in their final undergraduate semester to take courses for graduate credit in addition to the courses they need to complete their bachelor's degrees.

B.A. and B.S.: Computer Science

The Bachelor of Arts with a major in computer science requires a minimum of 120 s.h., including at least 41 s.h. of work for the major. The Bachelor of Science with a major in computer science requires a minimum of 120 s.h., including at least 64 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). A cumulative g.p.a. of at least 2.00 is required for graduation.

The computer science major for the Bachelor of Arts is designed for students who would like to gain considerable knowledge in computer science and have flexibility in choosing electives. Students preparing for careers in the computing field are encouraged to supplement the base requirements with additional computer science courses. The program's flexibility makes it suitable for combination with other majors.

The computer science major for the Bachelor of Science is more rigorous than the B.A. major; it is designed to provide in-depth training for students who would like to acquire strength in math and science in order to enhance their skills and job prospects. It also is appropriate for those who plan to pursue graduate work in computer science, although it is not required for graduate study at most universities.

Course work for the major includes computer science courses as well as courses in mathematics, statistics, and other supporting disciplines. Work for the major may not be taken pass/nonpass.

Bachelor of Science students and Bachelor of Arts students considering a switch to the B.S. program should choose their General Education Program's Natural Sciences courses carefully, since they may be able to use the same courses to satisfy the Bachelor of Science major's natural science requirement; see "Natural Science Sequences (B.S.)" under "Additional Bachelor of Science Requirements" below.

The major in computer science (B.A. and B.S.) requires the following work.

Common Requirements (B.A. and B.S.)

COMPUTER SCIENCE CORE

All of these:

CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
CS:2210 (22C:019) Discrete Structures	3 s.h.
CS:2230 (22C:021) Computer Science II: Data Structures	4 s.h.
CS:2820 (22C:022) Object-Oriented Software Development	4 s.h.
CS:3330 (22C:031) Algorithms	3 s.h.
CS:3820 (22C:111) Programming Language Concepts	3 s.h.

One of these:

CS:2630 (22C:060) Computer Organization	3 s.h.
ECE:3350 (055:035) Computer Architecture and Organization	3 s.h.

One of these:

CS:3620 (22C:112) Operating Systems	3 s.h.
CS:3640 (22C:118) Introduction to Networks and Their Applications	3 s.h.
CS:4640 (22C:169) Computer Security	3 s.h.

MATHEMATICS CORE

Calculus I—one of these:

MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.

Calculus II—one of these:

MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:1860 (22M:026) Calculus II	4 s.h.

Additional Bachelor of Arts Requirements

MATHEMATICS CORE (B.A.)

Linear algebra/probability and statistics—one of these:

MATH:2700 (22M:027) Introduction to Linear Algebra	4 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
STAT:3120 (22S:120) Probability and Statistics	4 s.h.

ADVANCED COMPUTER SCIENCE ELECTIVES (B.A.)

Bachelor of Arts students must earn at least 3 s.h. in advanced computer science electives chosen from these.

A computer science course (prefix CS) numbered 3620-4990, except CS:3910 (22C:094) and CS:3980 (22C:096)

A computer science course (prefix CS) numbered 5000 or above, with department approval

Students may count a maximum of 3 s.h. earned in CS:3990 (22C:099) Honors in Computer Science or Informatics toward the advanced computer science elective requirement.

Additional Bachelor of Science Requirements

MATHEMATICS CORE (B.S.)

Linear algebra:

MATH:2700 (22M:027) Introduction to Linear Algebra	4 s.h.
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Probability and statistics—one of these:

STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
STAT:3120 (22S:120) Probability and Statistics	4 s.h.

Other probability and statistics courses (prefix STAT) with a calculus prerequisite may be approved by the department.

COMPUTATION THEORY (B.S.)

One of these:

CS:4330 (22C:135) Theory of Computation	3 s.h.
CS:4340 (22C:131) Limits of Computation	3 s.h.
CS:4350 (22C:188) Logic in Computer Science	3 s.h.

ADVANCED TECHNICAL ELECTIVES (B.S.)

Bachelor of Science students must earn at least 12 s.h. (four courses) in advanced technical electives, as follows.

At least 6 s.h. from these:

A computer science course (prefix CS) numbered 3620-4990, except CS:3910 (22C:094) and CS:3980 (22C:096)

A computer science course (prefix CS) numbered 5000 or above, with department approval

And:

Advanced technical electives in computer science (prefix CS), or in other disciplines with department approval, to complete the required 12 s.h.

Students may count a maximum of 3 s.h. earned in CS:3990 (22C:099) Honors in Computer Science or Informatics toward the advanced technical elective requirement.

NATURAL SCIENCE SEQUENCES (B.S.)

Bachelor of Science students take two or more courses in a sequence (totaling at least 6 s.h.) in a cognate area of natural science. The natural science sequence is intended to enhance the student's perspective by providing a deeper understanding of the scientific method. Typically, it consists of a sequence of courses taken in the same science department. Students often choose courses that also fulfill the General Education Program (p. 323) Natural Sciences requirement. Some possible choices are listed below; the department chair may approve others.

CLEP/APP credit may be used to satisfy part or all of the natural science requirement only if the appropriate science department at The University of Iowa accepts the credit as equivalent to one or more of the specific courses listed below.

Astronomy:

ASTR:1771 (029:061) General Astronomy I	4 s.h.
ASTR:1772 (029:062) General Astronomy II	4 s.h.

Biology:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
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Chemistry:

CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.

Earth and environmental sciences—this course:

EES:1080 (012:008) Introduction to Environmental Science	3-4 s.h.
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And one of these:

EES:1030 (012:003) Introduction to Earth Science	3-4 s.h.
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EES:1050 (012:005) Introduction to Geology	4 s.h.
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Geographical and sustainability sciences:

GEOG:1020 (044:003) The Global Environment	3 s.h.
GEOG:1050 (044:005) Foundations of GIS	3 s.h.

Physics—one of these sequences:

PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II (recommended)	8 s.h.
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PHYS:1701 (029:027)-PHYS:1702 (029:028) Physics I-II	8 s.h.
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B.A. and B.S.: Informatics

The Bachelor of Arts with a major in informatics requires a minimum of 120 s.h., including at least 43-49 s.h. of work for the major. The Bachelor of Science with a major in informatics requires a minimum of 120 s.h., including at least 52-55 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). A cumulative g.p.a. of at least 2.00 is required for graduation.

Required credit for the major depends on the choice of cognate area. Work for the major may not be taken pass/nonpass.

Both programs (B.A. and B.S.) combine foundational informatics course work with course work in a cognate discipline. The Bachelor of Arts major in informatics offers the cognate areas of art, economics, geoinformatics, health informatics, human-computer interaction, linguistics, music, social informatics, and individualized cognates. The Bachelor of Science major in informatics offers the cognate areas of bioinformatics, medical informatics, and individualized cognates.

Course work for the major includes the informatics core, one (B.A.) or two (B.S.) electives, a statistics course, and a set of courses in their chosen cognate area. Students are expected to have taken MATH:1005 (22M:008) College Algebra or the equivalent.

The informatics major (B.A. and B.S.) requires the following course work.

INFORMATICS CORE

The informatics core consists of six required computing courses (at least 19 s.h.) that emphasize data manipulation, databases, and networking. It provides more applications-oriented content than the traditional computer science curriculum yet is designed to offer students a sound basis in underlying computer science themes and techniques.

This course:

CS:2110 (22C:080) Programming for Informatics	4 s.h.
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One of these:

CS:2420 (22C:084) Databases for Informatics	3 s.h.
MSCI:3200 (06K:182) Database Management	3 s.h.

All of these:

CS:1110 (22C:005) Introduction to Computer Science	3 s.h.
CS:2520 (22C:082) Human-Computer Interaction	3 s.h.
CS:2620 (22C:086) Networking and Security for Informatics	3 s.h.
CS:3910 (22C:094) Informatics Project	3 s.h.

INFORMATICS ELECTIVES

B.A. students must complete at least one course (3 s.h.) and B.S. students must complete at least two (6 s.h.) from a list of approved computing informatics electives. Course selection must be approved by an advisor or by the informatics program director. In addition to the courses listed below, students may have additional choices from the Department of Electrical and Computer Engineering and the Department of Management Sciences; consult an informatics faculty advisor for additional choices.

MSCI:4220 (06K:186) Database Management II	3 s.h.
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A computer science course (prefix CS) numbered 3000-4990, except CS:3910 (22C:094)

STATISTICS COURSE

B.A. and B.S. students must complete one introductory statistics course. Some cognates require a specific statistic course. Students should consult with their advisors to choose a statistics course appropriate for their cognate area.

One of these:

SOC:2160 (034:010) Quantitative Data Analysis	3 s.h.
STAT:1020 (22S:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
STAT:3120 (22S:120) Probability and Statistics	4 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.

Bachelor of Arts Cognates

Students must complete all requirements listed under one of the cognate areas below: art, economics, geoinformatics, health informatics, human-computer interaction, linguistics, music, social informatics, or an individualized cognate.

ART

The informatics major with the art cognate requires a minimum of 47 s.h. of work for the major, including 22 s.h. in cognate courses. Students learn about the design and maintenance of web services, applications of modern computerized artistic tools, and benefits and limitations of computers as a digital medium. They also gain insight into computerized tool design that is guided by knowledge of an artist's requirements. The art cognate may lead to careers in web development, technology coordination for artistic productions, development of digital artistic tools, and artistic or technical development for entertainment

companies. Cognate courses are primarily in art history, design, elements of art, and photography.

Note: Some courses listed below are open only to students majoring in art, so they are appropriate choices only for students with a double major in art and informatics. Non-art majors should work with an informatics faculty advisor to develop an individual set of art cognate courses.

All of these:

ARTS:1510 (01A:003) Basic Drawing	3 s.h.
ARTS:1520 (01A:004) Design Fundamentals	3 s.h.
DSGN:2110 (01D:090) Graphic Design I	3 s.h.
DSGN:3120 (01D:100) Typography	4 s.h.

One of these:

ARTH:1010 (01H:001) Art and Visual Culture	3 s.h.
ARTH:1020 (01H:004) Masterpieces: Art in Historical and Cultural Perspectives	3 s.h.
ARTH:1030 (01H:008) Themes in Global Art	3 s.h.
ARTH:1040 (01H:002) Arts of Africa	3 s.h.
ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I	3 s.h.
ARTH:1060 (01H:006) From Mona Lisa to Modernism: Survey of Western Art II	3 s.h.
ARTH:1070 (01H:016) Asian Art and Culture	3 s.h.
ARTH:2020 (01H:084) Introduction to Western Architecture	3 s.h.
ARTH:2040 (01H:090) Introduction to Art and Religion	3 s.h.
ARTH:2220 (01H:031) Introduction to the Art of China	3 s.h.
ARTH:2250 (01H:033) Introduction to the Art of Japan	3 s.h.
ARTH:2320 (01H:026) Introduction to Ancient Art	3 s.h.
ARTH:2420 (01H:040) Introduction to Medieval Art	3 s.h.
ARTH:2520 (01H:047) Introduction to Italian Renaissance Art	3 s.h.
ARTH:2620 (01H:053) Introduction to Baroque Visual Culture	3 s.h.
ARTH:2730 (01H:062) Introduction to Nineteenth-Century Art	3 s.h.
ARTH:2820 (01H:073) Introduction to Modern/Contemporary Art	3 s.h.
ARTH:2920 (01H:066) Introduction to American Art	3 s.h.
ARTH:2975 (01H:099) Undergraduate Seminar in the History of Art	3 s.h.

At least 6 s.h. from these, with at least one course (3 s.h.) numbered 3000 or above:

DSGN:3110 (01D:120) Graphic Design II	4 s.h.
DSGN:3130 (01D:110) Web Site Design I	3 s.h.
DSGN:4130 (01D:140) Web Site Design II	4 s.h.
PHTO:2513 (01L:040) Digital Photographic Imaging	3 s.h.
PHTO:4555 (01L:140) Advanced Digital Imaging	4 s.h.
TDSN:2240 (01T:064) Introduction to Computer-Aided Design for 3-D Design	3 s.h.

ECONOMICS

The informatics major with the economics cognate requires a minimum of 49 s.h. of work for the major, including 24 s.h. in cognate courses, which are primarily from economics. The economics cognate is intended for students interested in working with economic, financial, or demographic data. It may lead to careers in administration, business, or government or to graduate study in management or policy areas.

All of these:

ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
ECON:3100 (06E:104) Microeconomic Theory	3 s.h.
ECON:3150 (06E:105) Macroeconomics	3 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.

At least two of these, to complete 24 s.h. for the cognate:

ECON:3250 (06E:158) American Economic History	3 s.h.
ECON:3325 (06E:111) Personnel Economics	3 s.h.
ECON:3335 (06E:117) Money, Banking, and Financial Markets	3 s.h.
ECON:3345 (06E:125) Global Economics and Business	3 s.h.
ECON:3350 (06E:141) Industry Analysis	3 s.h.
ECON:3370 (06E:160) Household Finance	3 s.h.
ECON:3620 (06E:129) Economic Growth and Development	3 s.h.
ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
ECON:3640 (06E:135) Regional and Urban Economics	3 s.h.
ECON:3650 (06E:119) Policy Analysis	3 s.h.
ECON:3690 (06E:165) Sports Economics	3 s.h.
ECON:3750 (06E:145) Transportation Economics	3 s.h.
ECON:3760 (06E:113) Health Economics	3 s.h.
ECON:3790 (06E:171) Antitrust Economics	3 s.h.
ECON:3800 (06E:172) Law and Economics	3 s.h.
ECON:3875 (06E:169) Topics in Policy Economics	arr.
ECON:4090 (06E:183) Natural Resource Economics	3 s.h.
ECON:4110 (06E:173) International Economics	3 s.h.
ECON:4140 (06E:175) Labor Economics	3 s.h.
ECON:4160 (06E:176) Public Sector Economics	3 s.h.
ECON:4170 (06E:174) Monetary Economics	3 s.h.
ECON:4180 (06E:177) Industrial Organization	3 s.h.
ECON:4190 (06E:187) Mathematical Economics	3 s.h.
ECON:4700 (06E:189) Topics in Analytical Economics	arr.
ECON:4800 (06E:184) Introduction to Econometrics	3 s.h.

GEOINFORMATICS

The informatics major with the geoinformatics cognate requires a minimum of 46 s.h. of work for the major, including 21 s.h. in cognate courses, which are primarily from geographical and sustainability sciences. The geoinformatics cognate is intended for students interested in geographic information systems (GIS) and spatial aspects of data. It may lead to careers in business, government, or public health or to graduate study in geography, public health, or policy areas.

All of these:

GEOG:1020 (044:003) The Global Environment	3 s.h.
GEOG:1021 (044:004) The Global Environment Lab	1 s.h.
GEOG:1050 (044:005) Foundations of GIS	3 s.h.

Two of these:

GEOG:1010 (044:001) Introduction to Human Geography	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:2110 (044:011) Population Geography	3 s.h.
GEOG:2130 (044:055) World Cities	3 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.

One of these:

GEOG:3520 (044:110) GIS for Environmental Studies	3 s.h.
GEOG:3530 (044:112) Mapping American Cities and Regions	3 s.h.
GEOG:4010 (044:180) Field Methods in Physical Geography	2-4 s.h.
GEOG:4020 (044:181) Field Methods: Mapping and Mobile Computing	3 s.h.

Two of these:

GEOG:3500 (044:105) Introduction to Environmental Remote Sensing	3 s.h.
GEOG:3520 (044:110) GIS for Environmental Studies	3 s.h.
GEOG:3530 (044:112) Mapping American Cities and Regions	3 s.h.
GEOG:3920 (044:136) Planning Livable Cities	3 s.h.
GEOG:4150 (044:137) Health and Environment: GIS Applications	3 s.h.
GEOG:4500 (044:145) Applications in Environmental Remote Sensing	4 s.h.
GEOG:4520 (044:128) GIS for Environmental Studies: Applications	3 s.h.
GEOG:4570 (044:139) Spatial Analysis and Location Models	3 s.h.
GEOG:4750 (044:125) Environmental Impact Analysis	4 s.h.

HEALTH INFORMATICS

The informatics major with the health informatics cognate requires a minimum of 46 s.h. of work for the major, including 21 s.h. in cognate courses. The health informatics cognate is intended for students interested in applications of computing to health care, especially in public health. It may lead to careers in medical or health-related areas or to graduate and professional degree

programs in public health, health informatics, and medical informatics. Cognate courses are selected primarily from public health, geography, and global health studies.

Once students complete the required courses in each of the four sets below, they must select additional courses from the sets to complete 21 s.h. of credit for the cognate.

One of these:

GHS:3720 (152:160) Global Health Seminar	3 s.h.
MPH:3000 (170:099) Fundamentals of Public Health	3 s.h.

At least two of these:

GEOG:1050 (044:005) Foundations of GIS	3 s.h.
GEOG:3110 (044:131) Geography of Health	3 s.h.
GEOG:3210 (044:174) Health, Work, and the Environment	3 s.h.
GEOG:3520 (044:110) GIS for Environmental Studies	3 s.h.
GEOG:4150 (044:137) Health and Environment: GIS Applications	3 s.h.

At least two of these:

GHS:3850 (152:158) Promoting Health Globally	3 s.h.
GHS:4160 (152:137) History of Public Health	3 s.h.
GHS:4162 (152:138) History of Global Health	3 s.h.
GHS:4340 (152:135) Global Health and Global Food	3 s.h.
GHS:4600 (152:120) Global Health and Human Rights	2-3 s.h.
INTD:3020 (145:120) Equity Issues in the Health Sciences	3 s.h.
RHET:3610 (010:161) Rhetorical Issues in Health Care	3 s.h.

One of these:

EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
HMP:4000 (174:102) Introduction to the U.S. Health Care System	3 s.h.

HUMAN-COMPUTER INTERACTION

The informatics major with the human-computer interaction cognate requires a minimum of 43 s.h. of work for the major, including at least 18 s.h. in cognate courses. The human-computer interaction cognate is intended for students interested in designing useful and usable technologies. It can lead to careers in interaction design, web design, implementation of user interfaces, and evaluation of human-computer interactions as well as provide valuable skills for graduate study in human-computer interaction.

The cognate's courses are drawn largely from psychology, sociology, and industrial engineering. Four required courses include foundational aspects of psychology or sociology, an examination of basic human abilities and performance relevant to information technology use, and an introduction to research topics in human-computer interaction.

This course:

CS:4500 (22C:148) Research Methods in Human-Computer Interaction	3 s.h.
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Either these three psychology courses:

PSY:1001 (031:001) Elementary Psychology	3 s.h.
PSY:2601 (031:016) Introduction to Cognitive Psychology	3 s.h.
PSY:2810 (031:010) Research Methods in Psychology	4 s.h.

Or these three sociology courses:

SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
SOC:2130 (034:009) Sociological Theory	3 s.h.
SOC:2170 (034:011) Research Methods	3 s.h.

At least two of these for the cognate:

IE:3400 (056:144) Human Factors	3 s.h.
IE:3450 (056:147) Ergonomics	3 s.h.
PSY:2401 (031:014) Introduction to Developmental Science	3 s.h.
PSY:2501 (031:015) Introduction to Social Psychology	3 s.h.
PSY:2701 (031:002) Biological Psychology	4 s.h.
PSY:3040 (031:123) Psychology of Learning	3 s.h.
PSY:3060 (031:133) Visual Perception and Cognition	3 s.h.
SOC:3210 (034:020) Principles of Social Psychology	3-4 s.h.
SOC:4210 (034:125) Small Group Analysis	3 s.h.

Most courses in this list have prerequisites, which students must complete before they may register for the course. The psychology courses (prefix PSY) require PSY:1001 (031:001) Elementary Psychology and/or PSY:2701 (031:002) Biological Psychology as prerequisite(s); the sociology course SOC:4210 (034:125) requires SOC:1010 (034:001) Introduction to Sociology Principles or SOC:1020 (034:002) Social Problems as a prerequisite. Students should choose courses from this list carefully.

LINGUISTICS

The informatics major with the linguistics cognate requires a minimum of 46 s.h. of work for the major, including at least 21 s.h. in cognate courses. Linguistics, the scientific study of human languages, is directly related to psychology, anthropology, and computer science as well as to more applied fields such as second language acquisition or speech and hearing science. The cognate focuses on computational representations of syntax and semantics for processing natural language. Cognate courses are drawn primarily from linguistics.

All of these:

LING:3001 (103:100) Introduction to Linguistics	3 s.h.
LING:3005 (103:110) Articulatory and Acoustic Phonetics	3 s.h.
LING:3010 (103:111) Syntactic Analysis	3 s.h.
LING:3020 (103:112) Phonological Analysis	3 s.h.

One of these:

CS:4440 (22C:149) Web Mining	3 s.h.
CS:4460 (22C:146) Introduction to Computational Linguistics	3 s.h.

One of these:

LING:3080 (103:131) History of the English Language	3 s.h.
LING:3301 (103:139)/CHIN:3301 (039:139) Chinese Historical Phonology	3 s.h.

One of these:

CLSA:2901 (20E:110)/SOAS:2901 (039:110) First-Year Sanskrit: First Semester	4 s.h.
CLSA:2902 (20E:111)/SOAS:2902 (039:111) First-Year Sanskrit: Second Semester	4 s.h.
CLSA:3901 (20E:121)/SOAS:3901 (039:112) Second-Year Sanskrit: First Semester	3 s.h.
CLSA:3902 (20E:122)/SOAS:3902 (039:113) Second-Year Sanskrit: Second Semester	3 s.h.
CLSG:1001 (20G:001) Classical and New Testament Greek I	5 s.h.
CLSG:1002 (20G:002) Classical and New Testament Greek II	5 s.h.
CLSG:2001 (20G:011) Second-Year Greek I	3 s.h.
CLSG:2002 (20G:012) Second-Year Greek II	3 s.h.
CLSL:1001 (20L:001) Elementary Latin I	5 s.h.
CLSL:1002 (20L:002) Elementary Latin II	5 s.h.
CLSL:2001 (20L:011) World of Cicero	3 s.h.
CLSL:2002 (20L:012) Golden Age of Roman Poetry	3 s.h.
ENGL:3256 (008:140) Elementary Old English	3 s.h.
ENGL:3257 (008:141) Old English Beowulf	3 s.h.

MUSIC

The informatics major with the music cognate requires a minimum of 48 s.h. of work for the major, including 23 s.h. in cognate courses. The music cognate is intended for students interested in audio recording, manipulation of sound, and digital media. It may help students prepare for careers in the entertainment industry. Cognate courses are primarily from music, with some from cinematic arts and from theatre arts. Entering students must possess basic musicianship skills; an audition may be required for admission.

All of these:

MUS:1200 (025:001) Fundamentals of Music for Majors	3 s.h.
MUS:1201 (025:002) Musicianship and Theory I	4 s.h.
MUS:1202 (025:003) Musicianship and Theory II	4 s.h.
MUS:1211 (025:071) Group Instruction in Piano I	1 s.h.
MUS:1212 (025:072) Group Instruction in Piano II	1 s.h.
MUS:3780 (025:149) Audio Recording I	3 s.h.
MUS:3781 (025:152) Audio Recording II	3 s.h.

Students who plan to take MUS:1201 (025:002) Musicianship and Theory I or MUS:1202 (025:003) Musicianship and Theory II must take the music theory diagnostic examination, which is administered online during summer, before fall semester begins. See Musicianship and Theory Placement on the School of Music web site for more information. Advanced placement in School of Music courses does not reduce the number of semester hours required for the cognate.

One of these:

MUS:3301 (025:144) History of Music I	3 s.h.
MUS:3302 (025:146) History of Music II	3 s.h.
MUS:3310 (025:103) World Music	3 s.h.
MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
MUS:3720 (025:141) History of Jazz	3 s.h.

At least one of these, to complete 23 s.h. for the cognate:

CINE:1630 (048:053) Introduction to Film Sound	3 s.h.
CINE:4841 (048:131) Film/Video/Audio Production: Sound Design	4 s.h.
MUS:1007 (025:007) Garage Band: The Basics	2 s.h.
MUS:1010 (025:064) Recital Attendance for Non-Majors	1 s.h.
THTR:3260 (049:140) Sound Design for the Theatre	3 s.h.

SOCIAL INFORMATICS

The informatics major with the social informatics cognate requires a minimum of 45 s.h. of work for the major, including 20 s.h. in cognate courses, all from sociology.

All of these:

SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
SOC:2130 (034:009) Sociological Theory	3 s.h.
SOC:2170 (034:011) Research Methods	3 s.h.

At least 11 s.h. from these:

SOC:1020 (034:002) Social Problems	3-4 s.h.
SOC:1310 (034:018) Gender and Society	3-4 s.h.
SOC:1410 (034:040) Introduction to Criminology	3 s.h.
SOC:2222 (034:022) Introduction to Social Work	4 s.h.
SOC:2810 (034:066) Social Inequality	3 s.h.
SOC:3210 (034:020) Principles of Social Psychology	3-4 s.h.
SOC:3220 (034:128) Sociology of Mental Illness	3 s.h.
SOC:3420 (034:141) Juvenile Delinquency	3 s.h.
SOC:3425 (034:146) Deviance and Control	3 s.h.
SOC:3450 (034:186) Criminal Legal System	3 s.h.
SOC:3520 (034:150) Political Sociology	3 s.h.
SOC:3525 (034:153) Public Opinion	3 s.h.
SOC:3610 (034:164) Organizations and Modern Society	3 s.h.
SOC:3710 (034:061) The American Family	3 s.h.
SOC:3830 (034:155) Race and Ethnicity	3 s.h.
SOC:3840 (034:175) Community and Urban Sociology	3 s.h.
SOC:3850 (034:158) Economy and Society	3 s.h.
SOC:4210 (034:125) Small Group Analysis	3 s.h.
SOC:4400 (034:148) Internship in Criminal Justice and Corrections	1-5 s.h.
SOC:4420 (034:149) Sociology of Criminal Punishment	3 s.h.
SOC:4460 (034:182) Sociology of Law	3 s.h.

SOC:4540 (034:126) Social Movements in the U.S.	3 s.h.
SOC:4820 (034:135) Sociology of Sexuality	3 s.h.
SOC:4900 (034:190) Selected Topics in Sociology	3 s.h.
SOC:4910 (034:195) Capstone Course in Sociology	3 s.h.
SOC:4920 (034:196) Field Experience	arr.
SOC:4997 (034:100) Honors Seminar	2 s.h.
SOC:4998 (034:199) Honors Research	arr.

INDIVIDUALIZED COGNATES

Students interested in developing individualized cognates may work with an informatics faculty advisor. Individualized cognates may be drawn primarily from one department or an appropriate mix of departments. For the Bachelor of Arts, individualized cognates require an approved set of cognate courses totaling 18-25 s.h.

Bachelor of Science Cognates

Students must complete all requirements listed under one of the cognate areas below: bioinformatics, medical informatics, or an individualized cognate.

BIOINFORMATICS

The informatics major with the bioinformatics cognate requires a minimum of 55 s.h. of work for the major, including at least 30 s.h. in cognate courses. The bioinformatics cognate is intended for students interested in applications of computing to the biological sciences. It may lead to careers in laboratory research, biotechnology, data management, and other related areas. It also may prepare students for graduate programs in bioinformatics or genetics. The cognate offers a choice of two areas: genome bioinformatics, or phylogenetics and evolution. Cognate courses are drawn primarily from biology and chemistry.

All of these:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
CHEM:2210 (004:121) Organic Chemistry I	3 s.h.

Students also must complete one of the following two areas.

Genome Bioinformatics Area

Both of these:

BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.

One of these:

BIOL:3314 (002:178) Genomics	3 s.h.
BIOL:4213 (002:170) Bioinformatics	4 s.h.
BIOL:5320 (002:174) Computational Genomics	3 s.h.

Phylogenetics and Evolution Area

Both of these:

BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.

One of these:

BIOL:2673 (002:134) Ecology	4 s.h.
BIOL:4273 (002:162) Population Genetics and Molecular Evolution	3 s.h.
BIOL:4373 (002:160) Molecular Phylogenetics	3 s.h.

MEDICAL INFORMATICS

The informatics major with the medical informatics cognate requires a minimum of 53 s.h. of work for the major, including at least 28 s.h. in cognate courses. The medical informatics cognate is intended for students interested in applications of computing to health care, especially in a clinical setting. It may lead to careers in medical or hospital settings, graduate programs in medical informatics, or professional degree programs in medicine, dentistry, nursing, or other allied health professions. Cognate courses are drawn from biology, chemistry, health and human physiology, and public health.

Students who choose the medical informatics cognate must satisfy the major's statistics requirement with STAT:3510 (22S:101) Biostatistics.

All of these:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
CHEM:2210 (004:121) & CHEM:2220 (004:122) Organic Chemistry I-II	6 s.h.

At least two of these, to complete 28 s.h. in the cognate:

BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.
CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.
HHP:1100 (027:053) Human Anatomy	3 s.h.
HMP:4000 (174:102) Introduction to the U.S. Health Care System	3 s.h.

INDIVIDUALIZED COGNATES

Individualized cognates may be drawn primarily from one department or an appropriate mix of departments. For the Bachelor of Science, individualized cognates require an approved set of cognate courses totaling 27-31 s.h. Students interested in developing individualized cognates should contact the Department of Computer Science for the name of an informatics faculty advisor.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available to students majoring in computer science or informatics. Students work with their advisors on individual graduation plans.

Honors in the Major

Students majoring in computer science or informatics have the opportunity to graduate with honors in the major. To graduate with honors in either major, students must complete 4-6 s.h. of CS:3990 (22C:099) Honors in Computer Science or Informatics and submit an acceptable honors thesis. Students are responsible for finding a faculty member willing to supervise their honors project. The faculty member must approve the proposed project and a timetable for the work. Students register for CS:3990

(22C:099) Honors in Computer Science or Informatics under the thesis supervisor's instructor number. See Honors on the department's web site for details.

Honors students majoring in computer science may count a maximum of 3 s.h. of CS:3990 (22C:099) Honors in Computer Science or Informatics toward the major's advanced computer science elective requirement (B.A.) or advanced technical elective requirement (B.S.). Students in the joint B.A./M.C.S. or B.S./M.C.S. program may register for 4-6 s.h. of CS:5990 (22C:199) Individualized Research or Programming Project instead of CS:3990 (22C:099); this will allow them to receive graduate credit for the course while satisfying the course requirements to graduate with honors.

Departmental honors students must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor: Computer Science

The minor in computer science requires a minimum of 17 s.h. in computer science, including 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students excused from courses required for the minor may substitute other computer science electives. The minor requires the following courses.

All of these:

CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
CS:2210 (22C:019) Discrete Structures	3 s.h.
CS:2230 (22C:021) Computer Science II: Data Structures	4 s.h.

At least one of these:

CS:2630 (22C:060) Computer Organization	3 s.h.
CS:2820 (22C:022) Object-Oriented Software Development	4 s.h.
CS:3330 (22C:031) Algorithms	3 s.h.

Students choose one additional computer science course (prefix CS) numbered 3200-4990, except CS:3910 (22C:094) Informatics Project and CS:3980 (22C:096) Topics in Computer Science I, to complete the 17 s.h. required for the minor.

Students who have completed ECE:3330 (055:033) Introduction to Software Design, ENGR:2730 (057:017) Computers in Engineering, and ENGR:1300 (059:006) Engineering Problem Solving II are considered to have satisfied the minor's requirement for CS:1210 (22C:016) Computer Science I: Fundamentals and CS:2820 (22C:022) Object-Oriented Software Development.

Students may declare the computer science minor on ISIS, and they may request an audit for the minor through ISIS.

Minor: Informatics

The minor in informatics requires a minimum of 15 s.h., including at least 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in

all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

Students earning a major in computer science or in management information systems (Tippie College of Business) may not earn the minor in informatics.

The informatics minor requires the following course work.

CS:1110 (22C:005) Introduction to Computer Science	3 s.h.
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One of these:

CS:2110 (22C:080) Programming for Informatics	4 s.h.
CS:3110 (22C:104) Introduction to Informatics	3 s.h.

One of these:

CS:2420 (22C:084) Databases for Informatics	3 s.h.
MSCI:3200 (06K:182) Database Management	3 s.h.

One of these:

CS:2520 (22C:082) Human-Computer Interaction	3 s.h.
CS:2620 (22C:086) Networking and Security for Informatics	3 s.h.

One of these:

STAT:1020 (22S:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
STAT:3120 (22S:120) Probability and Statistics	4 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.

Students may declare the informatics minor on ISIS, and they may request an audit for the minor through ISIS.

Joint B.A./M.C.S. and B.S./M.C.S.

The joint Bachelor of Arts/Master of Computer Science and Bachelor of Science/Master of Computer Science programs allow qualified students to obtain an undergraduate and a graduate degree in computer science in five years. The B.A./M.C.S. and B.S./M.C.S. each require a total of 140 s.h., which is 12 s.h. less than the sum of the requirements for both degrees earned separately.

Students in the joint programs must complete all requirements for each degree. They may count a maximum of 12 s.h. (four courses) toward both degrees. The four courses must be taken during the fourth year of undergraduate study, after admission to the joint program, and must satisfy degree requirements of both the B.A. or B.S. and the M.C.S.

When a student withdraws from the joint program before completing his or her bachelor's degree, credit earned in the four courses is counted only toward the undergraduate degree.

Students are granted a B.A. or B.S. when they complete all requirements for the undergraduate degree.

Students apply for admission to the joint program during their third year as undergraduates and enter the program at the beginning of their fourth year. They usually complete the joint program comfortably in one year after completing the B.A. or B.S. requirements.

Applicants to the joint program must:

be enrolled as B.A. or B.S. students majoring in computer science at The University of Iowa;

have completed a minimum of 80 s.h. at the time of admission to the joint program, with at least 30 s.h. earned at The University of Iowa; and

have a cumulative University of Iowa g.p.a. of at least 3.25 and a g.p.a. of at least 3.25 in the computer science major (computed on math prerequisites and core computer science course work taken at The University of Iowa).

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants must submit an application for admission to the program, a statement of purpose, three letters of recommendation, and transcripts from all colleges attended; they also must apply to the Graduate College. Graduate Record Examination scores are not required. For more detailed information, see Prospective Students on the Department of Computer Science web site.

Graduate Programs of Study

- Master of Computer Science
- Master of Science in computer science
- Doctor of Philosophy in computer science

The Master of Computer Science (M.C.S.) is a course-based, nonresearch program for students who wish to enhance their careers with advanced knowledge of computer science. The Doctor of Philosophy program emphasizes preparation for research and teaching in academic settings or for research in private, industrial, or government laboratories. The Master of Science is granted only to students working toward the Ph.D. in computer science.

Admission decisions are based on prior academic performance, letters of reference, the applicant's statement about background and purpose, and for Ph.D. applicants, scores on the Graduate Record Examination (GRE) General Test. Students need not have a master's degree to begin the Ph.D. program or to be granted the doctoral degree. A student admitted without a master's degree may choose to be granted an M.S. or the M.C.S. while working toward the doctorate.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Current and prospective graduate students should consult the Computer Science Graduate Handbook, available from the department's office and its web site. The handbook provides detailed information about specific degree requirements, such as required courses, examinations, and dissertation requirements. For general information about

the department, faculty, and research activities, contact the Department of Computer Science or visit its web site.

Master of Computer Science

The Master of Computer Science (M.C.S.) requires a minimum of 32 s.h. of graduate credit, including at least 24 s.h. earned at The University of Iowa. Basic M.C.S. requirements are as follows. Consult the Computer Science Graduate Handbook for detailed information about M.C.S. requirements and graduate study policies.

FOUNDATIONS

One of these:

CS:4330 (22C:135) Theory of Computation	3 s.h.
CS:4340 (22C:131) Limits of Computation	3 s.h.
CS:5350 (22C:231) Design and Analysis of Algorithms	3 s.h.

SYSTEMS

One of these:

CS:5610 (22C:160) High Performance Computer Architecture	3 s.h.
CS:5620 (22C:166) Distributed Systems and Algorithms	3 s.h.
CS:5810 (22C:181) Formal Methods in Software Engineering	3 s.h.
CS:5850 (22C:185) Programming Language Foundations	3 s.h.

COLLOQUIUM

M.C.S. students must earn at least 2 s.h. in CS:6000 (22C:399) Research Seminar: Colloquium Series.

ELECTIVES

M.C.S. students complete the remaining 24 s.h. with a combination of computer science graduate courses, reading and project courses, and non-computer science graduate courses approved by their advisor. They must complete at least six computer science graduate courses (18 s.h.) numbered 3000 or above, which may not include the following courses:

CS:5990 (22C:199) Individualized Research or Programming Project,
CS:6000 (22C:399) Research Seminar: Colloquium Series,
CS:6990 (22C:290) Readings for Research, and
CS:7990 (22C:299) Research for Dissertation.

The remaining 6 s.h. of electives may include technical or quantitative graduate courses outside of computer science, with the advisor's approval. Students also may include up to 3 s.h. earned in independent study courses [CS:5990 (22C:199) Individualized Research or Programming Project or CS:6990 (22C:290) Readings for Research].

Master of Science

The Master of Science in computer science is offered only to students working toward the Ph.D. in computer science. Students who are interested primarily in a master's degree and who do not intend to pursue a more advanced degree should apply to the M.C.S. program.

Doctor of Philosophy

The Doctor of Philosophy program in computer science requires a minimum of 72 s.h. of graduate credit, three examinations (qualifying, comprehensive, and final), and a written dissertation. Basic Ph.D. requirements are as follows. Consult the Computer Science Graduate Handbook for detailed information about Ph.D. requirements and graduate study policies.

CORE REQUIREMENT

Both of these:

CS:4330 (22C:135) Theory of Computation	3 s.h.
CS:5350 (22C:231) Design and Analysis of Algorithms	3 s.h.

BREADTH

Ph.D. students must complete at least three of the following courses, with at least one course selected from each area (9 s.h.).

Systems and software:

CS:4640 (22C:169) Computer Security	3 s.h.
CS:4980 (22C:196) Topics in Computer Science II (section approved by advisor)	3 s.h.
CS:5610 (22C:160) High Performance Computer Architecture	3 s.h.

Networks and distributed systems:

CS:4980 (22C:196) Topics in Computer Science II (section approved by advisor)	3 s.h.
CS:5620 (22C:166) Distributed Systems and Algorithms	3 s.h.

Programming languages and compilers:

CS:4980 (22C:196) Topics in Computer Science II (section approved by advisor)	3 s.h.
CS:5810 (22C:181) Formal Methods in Software Engineering	3 s.h.
CS:5850 (22C:185) Programming Language Foundations	3 s.h.

PRACTICE

Ph.D. students must complete at least one course (3 s.h.) with significant practical or implementation-oriented content. Each semester the department designates courses that satisfy this requirement. The following are typical selections.

CS:4400 (22C:144) Database Systems	3 s.h.
CS:4420 (22C:145) Artificial Intelligence	3 s.h.
CS:4440 (22C:149) Web Mining	3 s.h.
CS:4460 (22C:146) Introduction to Computational Linguistics	3 s.h.
CS:4520 (22C:151) Computer Graphics	3 s.h.
CS:4700 (22C:177) High Performance and Parallel Computing	3 s.h.
CS:4720 (22C:174) Optimization Techniques	3 s.h.
CS:4980 (22C:196) Topics in Computer Science II (section approved by advisor)	3 s.h.
CS:5520 (22C:251) Advanced Computer Graphics	3 s.h.
CS:5800 (22C:180) Fundamentals of Software Engineering	3 s.h.

CS:5990 (22C:199) Individualized Research or Programming Project	3 s.h.
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COGNATE AREA

Ph.D. students are required to select, in consultation with their advisor, graduate course work totaling 9 s.h. that constitutes coherent coverage of an external cognate area; the courses need not be offered by the same department. Choices include, but are not limited to, mathematics, statistics, genetics, biology, and engineering disciplines.

COLLOQUIUM

Ph.D. students must earn at least 4 s.h. in CS:6000 (22C:399) Research Seminar: Colloquium Series.

ELECTIVES

Ph.D. students fill their remaining semester hours with a selection of computer science graduate courses numbered 3000 or above and graduate courses outside of computer science, approved by their advisor.

QUALIFYING EXAM

Ph.D. students are required to pass a qualifying examination by the end of their second year of graduate study. Once students select a topic in consultation with their advisor, they are assigned a three-member faculty examination panel by the department. Then they prepare a written prospectus for review by the committee, followed by an oral presentation.

COMPREHENSIVE EXAM

The comprehensive examination is an evaluation of the student's mastery of a research area near completion of formal course work, and before preparation of the dissertation. The exam may be written, oral, or both, at the department's discretion, and is administered by a faculty committee. The comprehensive exam typically should be completed by the end of the student's third year and no later than the end of the fourth year in the Ph.D. program.

DISSERTATION

Each Ph.D. student must write a dissertation, a significant, original contribution to the field of computer science. Once students obtain some preliminary results and can identify and describe the boundaries of their dissertation, they prepare a written proposal for their committee's review. The dissertation must be prepared in accordance with the format specified in the Graduate College Thesis Manual.

FINAL ORAL EXAMINATION

Once the dissertation is complete and has been reviewed by the student's committee, a final oral examination is administered on campus. This examination must take place no sooner than the semester following successful completion of the comprehensive examination and no later than five years after completion of the comprehensive exam.

Courses

Lower-Level Undergraduate

CS:1000 (22C:002) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

CS:1020 (22C:001) Principles of Computing 3 s.h.

Introduction to computing; broad overview of discipline; necessary skills and concepts for effective application of computing resources in student's profession. Recommendations: No credit for students who have completed a higher-numbered CS (22C) course. GE: Quantitative or Formal Reasoning.

CS:1110 (22C:005) Introduction to Computer Science 3 s.h.

Introduction to computer science and the study of algorithms; foundational ideas, computer organization, software concepts (e.g., networking, databases, security); programming concepts using Python. Recommendations: closed to students who have completed CS:2230 (22C:021) or a higher-numbered computer science course. GE: Quantitative or Formal Reasoning.

CS:1210 (22C:016) Computer Science I: Fundamentals 4 s.h.

Introduction to programming using Python; programming constructs, data types, problem-solving strategies, data structures, object-oriented programming. Requirements: MATH:1020 (22M:009) or MATH:1340 (22M:013) or MATH:1440 (22M:015) or math placement to a calculus course. GE: Quantitative or Formal Reasoning.

CS:2110 (22C:080) Programming for Informatics 4 s.h.

Computing fundamentals for informatics students, including practical programming skills (e.g., in Perl, other scripting languages) and introduction to algorithms, data structures, databases. Prerequisites: CS:1110 (22C:005). Corequisites: MATH:1010 (22M:005) or MATH:1020 (22M:009) or MATH:1240 (22M:010) or MATH:1340 (22M:013) or MATH:1440 (22M:015), if not taken as a prerequisite.

CS:2111 (22C:081) Programming Practice 2 s.h.

Review of introductory Python programming concepts taught in CS:1210 (22C:016) and CS:2110 (22C:080); enhance mastery of introductory programming. Prerequisites: CS:1210 (22C:016) or CS:2110 (22C:080).

CS:2210 (22C:019) Discrete Structures 3 s.h.

Mathematical methods used in computer science, including logic, proof techniques (with induction), functions, relations, algorithm analysis, recurrence relations, counting methods, combinatorics, graphs, trees. Corequisites: CS:1210 (22C:016), if not taken as a prerequisite. Recommendations: calculus I.

CS:2230 (22C:021) Computer Science II: Data Structures 4 s.h.

Design, implementation, and application of data structures (e.g., linked lists, stacks, queues, hash tables, trees); complexity analysis; recursion; introduction to object-oriented programming concepts; abstract data types and their realization using generic interfaces and classes; software design patterns (e.g., iterators, comparators). Prerequisites: CS:1210 (22C:016). Corequisites: CS:2210 (22C:019), if not taken as a prerequisite.

CS:2420 (22C:084) Databases for Informatics 3 s.h.

Design and implementation of relational database systems: introduction to the relational model, database design, database normalization, use of database query and manipulation languages such as SQL. Prerequisites: CS:2110 (22C:080).

CS:2520 (22C:082) Human-Computer Interaction 3 s.h.

Basic theories, principles, and guidelines for design and evaluation of human-computer interactions; design methodologies (e.g., participatory design, low- and high-fidelity prototyping), user interface technologies (e.g., input and output devices, interaction styles), quantitative and qualitative evaluation of user interfaces (e.g., expert reviews, usability testing). Corequisites: CS:2110 (22C:080), if not taken as a prerequisite.

CS:2620 (22C:086) Networking and Security for Informatics 3 s.h.

Introduction to computer networking, overview of network organization and management; basic understanding of encryption and network security; practical experience in network programming. Prerequisites: CS:2110 (22C:080).

CS:2630 (22C:060) Computer Organization 3 s.h.

Computer building blocks: representing data, computer arithmetic, instruction sets, assembly language, digital logic, control units, ALU design, register operations, memory organization, IO. Prerequisites: CS:2230 (22C:021).

CS:2820 (22C:022) Object-Oriented Software Development 4 s.h.

Object-oriented design and software development methodology; team programming projects; GUIs, event handling, network programming, concurrency, data representation, IO programming. Prerequisites: CS:2230 (22C:021).

Upper-Level Undergraduate and Graduate

CS:3110 (22C:104) Introduction to Informatics 3 s.h.

Fundamentals of computer science: algorithms, complexity, relational databases, systems concepts, programming in Python. Requirements: CS:1110 (22C:005) or graduate standing.

CS:3210 (22C:109) Programming Languages and Tools arr.

Varied programming languages and tools. Prerequisites: CS:1210 (22C:016) or CS:2110 (22C:080) or CS:3110 (22C:104).

- CS:3330 (22C:031) Algorithms** 3 s.h.
Algorithm design techniques (e.g., greedy algorithms, divide-and-conquer, dynamic programming, randomization); fundamental algorithms (e.g., basic graph algorithms); techniques for efficiency analysis; computational intractability and NP-completeness. Prerequisites: CS:2230 (22C:021), and MATH:1550 (22M:031) or MATH:1850 (22M:025).
- CS:3620 (22C:112) Operating Systems** 3 s.h.
Introduction to modern operating systems, including device control, memory management and addressing, process scheduling, interprocess communication, interrupts, synchronization, security. Prerequisites: CS:2630 (22C:060).
- CS:3640 (22C:118) Introduction to Networks and Their Applications** 3 s.h.
Introduction to networks and the development of network applications; basic concepts of network communication common to applications such as simulation and web services. Prerequisites: CS:2630 (22C:060).
- CS:3700 (22C:072) Elementary Numerical Analysis** 3 s.h.
Computer arithmetic, root finding, polynomial approximation, numerical integration, systems of linear equations, ordinary differential equations; use of higher-level computer language such as Matlab, Maple, Mathematica. Prerequisites: MATH:1560 (22M:032) or MATH:1860 (22M:026). Same as MATH:3800 (22M:072).
- CS:3820 (22C:111) Programming Language Concepts** 3 s.h.
Imperative, functional, and logical programming languages, and differences between them; syntax specification, types, control structures, recursion, data abstraction. Prerequisites: CS:2230 (22C:021), and CS:2630 (22C:060) or CS:2820 (22C:022).
- CS:3910 (22C:094) Informatics Project** 3 s.h.
Experience designing, implementing, documenting, and testing a system using appropriate software tools (e.g., a project working with an information management tool consisting of a database system with a Web-based front end); typically done in small groups; capstone project for informatics majors. Prerequisites: CS:2420 (22C:084), CS:2520 (22C:082), and CS:2620 (22C:086).
- CS:3980 (22C:096) Topics in Computer Science I** 3 s.h.
Complement to material in other courses. Prerequisites: CS:2110 (22C:080) or CS:2230 (22C:021) or CS:2820 (22C:022) or CS:3110 (22C:104).
- CS:3990 (22C:099) Honors in Computer Science or Informatics** arr.
Individual projects. Requirements: computer science or informatics major, and honors standing.
- CS:4330 (22C:135) Theory of Computation** 3 s.h.
Finite automata; regular sets and expressions; context-free and context-sensitive grammars, their properties; push-down automata; standard, universal, and linear-bounded Turing machines; relationships between formal languages and automata; undecidability and its consequences. Prerequisites: CS:3330 (22C:031).
- CS:4340 (22C:131) Limits of Computation** 3 s.h.
Turing machines, undecidability and complexity: reductions, Cook's theorem and NP-completeness, approximation algorithms and randomized algorithms. Prerequisites: CS:3330 (22C:031).
- CS:4350 (22C:188) Logic in Computer Science** 3 s.h.
Applications of symbolic logic in computer science; symbolic logic as a powerful tool for modeling computation and computational devices and reasoning formally about them; introduction to several logics (i.e., propositional, predicate, temporal, modal) differing in their expressive power and focus, their uses in computer science; how to represent knowledge in these logics, what represents a valid argument, and how to prove or disprove, possibly automatically, the validity of a logical statement. Prerequisites: CS:2210 (22C:019). Recommendations: computer science, math, or engineering major.
- CS:4400 (22C:144) Database Systems** 3 s.h.
Introduction to database systems including querying using SQL, design using ER diagrams, developing relational databases, programming web applications using PHP or JDBC. Prerequisites: CS:2230 (22C:021) and CS:3330 (22C:031).
- CS:4420 (22C:145) Artificial Intelligence** 3 s.h.
Introduction to artificial intelligence covering problem-solving methods, heuristic search, knowledge representation, automated reasoning, planning, game playing, machine learning, and neural networks. Prerequisites: CS:3330 (22C:031).
- CS:4440 (22C:149) Web Mining** 3 s.h.
Core methods underlying development of applications on the Web; examples of relevant applications, including those pertaining to information retrieval, summarization of Web documents, and identifying social networks. Prerequisites: CS:2230 (22C:021) and CS:2820 (22C:022). Recommendations: CS:4400 (22C:144) strongly recommended.
- CS:4460 (22C:146) Introduction to Computational Linguistics** 3 s.h.
Introduction to computational linguistics; focus on theory and practice of natural language processing and syntactic and semantic analysis. Same as LING:4030 (103:140).
- CS:4500 (22C:148) Research Methods in Human-Computer Interaction** 3 s.h.
Survey of recent research in the field of human-computer interaction; research methods and current readings. Prerequisites: CS:2520 (22C:082).

- CS:4520 (22C:151) Computer Graphics** 3 s.h.
Introduction to computer graphics algorithms and techniques, with emphasis on interactive 3-D graphics; coordinate systems and frames, modeling and viewing transformations, rendering, shading, lighting, texture, bump, environment mapping, animation, ray tracing, radiosity. Prerequisites: CS:3330 (22C:031) and MATH:2700 (22M:027).
- CS:4640 (22C:169) Computer Security** 3 s.h.
Mechanism versus policy; authentication, access control, security domains; perimeter security, defense in depth; cryptographic protocols; key management and distribution; security assessment. Prerequisites: CS:2630 (22C:060).
- CS:4700 (22C:177) High Performance and Parallel Computing** 3 s.h.
Parallel scientific computing methods such as parallel algorithms for dense and sparse matrices; implementation using libraries such as MPI; current topics such as grid computing. Prerequisites: CS:2630 (22C:060) and MATH:2700 (22M:027). Same as MATH:4860 (22M:178).
- CS:4720 (22C:174) Optimization Techniques** 3 s.h.
Basic theory of optimization, use of numerical algorithms in solution of optimization problems; linear and nonlinear programming, sensitivity analysis, convexity, optimal control theory, dynamic programming, calculus of variations. Prerequisites: MATH:2700 (22M:027), MATH:2850 (22M:028), and MATH:3800 (22M:072). Same as MATH:4820 (22M:174).
- CS:4740 (22C:179) Large Data Analysis** 3 s.h.
Current areas that deal with problem of Big Data; techniques from computer science, mathematics, statistics; high performance and parallel computing, matrix techniques, cluster analysis, visualization; variety of applications including Google PageRank, seismology, Netflix-type problems, weather forecasting; fusion of data with simulation; projects. Prerequisites: CS:1210 (22C:016) and STAT:3200 (22S:152). Corequisites: MATH:3800 (22M:072). Same as MATH:4740 (22M:179), STAT:4740 (22S:169).
- CS:4980 (22C:196) Topics in Computer Science II** 3 s.h.
Complements material in other courses. Prerequisites: CS:2110 (22C:080) or CS:2230 (22C:021) or CS:2820 (22C:022) or CS:3110 (22C:104).
- Graduate**
Competence and exposure to computer science are not only useful, they often are prerequisite to advanced study and research in many disciplines. For most graduate students from other disciplines, an appropriate first course is CS:3110 (22C:104) Introduction to Informatics.
- CS:5350 (22C:231) Design and Analysis of Algorithms** 3 s.h.
Review of design and analysis techniques; advanced data structures (binomial and Fibonacci heaps, disjoint sets); graph algorithms (network flows, matching, min-cut); NP-completeness, randomization and approximation algorithms; special topics (string matching, computational geometry, number theoretic algorithms). Prerequisites: CS:3330 (22C:031) or CS:4340 (22C:131).
- CS:5520 (22C:251) Advanced Computer Graphics** 3 s.h.
Topics such as global illumination and rendering; volume rendering; animation; curves and surfaces, advanced modeling and mapping techniques; graphics hardware; real-time graphics for virtual environments. Prerequisites: CS:4520 (22C:151).
- CS:5610 (22C:160) High Performance Computer Architecture** 3 s.h.
Problems involved in designing and analyzing current machine architectures using hardware description language (HDL) simulation and analysis, hierarchical memory design, pipeline processing, vector machines, numerical applications, multiprocessor architectures and parallel algorithm design techniques; evaluation methods to determine relationship between computer design and design goals. Prerequisites: CS:3620 (22C:112) or ECE:3350 (055:035). Same as ECE:5320 (055:132).
- CS:5620 (22C:166) Distributed Systems and Algorithms** 3 s.h.
Models of distributed systems, program correctness—safety and liveness properties, causality, logical and vector clocks, mutual exclusion, distributed snapshot, leader election, distributed algorithms for graph-theoretic problems, fault-tolerance—masking versus nonmasking types, checkpointing, stabilization, consensus—byzantine generals problem, fault-tolerant broadcast and multicast, management of replicated data. Prerequisites: CS:3330 (22C:031) and CS:3620 (22C:112). Requirements: some interest in networking.
- CS:5710 (22C:170) Numerical Analysis: Nonlinear Equations and Approximation Theory** 4 s.h.
Root finding for nonlinear equations; polynomial interpolation; polynomial approximation of functions; numerical integration. Prerequisites: MATH:2700 (22M:027) and MATH:2850 (22M:028), or MATH:3550 (22M:037). Requirements: knowledge of computer programming. Same as MATH:5800 (22M:170).
- CS:5720 (22C:171) Numerical Analysis: Differential Equations and Linear Algebra** 4 s.h.
Numerical methods for initial value problems for ordinary differential equations; direct and iterative methods for linear systems of equations; eigenvalue problems for matrices. Prerequisites: MATH:2700 (22M:027) and MATH:2850 (22M:028), or MATH:3550 (22M:037); and MATH:3600 (22M:100). Requirements: knowledge of computer programming. Same as MATH:5810 (22M:171).
- CS:5800 (22C:180) Fundamentals of Software Engineering** 3 s.h.

Problem analysis, requirements definition, specification, design, implementation, testing/maintenance, integration, project management; human factors; management, technical communication; design methodologies; software validation, verification; group project experience. Prerequisites: CS:2820 (22C:022) or ECE:3330 (055:033). Same as ECE:5800 (055:180).

CS:5810 (22C:181) Formal Methods in Software Engineering 3 s.h.

Models, methods, and their application in all phases of software engineering process; specification methods; verification of consistency, completeness of specifications; verification using tools. Prerequisites: CS:2820 (22C:022) or ECE:3330 (055:033). Recommendations: CS:4350 (22C:188). Same as ECE:5810 (055:181).

CS:5820 (22C:182) Software Engineering Languages and Tools 3 s.h.

Modern agile software development practices for cloud and web-based applications, using state-of-the-art software engineering languages, tools, and technologies; agile software development practices, software-as-a-service (SAAS), and the Ruby on Rails Development Framework. Requirements: ECE:5800 (055:180) or CS:5800 (22C:180); or graduate standing with solid understanding of object-oriented design and programming, and facility with at least one object-oriented programming language. Same as ECE:5820 (055:182).

CS:5830 (22C:183) Software Engineering Project 3 s.h.

Team software development project using concepts and methodologies learned in earlier software engineering classes; practical aspects of large-scale software development. Prerequisites: CS:5800 (22C:180) and CS:5820 (22C:182). Same as ECE:5830 (055:183).

CS:5850 (22C:185) Programming Language Foundations 3 s.h.

Introduction to formal foundations of programming languages using a variety of models, including attribute grammars, operational, axiomatic, denotational, and algebraic techniques; proofs of program equivalence, correctness, termination. Prerequisites: CS:3330 (22C:031) and CS:3820 (22C:111).

CS:5980 (22C:296) Topics in Computer Science III arr.

Complements material in other courses.

CS:5990 (22C:199) Individualized Research or Programming Project arr.

Individualized research and/or programming projects in computer science, guided by a faculty member.

CS:6000 (22C:399) Research Seminar: Colloquium Series 1 s.h.

Graduate colloquium. Requirements: graduate standing in computer science.

CS:6421 (22C:141) Knowledge Discovery 3 s.h.

Knowledge discovery process, including data reduction, cleansing, transformation; advanced modeling techniques from classification, prediction, clustering, association; evaluation and integration. Same as MSCI:6421 (06K:275).

CS:6990 (22C:290) Readings for Research arr.

Requirements: Ph.D. standing in computer science.

CS:7990 (22C:299) Research for Dissertation arr.

Requirements: Ph.D. candidacy (postcomprehensive exam) in computer science.

Creative Writing (Iowa Writers' Workshop)

Director

- Lan Samantha Chang

Professors

- Ethan Canin (Creative Writing/English), Lan Samantha Chang (Creative Writing/English), James Galvin (Creative Writing/English), James Alan McPherson (Creative Writing/English), Marilynne Robinson (Creative Writing/English)

Associate professor

- Mark Levine (Creative Writing/English)

Graduate degree: M.F.A. in English

Web site: <http://writersworkshop.uiowa.edu/>

The Creative Writing Program (Iowa Writers' Workshop) is a world-renowned graduate program for fiction writers and poets. It was the first creative writing program in the United States to offer a degree, and it became a model for many contemporary writing programs. In addition to its Master of Fine Arts program, it also offers writing courses for undergraduates.

Creative writing classes at The University of Iowa began in the 1890s, and in 1922 the University became the nation's first institution of higher education to accept creative work as theses for advanced degrees. The Iowa Writers' Workshop began in 1936, drawing distinguished fiction writers and poets who would lecture and stay to discuss students' work; some came for a full year of teaching.

Today the program's faculty and alumni include nationally and internationally prominent poets, novelists, and short story writers; many have won Pulitzer Prizes, National Book Awards, and other major literary honors. In 2003 the Iowa Writers' Workshop received a National Humanities Medal from the National Endowment for the Humanities—the first awarded to a university and only the second given to an institution rather than an individual.

To learn more about the Creative Writing Program's history and faculty, visit the Iowa Writers' Workshop web site.

Graduate Program of Study

- Master of Fine Arts in English

The Program in Creative Writing offers a master's degree program. However, unusually well-qualified Ph.D. students in the Department of English may obtain permission to submit a creative dissertation for the doctoral degree; the Program in Creative Writing assumes responsibility for granting permission for the option of the creative dissertation and for approving the dissertation once it is completed. Contact the director of graduate studies in the Department of English for more information.

Master of Fine Arts

The Master of Fine Arts degree in English (creative writing) requires 48 s.h. of graduate credit taken over four semesters in residence at The University of Iowa. Students specialize in fiction or poetry.

The program is flexible and individualized. Approximately half of the credit required for the degree is earned in writing courses; the rest may be earned in other graduate courses. Up to 18 s.h. of graduate transfer credit may be counted toward the degree, but transfer credit does not change the residency requirement.

Students must enroll in CW:7870 (08C:251) Fiction Workshop or CW:7875 (08C:252) Poetry Workshop during each semester of residence in the program. In each course, groups of 10-15 students read and critique each others' work.

The program's seminars provide students with a thorough knowledge of their chosen literary form and related aspects of craft. Seminars include CW:7810 (08C:270) Form of Fiction, CW:7820 (08C:275) Form of Poetry, CW:7830 (08C:490) Seminar: Problems in Modern Fiction, and CW:7840 (08C:495) Seminar: Problems in Modern Poetry. Each focuses on a single aspect of modern poetry or fiction, such as a single writer's work or a body of work with a common theme or purpose.

In addition to taking Creative Writing Program courses, many M.F.A. students choose courses offered by other University of Iowa departments and programs, such as the interdisciplinary Center for the Book (p. 956) (Graduate College), the Department of Theatre Arts (p. 640), the Comparative Literature (p. 199) Program, and the Department of English (p. 252).

During the second year of the program, each student must take the M.F.A. examination, an essay exam that may be written outside of the classroom. Students submit their graduate thesis during the last semester, CW:7895 (08C:590) M.F.A. Thesis; the thesis is a fiction or poetry manuscript of substantial length.

Admission

Applicants to the Creative Writing Program (Iowa Writers' Workshop) must meet the program's admission requirements as well as those of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

A creative writing manuscript is the most important element of the application for admission to the workshop. Submissions for poetry should include 10-12 poems. Submissions for fiction should include two or three short stories or a section of a novel, or both, usually 30-38 double-spaced pages (may not exceed 100 double-spaced pages).

Other application materials include a personal statement, official transcripts from all universities and colleges attended, the graduate application form, three letters of recommendation, an application for graduate awards, and an application to the Graduate College. Graduate Record Exam (GRE) General Test scores are optional, but they may make applicants more competitive for a wider range of financial assistance.

For detailed information on application materials and procedures, see How to Apply on the Iowa Writers' Workshop web site.

Financial Support

Financial assistance is available to Creative Writing Program students in the form of teaching assistantships,

research assistants, and fellowships. See Financial Aid on the Iowa Writers' Workshop web site.

CW:7890 (08C:555) Graduate Project in Creative Writing arr.

CW:7895 (08C:590) M.F.A. Thesis arr.

Courses

The Creative Writing Program offers courses for undergraduates as well as graduate students. Enrollment in some graduate-level courses requires admission to the M.F.A. program. See "Courses" in the Department of English (p. 252) section of the Catalog for course descriptions and prerequisites to enrollment.

Lower-Level Undergraduate

CW:1800 (08C:001) Creative Writing Studio Workshop 3 s.h.

CW:2100 (08C:023) Creative Writing 3 s.h.

CW:2870 (08C:097) Fiction Writing 3 s.h.

CW:2875 (08C:098) Poetry Writing 3 s.h.

Upper-Level Undergraduate and Graduate

CW:3001 (08C:101) Creative Writing for Business 3 s.h.

CW:3107 (08C:107) Creative Writing for the Health Professions 3 s.h.

CW:3210 (08C:110) Creative Writing and the Natural World 3 s.h.

CW:3215 (08C:115) Creative Writing and Popular Culture 3 s.h.

CW:3218 (08C:108) Creative Writing for New Media 3 s.h.

CW:4745 (08C:145) The Sentence: Strategies for Writing 3 s.h.

CW:4750 (08C:150) Writing and Activism 3 s.h.

CW:4751 (08C:151) Creative Writing for the Musician 3 s.h.

CW:4760 (08C:160) The Art of Revision: Rewriting Prose for Clarity and Impact 3 s.h.

CW:4870 (08C:163) Undergraduate Writers' Workshop: Fiction arr.

CW:4875 (08C:166) Undergraduate Writers' Workshop: Poetry arr.

CW:4894 (08C:195) Undergraduate Project in Creative Writing arr.

Graduate

CW:5870 (08C:297) Graduate Fiction Writing (guided independent study) 3 s.h.

CW:5875 (08C:298) Graduate Poetry Writing (guided independent study) 3 s.h.

CW:7810 (08C:270) Form of Fiction 3 s.h.

CW:7820 (08C:275) Form of Poetry 3 s.h.

CW:7830 (08C:490) Seminar: Problems in Modern Fiction arr.

CW:7840 (08C:495) Seminar: Problems in Modern Poetry arr.

CW:7870 (08C:251) Fiction Workshop arr.

CW:7875 (08C:252) Poetry Workshop arr.

Critical Cultural Competence

Coordinator

- Motier Haskins

Undergraduate certificate: critical cultural competence

Web site: <http://clas.uiowa.edu/socialwork/undergraduate-program/certificate-critical-cultural-competence>

The Certificate in Critical Cultural Competence is administered by the School of Social Work (p. 586).

Undergraduate Program of Study

- Certificate in Critical Cultural Competence

The certificate program helps students develop an appreciation for their own cultural identities. It also helps them become critically self-reflective in their orientation to differences in other people's cultural identities as defined by matters such as race, ethnicity, gender, class, and sexual orientation.

Certificate

The Certificate in Critical Cultural Competence requires 18 s.h. of course work. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

Ideally, students begin the certificate during their second year of undergraduate study.

Certificate students build the knowledge, skills, and attitudes they will need in order to increase their effectiveness in relating to others across cultural differences and in domestic and international environments that are increasingly diverse. Students who complete the certificate program develop:

- greater appreciation of cultural differences;
- increased ability to interact with individuals of diverse backgrounds;
- a philosophy of treating people fairly, equitably, and thoughtfully;
- critical self-reflection and awareness of their own culture;
- ability to assess and understand culture-related privilege and disprivilege; and
- concern with issues of power and privilege, and social justice.

The Certificate in Critical Cultural Competence requires the following course work.

CCCC:2220 (208:120) Foundations of Critical Cultural Competence	3 s.h.
CCCC:4490 (208:190) Integrative Seminar in Critical Cultural Competence	3 s.h.
Three electives covering at least two diversity categories	9 s.h.
One elective with an immersion-learning or service-learning component	3 s.h.

Students begin the certificate with CCCC:2220 (208:120) Foundations of Critical Cultural Competence, which is offered spring semesters and is prerequisite to the course work that follows. They complete a minimum of three elective courses (9 s.h.) that cover at least two diversity categories; a maximum of two electives may be taken from the same department, and two of the three electives must be numbered 3000 or above. An additional experiential elective (3 s.h.) with an immersion-learning or service-learning component is required. Students complete the certificate's requirements with the capstone course, CCCC:4490 (208:190) Integrative Seminar in Critical Cultural Competence, which is offered spring semesters.

In collaboration with the certificate program's coordinator, students establish study plans while completing the foundation course. The coordinator works with the academic advisor in the student's major to ensure that the study plan complements the student's academic program and career interests. The program coordinator approves the final study plan, recommends the sequence in which course work should be taken, schedules required courses, and keeps a record of each student's approved program and progress.

For more information, contact the School of Social Work.

Courses

CCCC:2220 (208:120) Foundations of Critical Cultural Competence 3 s.h.

Experiential and theoretical foundation; cultural competence as a concept and practice; conceptual frameworks and models for understanding cultural differences and similarities within, among, and between groups of people with whom others interact in their professional, personal, public, and private lives; appreciating differences while learning to be self-reflective; adjustment of perceptions, behaviors, styles for effective interaction with people from different ethnic, racial, sexual, gender, class groups. Prerequisites: RHET:1030 (010:003).

CCCC:4490 (208:190) Integrative Seminar in Critical Cultural Competence 3 s.h.

Capstone course; application of knowledge to one's areas of study; community settings where cultural competence is required; challenges and benefits of behaving in culturally competent ways in varied contexts; review and critique of educational experiences in the certificate program; development of skills in community education related to cultural competence; group project to benefit the University and/or community; development of a plan to integrate critical cultural competence into careers. Requirements: completion of other required certificate courses.

Dance

Director, Division of Performing Arts

- Alan MacVey

Chair, Department of Dance

- George de la Peña

Professor

- Armando Duarte

Associate professors

- Charlotte Adams, Eloy Barragán, George de la Peña, Jennifer Kayle, Rebekah Kowal

Lecturer

- Jim Albert

Adjunct assistant professors

- Paul Cunliffe, Lyle Juracek

Professor emeritus

- Françoise Martinet

Associate professors emeriti

- Alicia Brown, Helen Chadima

Undergraduate major: dance (B.A., B.F.A.)

Undergraduate minor: dance

Graduate degree: M.F.A. in dance

Web site: <http://dance.uiowa.edu/>

The Department of Dance offers degree programs for undergraduates and graduate students. The undergraduate major in dance provides a liberal arts and sciences education and thorough preparation for careers in professional dance, choreography, and education as well as preparation for graduate studies.

The department offers as many as 14 concerts every year, providing dance students with numerous opportunities for performance and choreography. Each year the University of Iowa Dance Company performs Dance Gala on campus, and since 1986, the department's touring company, Dancers in Company, has given students an opportunity to perform in Iowa and surrounding states.

Dance faculty members regularly present their choreography in national and international venues, giving University student performers the opportunity to further develop their performance skills. Periodic master classes with noted guest teachers, choreographers, and touring companies add diversity to the dance experience.

The department is one of three academic units in the Division of Performing Arts (p. 234). It participates in offering the division's Certificate in Performing Arts Entrepreneurship (p. 512).

Undergraduate Programs of Study

- Major in dance (Bachelor of Arts, Bachelor of Fine Arts)
- Minor in dance

Students must audition on campus in order to be admitted to a degree program or the minor in dance, as well as for placement in advanced dance classes.

Bachelor of Arts

The Bachelor of Arts with a major in dance requires a minimum of 120 s.h., including 53 s.h. of work for the major (50 s.h. in dance and 3 s.h. in a required anatomy course). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The B.A. program is designed for students who want to acquire a strong liberal arts and sciences background while pursuing a comprehensive undergraduate dance education. The dance major for the Bachelor of Arts stresses performance and choreography as well as dance theory courses, including dance history, dance kinesiology, and dance production.

Students must audition on campus, during the semester before they enter the University, in order to be admitted to a degree program in dance. They must audition for placement in dance classes before they register for classes. Nonmajors may register only for beginning and continuing levels of ballet and modern dance, but they may register for all levels of jazz and Afro-Cuban dance. Contact the Department of Dance, its undergraduate program coordinator, or the University's Office of Admissions for additional information.

All B.A. students must complete HHP:1100 (027:053) Human Anatomy (3 s.h.). The required 50 s.h. in Department of Dance courses must include two semesters of DANC:3530 (137:113) Major Ballet II or DANC:3540 (137:114) Major Modern Dance II with a grade of B-minus or higher. Two semesters of DANC:4040 (137:124) Major Modern Dance III, DANC:4030 (137:123) Major Ballet III, or DANC:4540 (137:130) Major Modern Dance IV also satisfy this requirement. At least half of all semester hours in the major must be earned at The University of Iowa. No more than 56 s.h. in Department of Dance courses may be counted toward the 120 s.h. required for the B.A.

The Bachelor of Arts major in dance requires the following course work.

CORE COURSES

B.A. students should register for cross-listed core courses under the Department of Dance course number (prefix DANC) in order for those courses to count toward the 50 s.h. in Department of Dance courses required for the major.

DANC:1060 (137:040) Introduction to Dance Studies	1 s.h.
DANC:1080 (137:060) Music Essentials for Dance	2 s.h.
DANC:1090 (137:050) Dance Production	3 s.h.
DANC:2060 (137:080)/DPA:2060 (188:080) Dance and Society in Global Contexts	3 s.h.
DANC:2220 (137:051) Production Run Crew (2 s.h. required)	2 s.h.
DANC:3060 (137:181) Dance History	3 s.h.
DANC:3070 (137:147)/THTR:3070 (049:108) Dance Kinesiology	3 s.h.
HHP:1100 (027:053) Human Anatomy	3 s.h.

STUDIO COURSES

DANC:2050 (137:134) Improvisation I	2 s.h.
DANC:3150 (137:070) Choreography I	2 s.h.
DANC:3250 (137:071) Choreography II	2 s.h.

DANCE TECHNIQUE

Students must complete 20 s.h. from the following courses. They must include 6 s.h. of ballet, 6 s.h. of modern dance, and two semesters of one of these: DANC:3530 (137:113), DANC:3540 (137:114), DANC:4030 (137:123), DANC:4040 (137:124), or DANC:4540 (137:130). All courses may be repeated.

DANC:2020 (137:022) Intermediate Jazz	2 s.h.
DANC:2030 (137:023) Intermediate Ballet	2 s.h.
DANC:2040 (137:024) Intermediate Modern	2 s.h.
DANC:3030 (137:103) Major Ballet I	1-3 s.h.
DANC:3040 (137:104) Major Modern Dance I	1-3 s.h.
DANC:3085 (137:174) Introduction to Afro-Cuban Dance	1 s.h.
DANC:3530 (137:113) Major Ballet II	1-3 s.h.
DANC:3540 (137:114) Major Modern Dance II	1-3 s.h.
DANC:4030 (137:123) Major Ballet III	1-3 s.h.
DANC:4035 (137:133) Ballet Pointe II	1 s.h.
DANC:4040 (137:124) Major Modern Dance III	1-3 s.h.
DANC:4540 (137:130) Major Modern Dance IV	1-2 s.h.

DANCE ELECTIVES

Credit earned in Department of Dance courses (prefix DANC) that is not used to satisfy core, studio, or dance technique degree requirements is counted toward the dance elective requirement. Dance electives complete the 50 s.h. of dance courses required for the Bachelor of Arts.

The required number of semester hours in dance electives varies depending on whether the student completes the core with dance courses or with cross-listed courses from another department, or has a core requirement waived.

Bachelor of Fine Arts

The Bachelor of Fine Arts with a major in dance requires a minimum of 120 s.h., including 78 s.h. of work for the major (75 s.h. in dance and 3 s.h. in a required anatomy course). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). B.F.A. students are required to maintain a cumulative g.p.a. of at least 3.50 in dance department courses.

In contrast to the B.A. program, the dance major for the B.F.A. emphasizes choreography and performance. It requires an additional 25 s.h. of choreography, performance, and technique. Students may be admitted to the B.F.A. program after they have completed a minimum of 30 s.h. at The University of Iowa. Students who have achieved the equivalent of major II technique and who show academic and professional promise are selected by department faculty for admission to the program.

All B.F.A. students must complete HHP:1100 (027:053) Human Anatomy (3 s.h.). The required 75 s.h. in Department of Dance courses must include three semesters of DANC:4030 (137:123) Major Ballet III or DANC:4540 (137:130) Major Modern Dance IV with a grade of B-minus or higher. B.F.A. students must earn at least

half of the semester hours in the major at The University of Iowa. No more than 75 s.h. in Department of Dance courses may be counted toward the 120 s.h. required for the B.F.A.

The Bachelor of Fine Arts major in dance requires the following course work.

CORE COURSES

B.F.A. students should register for cross-listed core courses under the Department of Dance course number (prefix DANC) in order for those courses to count toward the 75 s.h. in Department of Dance courses required for the major.

DANC:1060 (137:040) Introduction to Dance Studies	1 s.h.
DANC:1080 (137:060) Music Essentials for Dance	2 s.h.
DANC:1090 (137:050) Dance Production	3 s.h.
DANC:2060 (137:080)/DPA:2060 (188:080) Dance and Society in Global Contexts	3 s.h.
DANC:2220 (137:051) Production Run Crew (2 s.h. required)	2 s.h.
DANC:3060 (137:181) Dance History	3 s.h.
DANC:3070 (137:147)/THTR:3070 (049:108) Dance Kinesiology	3 s.h.
HHP:1100 (027:053) Human Anatomy	3 s.h.

STUDIO COURSES

DANC:2050 (137:134) Improvisation I	2 s.h.
DANC:3150 (137:070) Choreography I	2 s.h.
DANC:3250 (137:071) Choreography II	2 s.h.
DANC:4350 (137:170) Choreography III	2 s.h.
DANC:4880 (137:106) Dance Performance (6 s.h. required)	6 s.h.

DANCE TECHNIQUE

Students must complete 32 s.h. from the following courses. They must include 14 s.h. of ballet, 14 s.h. of modern dance, and three semesters of either DANC:4030 (137:123) or DANC:4540 (137:130). All courses may be repeated.

DANC:1150 (137:057) Brazilian Culture and Carnival	3 s.h.
DANC:3030 (137:103) Major Ballet I	1-3 s.h.
DANC:3040 (137:104) Major Modern Dance I	1-3 s.h.
DANC:3085 (137:174) Introduction to Afro-Cuban Dance	1 s.h.
DANC:3530 (137:113) Major Ballet II	1-3 s.h.
DANC:3540 (137:114) Major Modern Dance II	1-3 s.h.
DANC:4030 (137:123) Major Ballet III	1-3 s.h.
DANC:4035 (137:133) Ballet Pointe II	1 s.h.
DANC:4040 (137:124) Major Modern Dance III	1-3 s.h.
DANC:4540 (137:130) Major Modern Dance IV	1-2 s.h.

DANCE ELECTIVES

B.F.A. students choose advanced-level elective course work by selecting one of the following three options.

Option 1, pedagogy—one of these:

DANC:4535 (137:143) Elementary Ballet Pedagogy	3 s.h.
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DANC:4545 (137:144) Teaching of Modern Dance 3 s.h.

Option 2, advanced history or theory—one of these:

DANC:4060 (137:182) The Contemporary Dance Scene 3 s.h.

DANC:5060 (137:202) Theories of Dance and the Body 3 s.h.

Option 3, choreography—both of these:

DANC:4450 (137:171) Choreography IV 2 s.h.

DANC:4991 (137:172) Independent Choreography 1 s.h.

Credit earned in Department of Dance courses (prefix DANC) that is not used to satisfy core, studio, or dance technique degree requirements is counted toward the dance elective requirement. Dance electives complete the 75 s.h. of dance courses required for the Bachelor of Fine Arts.

The required number of semester hours in dance electives varies depending on whether the student completes the core with dance courses or with cross-listed courses from another department, or has a core requirement waived.

SENIOR PROJECT

B.F.A. students culminate their experience with senior projects in choreography or performance. Students may earn honors credit for this project by enrolling in DANC:4999 (137:140) Honors Project in Dance (enrollment requires membership in the University of Iowa Honors Program or special permission from the instructor). Other students must complete DANC:4998 (137:141) BFA Senior Project in Dance.

One of these:

DANC:4998 (137:141) BFA Senior Project in Dance arr.

DANC:4999 (137:140) Honors Project in Dance arr.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Department of Dance course work beyond 50 s.h. for B.A. students and 75 s.h. for B.F.A. students does not apply toward semester hours required for graduation.

Bachelor of Arts

Before the third semester begins: 12 s.h. of course work in the major

Before the fifth semester begins: 24-32 s.h. of course work in the major

Before the seventh semester begins: 36-48 s.h. of course work in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: 42-50 s.h. of course work in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General

Education courses, and a sufficient number of semester hours to graduate

Bachelor of Fine Arts

Before the third semester begins: 16 s.h. of course work in the major

Before the fifth semester begins: 25-40 s.h. of course work in the major

Before the seventh semester begins: 45-60 s.h. of course work in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: 57-75 s.h. of course work in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in dance have the opportunity to graduate with honors in the major. The honors program in dance serves and recognizes outstanding students in choreography, performance, and special projects. Departmental honors students must have a g.p.a. of at least 3.50 in UI dance department courses. To graduate with honors in the major, students must complete 8-10 s.h. of honors work, taking two courses for honors credit and completing an honors project. All honors projects must be approved by the dance department faculty.

Honors students in dance must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in dance requires a minimum of 15 s.h. in University of Iowa Department of Dance courses, including 12 s.h. in courses considered advanced for the minor. Students must maintain a g.p.a. of at least 3.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

Students must audition on campus in order to be admitted to the minor and for placement in dance classes. Auditions are held four times each year. Contact the Department of Dance for more information.

The minor requires the following course work.

DANC:2060 (137:080) Dance and Society in Global Contexts 3 s.h.

Advanced dance courses 12 s.h.

The advanced dance courses must include at least one of these:

DANC:1150 (137:057) Brazilian Culture and Carnival 3 s.h.

DANC:2050 (137:134) Improvisation I 2 s.h.

DANC:3085 (137:174) Introduction to Afro-Cuban Dance 1 s.h.

DANC:3850 (137:160) Introduction to Laban Movement Studies 2-3 s.h.

Students may choose their remaining advanced dance courses from these:

DANC:3030 (137:103) Major Ballet I	1-3 s.h.
DANC:3039 (137:137) Partnering Class	1 s.h.
DANC:3040 (137:104) Major Modern Dance I	1-3 s.h.
DANC:3060 (137:181) Dance History	3 s.h.
DANC:3070 (137:147) Dance Kinesiology	3 s.h.
DANC:3086 (137:175) Afro-Cuban Drum and Dance Performance	1 s.h.
DANC:3521 (137:165) Acting for Singers and for Dancers	2 s.h.
DANC:3530 (137:113) Major Ballet II	1-3 s.h.
DANC:3540 (137:114) Major Modern Dance II	1-3 s.h.
DANC:4030 (137:123) Major Ballet III	1-3 s.h.
DANC:4035 (137:133) Ballet Pointe II	1-2 s.h.
DANC:4040 (137:124) Major Modern Dance III	1-3 s.h.
DANC:4540 (137:130) Major Modern Dance IV	1-2 s.h.
DANC:4880 (137:106) Dance Performance	0-1 s.h.

Graduate Program of Study

- Master of Fine Arts in dance

The Master of Fine Arts is offered with a choice of choreography emphasis or performance emphasis. Students must audition on campus in order to be admitted to the M.F.A. program.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Master of Fine Arts

The Master of Fine Arts program in dance requires a minimum of 60 s.h. of graduate credit. The program is designed to be completed in four to six semesters in residence. Students who demonstrate accomplishment in dance performance and/or choreography may apply for admission to the M.F.A. program. Applicants select the choreography or the performance emphasis before they are admitted.

Admission is based on a review of videotaped choreographic and performance work; letters of recommendation; application materials; and an on-campus audition, in which applicants perform a solo dance, teach one or more classes, and take advanced classes in ballet and modern technique to determine class placement level.

Advanced technique (ballet and/or modern) and demonstrated accomplishment in performance or choreography are prerequisites for admission to the M.F.A. program.

The M.F.A. requires the following course work.

DANCE CORE

A total of 19 s.h. of core course work is required for both the performance emphasis and the choreography emphasis.

One of these:

DANC:4535 (137:143) Elementary Ballet Pedagogy	3 s.h.
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DANC:4545 (137:144) Teaching of Modern Dance	3 s.h.
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One of these:

DANC:5050 (137:234) Graduate Improvisation I	1-2 s.h.
DANC:6050 (137:235) Graduate Improvisation II	2 s.h.

All of these:

DANC:5060 (137:202) Theories of Dance and the Body	3 s.h.
DANC:6060 (137:200) Graduate Seminar in Dance	2 s.h.
DANC:6080 (137:201) Graduate Production Practicum	1 s.h.
DANC:7990 (137:277) Thesis (8 s.h. required)	arr.

DANCE TECHNIQUE

The performance emphasis requires 18 s.h. from the following, and the choreography emphasis requires 12 s.h. All of these courses may be repeated.

DANC:3030 (137:103) Major Ballet I	1-3 s.h.
DANC:3040 (137:104) Major Modern Dance I	1-3 s.h.
DANC:5530 (137:213) Graduate Majors Ballet II	1-3 s.h.
DANC:5540 (137:214) Graduate Majors Modern II	1-3 s.h.
DANC:6030 (137:223) Graduate Majors Ballet III	1-3 s.h.
DANC:6040 (137:224) Graduate Majors Modern III	1-3 s.h.
DANC:6540 (137:230) Graduate Major Modern IV	1-2 s.h.
DANC:7550 (137:231) Graduate Modern Dance Technique Practicum	arr.
DANC:7560 (137:222) Graduate Ballet Technique Practicum	arr.

EMPHASIS COURSES

A total of 14 s.h. is required for both the choreography emphasis and the performance emphasis.

Choreography Emphasis

Both of these:

DANC:6880 (137:206) Graduate Dance Performance (1 s.h. each performance)	2 s.h.
DANC:6990 (137:274) Graduate Independent Choreography (1 s.h. each project)	4 s.h.

All of these:

DANC:5550 (137:275) Collaborative Performance	4 s.h.
DANC:6350 (137:272) Graduate Choreography III	2 s.h.
DANC:6450 (137:273) Graduate Choreography IV	2 s.h.

Performance Emphasis

All of these (total of at least 12 s.h.):

DANC:3885 (137:107) Repertory Dance Company (up to 4 s.h. per year)	0-8 s.h.
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DANC:6880 (137:206) Graduate Dance Performance (1 s.h. each performance)	4-12 s.h.
DANC:6992 (137:269) Graduate Independent Performance Project	arr.

One of these:

DANC:6990 (137:274) Graduate Independent Choreography (1 s.h. each project)	2 s.h.
A course from the choreography sequence	2 s.h.

ELECTIVES

M.F.A. candidates in performance must earn a total of 9 s.h. in elective courses numbered 3000 or above. A minimum of 6 s.h. must be earned in non-dance department courses. The remaining 3 s.h. must be earned in DANC:3070 (137:147) Dance Kinesiology, DANC:3060 (137:181) Dance History, or DANC:4060 (137:182) The Contemporary Dance Scene.

M.F.A. candidates in choreography must earn a total of 15 s.h. in elective courses numbered 3000 or above. A minimum of 6 s.h. must be earned in non-dance department courses; 6 s.h. must be earned in a course or courses that provide research material for the thesis. The remaining 3 s.h. must be earned in DANC:3070 (137:147) Dance Kinesiology, DANC:3060 (137:181) Dance History, or DANC:4060 (137:182) The Contemporary Dance Scene.

Facilities

The Department of Dance houses six technique studios, a movement training lab, a media classroom and library, a media laboratory, an audio recording laboratory, and its own theater for dance concerts.

Courses

Lower-Level Undergraduate

DANC:1000 (137:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

DANC:1010 (137:001) Beginning Tap 1-2 s.h.
Elementary techniques, steps, and performance skills for rhythm and show tap styles; enhancement of rhythmic ability through exercises, improvisation, creative activities; may include history of tap. Tap shoes required. GE: Literary, Visual, and Performing Arts.

DANC:1020 (137:002) Beginning Jazz 1-2 s.h.
Basic movement fundamentals, terminology, performance skills of jazz dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of jazz dance. GE: Literary, Visual, and Performing Arts.

DANC:1030 (137:003) Beginning Ballet 1-2 s.h.
Basic movement fundamentals, terminology, performance skills of ballet; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; barre and center combinations; terminology; may include history of ballet. GE: Literary, Visual, and Performing Arts.

DANC:1040 (137:004) Beginning Modern Dance 1-2 s.h.
Basic movement fundamentals, terminology, performance skills of modern dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of modern dance. GE: Literary, Visual, and Performing Arts.

DANC:1050 (137:034) Beginning/Contact Improvisation 1-2 s.h.
Concepts of dance improvisation and contact improvisation; cultivation of creative freedom through the use and invention of movement; range of expression broadened through personal movement capacity, spontaneity and imagination, ability to make and commit to movement choices; new approaches to moving and movement elements such as time, space, motion, qualities, dynamics; shared weight, support, counter-balancing, elementary partnering; studio course.

DANC:1060 (137:040) Introduction to Dance Studies 1 s.h.
Introduction to dance studies in the liberal arts; breadth and diversity of contemporary scholarship on dance; dance history, criticism, ethnography, theory, conditioning and injury prevention, improvisation, choreography, technology.

DANC:1070 (137:047) Topics in Body Conditioning 2 s.h.
Somatic training techniques that address conditioning needs of dancers—yoga for dancers, pilates, release techniques; other somatic studies related to injury prevention, concentration, flexibility, efficient movement, strength training.

DANC:1080 (137:060) Music Essentials for Dance 2 s.h.
Evolution of music and dance from prehistoric times to the present; rhythmic analysis and fundamental music theory for dance students.

DANC:1090 (137:050) Dance Production 3 s.h.
Scenic design, costuming, lighting, audio/video, publicity; visits by professional guest lecturers, field trips to creative shops; projects.

DANC:1110 (137:011) Continuing Tap 1-2 s.h.
Continuation of DANC:1010 (137:001). GE: Literary, Visual, and Performing Arts.

- DANC:1120 (137:012) Continuing Jazz** 1-2 s.h.
Continuation of DANC:1020 (137:002); skills for technique and performance of jazz dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of jazz dance. GE: Literary, Visual, and Performing Arts.
- DANC:1130 (137:013) Continuing Ballet** 1-2 s.h.
Continuation of DANC:1030 (137:003); skills necessary for technique and performance of ballet; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; barre and center combinations; terminology; may include history of ballet. GE: Literary, Visual, and Performing Arts.
- DANC:1140 (137:014) Continuing Modern Dance** 1-2 s.h.
Continuation of DANC:1040 (137:004); skills necessary for the technique and performance of modern dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of modern dance. GE: Literary, Visual, and Performing Arts.
- DANC:1150 (137:057) Brazilian Culture and Carnival** 3 s.h.
Dance, music, historical, and social contents of Brazilian Carnival production, critical theories of performance, religious backgrounds, and theatre making in carnival parades. GE: Values, Society, and Diversity.
- DANC:1412 (137:052) The Arts in Performance** 3 s.h.
GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity. Same as DPA:1412 (188:052), THTR:1412 (049:052).
- DANC:2020 (137:022) Intermediate Jazz** 1-2 s.h.
Low intermediate technique and performance training in jazz dance; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including mobility, musicality, style; warm-up, locomotion, center combinations; may include history of jazz dance. GE: Literary, Visual, and Performing Arts.
- DANC:2030 (137:023) Intermediate Ballet** 1-2 s.h.
Low intermediate technique and performance training in ballet; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including more difficult steps, musicality, mobility, balance; basic ballet terminology, including steps, head, body, arm positions; variations in timing, changes of facing. GE: Literary, Visual, and Performing Arts.
- DANC:2040 (137:024) Intermediate Modern** 1-2 s.h.
Low intermediate technique and performance training in modern dance; flexibility, strength, body alignment, and breath as foundation for more advanced dance artistry, including musicality, mobility, balance, improvisation; variations in timing, changes of facing. GE: Literary, Visual, and Performing Arts.
- DANC:2050 (137:134) Improvisation I** 2 s.h.
Introduction to movement as research; experimental process as vehicle for invention, creative freedom, aesthetic range; development of kinesthetic imagination, awareness, creative problem solving; introduction to issues of artistic originality and authenticity; practical integration of improvisation and composition through spontaneous manipulation of time, space, and energy; knowledge of creative process supported by reading and individual research.
- DANC:2060 (137:080) Dance and Society in Global Contexts** 3 s.h.
Dance and other physical endeavors as embodied forms of knowledge and culture; U.S. dance practices; European and African dance cultures; aesthetic and political issues raised by concert dance (i.e., performance, choreography, spectatorship, criticism); ethnographic methods to examine the function of dance in cultural formation (i.e., spiritual, celebratory, social, political contexts); lecture, discussion, viewing, movement workshops, formal and informal writing, field research, and BLOG construction. GE: Literary, Visual, and Performing Arts. Same as DPA:2060 (188:080).
- DANC:2070 (137:081) Ethnic Dance in a Global Society** 3 s.h.
Investigation of why humans dance; dance, like language, as an expression of the human condition, joys, sorrows, love, fighting spirit, and joyous celebrations we all experience; diverse ways of expressing life through dance from one society to another due to varying histories; how individual's culture and geographic area affect ways of moving; discovering what we have in common with our dancing neighbors; when we understand the dance, we understand more about the person/country; recognizing a common link through the language of dance.
- DANC:2080 (137:082) Dance and Social Action** 3 s.h.
Exploration of dance as a means for civic engagement; readings that support theory and practice of dance as social action; practicum experience of facilitating a workshop to girls at the Iowa Juvenile Home.
- DANC:2220 (137:051) Production Run Crew** 1-2 s.h.
Hands-on experience in production work for live dance performance. Prerequisites: DANC:1090 (137:050).

Upper-Level Undergraduate and Graduate

- DANC:3030 (137:103) Major Ballet I** 1-3 s.h.
Builds on DANC:2030 (137:023); intermediate technical and performance training in ballet; flexibility, strength, body alignment, and coordination as foundation for introduction of more advanced aspects of dance artistry, including steps, musicality, mobility, balance; terminology related to barre and center vocabulary, including steps, head, body, and arm positions; practice of steps and combinations, variations in timing, changes of facing.

- DANC:3034 (137:139) Acting for Dancers** 3 s.h.
Beginning acting for dancers; spontaneity and expression, sources of action and reaction through theater games; emotional journey in effective drama and comedy; drama, comic structure, and tension through character and script analysis.
- DANC:3039 (137:137) Partnering Class** 1 s.h.
The art of partnering in dance, from salsa to Swan Lake; power sharing on the dance floor, including supported poses, balance, musical and physical timing, unity of movement, eloquence of gesture; for advanced dancers with strong coordination skills.
- DANC:3040 (137:104) Major Modern Dance I** 1-3 s.h.
Builds on DANC:2040 (137:024); intermediate technical and performance training in modern dance; physical and mental skills for transition to more advanced dance—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing; basic physical concepts underlying clear and efficient movement; assimilation of new movement material; center of gravity and its role in body mobilization and control; personal movement choices, and expressive range.
- DANC:3050 (137:101) Body/Image: Dance Discourse and Practice** 2 s.h.
Intersection of body, image, and sound in analog and digital media; relationship to critical and practical texts; written and performative assignments that address fundamental concepts of corporeality in related fields including dance for camera, stage and film performance, and artistic, documentary, and publicity filmmaking and photography.
- DANC:3060 (137:181) Dance History** 3 s.h.
Dance history in the 19th and 20th centuries; changes in dance training and technique, theory, composition, performance practices in context of broader social, political, and cultural trends; how dance and choreographic practices have changed over time, relationships between social ideas about embodiment and production of dance forms, precedents for contemporary dance practices in past forms. Prerequisites: DANC:2060 (137:080).
- DANC:3070 (137:147) Dance Kinesiology** 3 s.h.
Body science related to demands of dance; structural and muscular analysis for efficient, effective dance training and prevention of injuries; investigation of skeletal and ligamentous structure for working knowledge of how the body produces movement; joint actions and restrictions, common injuries to those sites; attachments of the voluntary muscles, pathways and potential actions; neuromuscular analysis of an action; functional skeletal alignment; how individual differences may affect movement performance. Prerequisites: HHP:1100 (027:053). Same as THTR:3070 (049:108).
- DANC:3075 (137:155) Yoga Teacher Training** 3 s.h.
Expansion of yoga and/or teaching knowledge; in-depth physical practice of yoga postures; basic yoga philosophy and texts; personal practice of meditation; yoga for various populations; anatomy of yoga postures; practice teaching within class structure. Corequisites: DANC:3070 (137:147). Requirements: dance major and sophomore or higher standing. Recommendations: previous experience taking yoga classes.
- DANC:3085 (137:174) Introduction to Afro-Cuban Dance** 1 s.h.
Introduction to the dance, drumming, and songs of the Afro-Cuban folkloric traditions; emphasis on dance. May participate in UI Afro-Cuban Drum and Dance ensemble. Same as DPA:3085 (188:174).
- DANC:3086 (137:175) Afro-Cuban Drum and Dance Performance** 1 s.h.
Dance repertory for the UI Afro-Cuban Drum and Dance Ensemble. Performance pieces based on dance, drumming, songs of the Afro-Cuban folkloric traditions. May participate in UI Afro-Cuban Drum and Dance Ensemble. Same as DPA:3086 (188:175).
- DANC:3150 (137:070) Choreography I** 2 s.h.
Introduction to theories and practices of creating choreography; locating varied sources for movement; elementary considerations of choreographic form; development of ideas, impulses, and initial inspirations into short works; fundamentals of giving and receiving critical feedback; articulation of thoughts and experience as composers and watchers of choreography; exposure to choreographic concerns supported by video and reading.
- DANC:3190 (137:126) Lighting for Dance and Entertainment** 3 s.h.
How to research, conceptualize, and express ideas through light plots; design paperwork; dance lighting design projects.
- DANC:3250 (137:071) Choreography II** 2 s.h.
Continuation of DANC:3150 (137:070); development of intermediate choreographic skills; emphasis on cultivation of individual choreographic voice through expansion of vocabulary, discovery of complex ways to form and arrange, and use of widening range of methods and types of resources.
- DANC:3521 (137:165) Acting for Singers and for Dancers** 2 s.h.
Fundamentals of acting technique, with attention to demands on performers in opera, musical theater, and dance. Same as MUS:3521 (025:175), THTR:3521 (049:102).
- DANC:3530 (137:113) Major Ballet II** 1-3 s.h.
High intermediate training in ballet technique and performance; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body.
- DANC:3540 (137:114) Major Modern Dance II** 1-3 s.h.

High intermediate technical and performance training in modern dance; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range.

DANC:3850 (137:160) Introduction to Laban Movement Studies 2-3 s.h.

Introduction to Bartenieff Fundamentals (BF) and Laban Movement Analysis (LMA) as methods of organizing and integrating movement to support artistic goals and expanding expressive range; BF teaches body awareness, breath support, developmental patterns, ergonomically-efficient alignment, balancing of muscular strength and stretch, and coordination; LMA teaches vocabulary of expressive movement and nonverbal communication, including effort (use of energy/dynamics for expression, stamina, stress relief) and shape (how posture and gesture communicate); quality of movement that supports individual goals in artistic expression, sound production, and wellness. Same as MUS:3850 (025:167), THTR:3850 (049:105), DPA:3850 (188:167).

DANC:3851 (137:173) Introduction to the Alexander Technique 3 s.h.

The Alexander Technique and "self-use"—how movement choices affect results achieved; improvement of physical skills and presence; principles in support of performing arts (e.g., speaking, singing, playing an instrument, dancing, acting); application to skills in daily life, addressing underpinnings of movement; physical participation (e.g., lying down, rolling, sitting, standing, locomotion). Same as DPA:3851 (188:168), MUS:3851 (025:176), THTR:3851 (049:170).

DANC:3885 (137:107) Repertory Dance Company 0-4 s.h.

Advanced repertory studies; learning and performing multiple works by professional guest artists, faculty, and invited graduate students; collaborative creation and performing in community outreach lecture-demonstration throughout Iowa and the region. Requirements: audition.

DANC:4030 (137:123) Major Ballet III 1-3 s.h.

Advanced training in ballet technique and performance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body.

DANC:4035 (137:133) Ballet Pointe II 1-2 s.h.

Intermediate/advanced techniques and training for ballet pointe work; repetition and analysis of steps and combinations, assimilation of new material; barre and center exercises, pirouettes and turns commonly performed *en pointe*, learning and performing variations drawn from repertory.

DANC:4040 (137:124) Major Modern Dance III 1-3 s.h.

Advanced technical and performance training in modern dance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range; may include partnering exercises for investigation of weight exchange, timing, expressivity.

DANC:4050 (137:135) Improvisation II 2 s.h.

Advanced concepts in compositional improvisation; in-depth individual exploration, spontaneous ensemble composition; increasing authenticity, depth, and range; integrity in relating to the whole ensemble; connecting creative process to other bodies of knowledge; making contact with emerging premise; reading and discussion as integration of conceptual and experiential; speaking and writing as improvisational process. Prerequisites: DANC:2050 (137:134).

DANC:4060 (137:182) The Contemporary Dance Scene 3 s.h.

Historical, theoretical, and practical elements of contemporary dance; the term "postmodern" and its associations with dance, performing arts, contemporary culture; relationships between process and product, identity and subjectivity, artistic intent and authorship, meaning and intertextuality; possibility of art as a form of dissent; theory and practice placed in a dialectic; analysis and synthesis of previous research. Same as DPA:4060 (188:182).

DANC:4350 (137:170) Choreography III 2 s.h.

Continuation of DANC:3250 (137:071); increased emphasis on invention, clarity, sophistication, and development of complete works; creation of sharply defined mature movement worlds; increasingly thorough consideration of sources and methods, responsibility for applying course work to self-defined artistic concerns and emerging individual aesthetic; advanced theories and methods through video, reading, choreographic research.

DANC:4450 (137:171) Choreography IV 2 s.h.

Continuation of DANC:4350 (137:170); advanced theories and practices of choreography; complex concepts, methods, applications; analytical and creative connections with bodies of knowledge across the liberal arts and sciences; complete development of multiple works; advanced practice in critical feedback and articulation of ideas about process and product; development through reading, video, extensive creative research.

DANC:4535 (137:143) Elementary Ballet Pedagogy 3 s.h.

Methods, materials, concepts for teaching ballet techniques.

DANC:4540 (137:130) Major Modern Dance IV 1-2 s.h.

Professional technique and performance training in modern dance.

DANC:4545 (137:144) Teaching of Modern Dance 3 s.h.

Practices of teaching modern dance; information and experience for developing an individualized approach to teaching; educational methodology for defining essential elements of a modern class, approaches for planning and structuring classes.

DANC:4880 (137:106) Dance Performance 0-3 s.h.

Credit for rehearsal hours and performance of dance works in produced dance concerts. Requirements: audition and/or concert adjudication. GE: Literary, Visual, and Performing Arts.

DANC:4990 (137:190) Independent Study arr.

Credit for an individual student-designed project coordinated with a faculty advisor. Requirements: sophomore or higher standing.

DANC:4991 (137:172) Independent Choreography arr.

Credit for creation of independent choreographic project, developed under guidance of faculty advisor, that results in production of a dance work.

DANC:4995 (137:149) Honors Studies in Dance arr.

Choreography, performance, production, Labanotation, dance history, or pedagogy. Requirements: g.p.a. of 3.33 or higher.

DANC:4998 (137:141) BFA Senior Project in Dance arr.

Senior year choreographic/performance capstone to complete B.F.A. in dance under supervision of faculty advisor; culminates in public showing or produced concert. Requirements: admitted to B.F.A. program in dance and senior standing.

DANC:4999 (137:140) Honors Project in Dance arr.

Research, choreographic, reconstruction, or performance project under guidance of a faculty advisor. Requirements: senior standing.

Graduate

DANC:5050 (137:234) Graduate Improvisation I 1-2 s.h.

Dance improvisation.

DANC:5060 (137:202) Theories of Dance and the Body 3 s.h.

Theoretical trends in studies of dance and physical bodies; performative and choreographic aspects of being. Same as DPA:5060 (188:202).

DANC:5530 (137:213) Graduate Majors Ballet II 1-3 s.h.

High intermediate technique and performance training; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body.

DANC:5540 (137:214) Graduate Majors Modern II 1-3 s.h.

High intermediate technical and performance training in modern dance; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range.

DANC:5550 (137:275) Collaborative Performance 1-4 s.h.

Collaborative experience with advanced artists from varied disciplines that culminates in a final performance; emphasis on sharing and investigating ideas, artistic intent, personal vision, and creating collaborative projects. Same as THTR:5610 (049:275), DPA:5550 (188:275).

DANC:6030 (137:223) Graduate Majors Ballet III 1-3 s.h.

Advanced ballet technique and performance training for proficient dancers; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, understanding of basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body.

DANC:6040 (137:224) Graduate Majors Modern III 1-3 s.h.

Advanced technical and performance training in modern dance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, understanding of basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range.

DANC:6050 (137:235) Graduate Improvisation II 2 s.h.

Advanced improvisation.

DANC:6060 (137:200) Graduate Seminar in Dance 2 s.h.

Research, careers, administrative, educational, professional, artistic topics.

DANC:6080 (137:201) Graduate Production Practicum 1 s.h.

Scenery and costume design, lighting, audio/video, publicity.

DANC:6350 (137:272) Graduate Choreography III 2 s.h.

Advanced choreographic concepts, methods, and applications with focus on the creative mind and choreographic process; concepts and experiences that support development of advanced choreographic skills and innovative dances.

**DANC:6450 (137:273) Graduate
Choreography IV** 2 s.h.

Advanced choreography concepts, methods, applications.

**DANC:6540 (137:230) Graduate Major
Modern IV** 1-2 s.h.

Professional technique and performance training in modern dance.

**DANC:6880 (137:206) Graduate Dance
Performance** 0-3 s.h.

Credit for rehearsal hours and performance of dance works in produced dance concerts. Requirements: audition and/or concert adjudication.

**DANC:6990 (137:274) Graduate
Independent Choreography** arr.

Credit for creation of an independent choreographic project, developed under guidance of faculty advisor, that results in production of a dance work.

**DANC:6991 (137:290) Graduate
Independent Study** arr.

Credit for individually designed project coordinated with a faculty advisor.

**DANC:6992 (137:269) Graduate
Independent Performance Project** arr.

Credit for creative participation as a performer in a choreography project, developed under guidance of a faculty advisor, that results in the performance of a dance work.

**DANC:7550 (137:231) Graduate Modern
Dance Technique Practicum** arr.

Advanced, in-depth understanding of teaching dance technique at the college level; emphasis on studio practice of technique through active participation in technique class; individualized research on technical and pedagogical approaches to dance; class taken with a faculty member during student's teaching rotation to gain understanding of the teacher's pedagogical approach across three levels of the majors-level technique curriculum. Requirements: completion of one semester of MFA program and good standing.

**DANC:7560 (137:222) Graduate Ballet
Technique Practicum** arr.

Advanced, in-depth understanding of teaching dance technique at the college level; emphasis on studio practice of technique through active participation in technique class; individualized research on technical and pedagogical approaches to dance; class taken with a faculty member during student's teaching rotation to gain understanding of the teacher's pedagogical approach across three levels of the majors-level technique curriculum. Requirements: completion of one semester of MFA program and good standing.

DANC:7990 (137:277) Thesis arr.

Disability Studies

Coordinator

- Kenneth E. Mobily

Undergraduate certificate: disability studies
Disability studies examines disability as a social, cultural, historical, and political phenomenon rather than focusing on its clinical, medical, or therapeutic aspects. It is an interdisciplinary and multidisciplinary field that draws on scholarship from diverse disciplines, including anthropology, architecture, the arts, communication and media studies, cultural studies, economics, gender studies, geography, global studies, history, law, literature, medicine, nursing, philosophy, policy studies, political science, religious studies, social work, and sociology.

Its multidisciplinary nature makes disability studies a good complement to a broad range of undergraduate majors.

The certificate program in disability studies is administered by the Department of Health and Human Physiology (p. 359).

Undergraduate Program of Study

- Certificate in Disability Studies

Certificate

The Certificate in Disability Studies requires a minimum of 19 s.h. of credit. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

The certificate program helps students expand their knowledge and awareness of disability issues and prepare for careers in public life. Students who complete the certificate develop:

- understanding of the history of disabilities in America;
- awareness of how culture and society define disability;
- the ability to interact with individuals from diverse backgrounds;
- a personal philosophy of treating people fairly, equitably, and thoughtfully; and
- greater understanding of and concern with public policy issues and active citizenship.

The Certificate in Disability Studies requires the following course work.

CORE COURSES

Students earn 10-12 s.h. by taking the following four core courses.

All of these:

DST:3101 (219:101) Introduction to Disability Studies	3 s.h.
EDTL:4967 (07U:167) Diversity, Career Exploration, and Transition I	1-3 s.h.
HIST:4203 (16A:106) Disability in American History	3 s.h.

And one of these:

EDTL:4940 (07U:140) Characteristics of Disabilities	3 s.h.
LEIS:3162 (169:162) Therapeutic Recreation: Clientele	3 s.h.

FOCUSED ELECTIVES

Students earn a minimum of 9 s.h. in focused electives, which they select from courses in at least two of the following lists (maximum of 6 s.h. from any one list). They may count a maximum of 3 s.h. earned in courses numbered below 3000 toward this requirement.

Aging Studies

ASP:3135 (153:135) Global Aging	3 s.h.
ASP:3150 (153:150)/PSY:2915 (031:050) Psychology of Aging	3 s.h.
ASP:4165 (153:165) Communication Disorders and Aging	2 s.h.

American Sign Language

ASL:3200 (158:101) Topics in Deaf Studies	3 s.h.
ASL:3300 (158:102) American Deaf Culture	3 s.h.
ASL:3400 (158:104) Issues in ASL and Deaf Studies	3 s.h.
ASL:3500 (158:105) Deafness in the Media	3 s.h.
ASL:3600 (158:103) American Sign Language Literature	3 s.h.
ASL:4201 (158:100) History of the American Deaf Community	3-4 s.h.
ASLE:3905 (158:110) Teaching Deaf and Hard of Hearing Students	3-4 s.h.

American Studies

AMST:2025 (045:025) Diversity and American Identities	3 s.h.
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Anthropology

ANTH:3102 (113:185) Medical Anthropology	3 s.h.
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Communication Sciences and Disorders

CSD:1015 (003:015) Introduction to Speech and Hearing Processes and Disorders	2 s.h.
CSD:3185 (003:185) Hearing Loss and Audiometry	3 s.h.
CSD:4145 (003:145) Developmental Speech and Language Disorders	3 s.h.
CSD:4147 (003:147) Neurogenic Disorders of Speech	2 s.h.
CSD:4165 (003:165) Communication Disorders and Aging	2 s.h.
CSD:5206 (003:206) Language Disorders: Birth to Five Years	3 s.h.
CSD:5233 (003:233) Aphasia	2 s.h.
CSD:5234 (003:234) Acquired Cognitive-Communication Disorders	arr.
CSD:5303 (003:303) Evidence Based/Emerging Practices in Communication/Social Interaction for Individuals with Autism	1 s.h.
EDTL:7948 (07U:348) Contemporary Research in Behavioral Disorders	3 s.h.

Disability Studies

DST:3102 (219:102) Culture and Community in Human Services 3 s.h.

Education

EDTL:3130 (07E:130) Adaptive Physical Education for the Elementary Classroom Teacher 2 s.h.

EDTL:4900 (07U:100) Foundations of Special Education 3 s.h.

EDTL:4921 (07U:121) Transition and Related Issues 3 s.h.

EDTL:4950 (07U:150) Behavioral and Social Interventions 3 s.h.

EDTL:4990 (07U:190) Interdisciplinary Issues in Disabilities 1-3 s.h.

EPLS:4180 (07B:180) Human Relations for the Classroom Teacher 3 s.h.

RCE:4195 (07C:195) Ethics in Human Relations and Counseling 3 s.h.

RCE:4197 (07C:197) Citizenship in a Multicultural Society 3 s.h.

Gender, Women's, and Sexuality Studies

GWSS:4230 (131:170) Philosophy of the Body 3 s.h.

Geography

GEOG:3110 (044:131) Geography of Health 3 s.h.

Health and Human Physiology

HHP:2200 (027:039) Physical Activity and Health 3 s.h.

History

HIST:4201 (16A:104) History of the American Deaf Community 3-4 s.h.

Music

MUS:1687 (025:087) Orientation to Music Therapy 2 s.h.

MUS:3680 (025:096) Music in Special Education 2-3 s.h.

Nursing

NURS:1030 (096:030) Human Development and Behavior 3 s.h.

NURS:1800 (096:085)/ASP:1800 (153:085)/CSD:1800 (003:085)/LEIS:1800 (169:085)/SSW:1800 (042:085) Basic Aspects of Aging 3 s.h.

NURS:3712 (096:112) Human Sexuality, Diversity, and Society 1-3 s.h.

Psychology

PSY:2301 (031:013) Introduction to Clinical Psychology 3 s.h.

PSY:2930 (031:063) Abnormal Psychology: Health Professions 3 s.h.

PSY:3320 (031:163) Abnormal Psychology 3 s.h.

Rehabilitation and Counselor Education

RCE:5249 (07C:249) Psychiatric Disorders and Interventions 3 s.h.

Social Work

SSW:3847 (042:147) Discrimination, Oppression, and Diversity 3 s.h.

Therapeutic Recreation

LEIS:3160 (169:160) Introduction to Therapeutic Recreation 3 s.h.

Courses

DST:3101 (219:101) Introduction to Disability Studies 3 s.h.

Introduction and overview of important topics and discussions that pertain to the experience of being disabled; contrast between medical and social construction models of disability; focus on how disability has been constructed historically, socially, and politically in an effort to distinguish myth and stigma from reality; perspective that disability is part of human experience and touches everyone; interdisciplinary with many academic areas that offer narratives about experience of disability.

DST:3102 (219:102) Culture and Community in Human Services 3 s.h.

Influence of social issues (e.g., diversity, equity) on human services; values, beliefs, lifestyles, and attitudes of individuals and diverse groups found in a pluralistic society; recognition of dehumanizing biases and their impact on interpersonal relations; translation of knowledge of culture into attitudes, skills, and techniques that result in favorable experiences for human services consumers; recognition of ways in which dehumanizing biases may be reflected in everyday encounters and understanding how these interactions may influence populations served by human service practitioners.

Division of Performing Arts

Director

- Alan MacVey

Undergraduate certificate: performing arts entrepreneurship

Web site: <http://dpa.uiowa.edu/>

The Division of Performing Arts includes the Department of Dance (p. 222), the School of Music (p. 488), and the Department of Theatre Arts (p. 640). The division fosters interdisciplinary collaboration among these units, coordinates artistic and academic activities, and sponsors a full array of performances and symposia. Performances are supported by professional staff in the division's Performing Arts Production Unit.

Each of the division's individual academic units offers undergraduate and graduate courses and degree programs in creative, performance, scholarly, and theoretical areas. Together they present an extensive schedule of dance productions, faculty and student recitals, ensemble concerts, and mainstage and gallery theater productions.

The division offers the undergraduate Certificate in Performing Arts Entrepreneurship in partnership with the John Pappajohn Entrepreneurial Center (Tippie College of Business). The certificate program combines courses in accounting, marketing, and financial management with those focused on arts management and leadership practices in commercial as well as nonprofit arts organizations. See Performing Arts Entrepreneurship (p. 512) in the Catalog.

The division also is home to an arts outreach program, Arts Share.

For information about the division and its programs and events, visit the Division of Performing Arts web site.

Division of World Languages, Literatures, and Cultures

Director

- Russell Ganim

Web site: <http://clas.uiowa.edu/dwllc/>

The Division of World Languages, Literatures, and Cultures includes several academic units: the Departments of Asian and Slavic Languages and Literatures, French and Italian, German, and Spanish and Portuguese and the American Sign Language, Comparative Literature, Second Language Acquisition, and Translation Programs. In addition to providing administrative leadership for all of its units, the division fosters interdisciplinary scholarship in languages, literatures, and cultures. It encourages synergy and collaboration among its faculty members and enhances opportunities for cross-cultural course development and research.

Undergraduate and graduate programs in the division serve students with varied interests and career aspirations, educating them to become global citizens who understand and are understood by diverse populations. Students are trained to be critical thinkers and problem solvers, capable scholars, lucid writers, and proficient speakers.

The division offers instruction in a wide array of languages and in the cultures associated with them:

American Sign Language (p. 40) Program: American Sign Language and deaf studies;

Department of Asian and Slavic Languages and Literatures (p. 102): Chinese, Czech, Hindi, Japanese, Korean, Russian, Sanskrit;

Department of French and Italian (p. 300): Arabic, French, Italian, Swahili;

Department of German (p. 347): German; and

Department of Spanish and Portuguese (p. 609): Portuguese, Spanish

In addition to providing language instruction, the division focuses on theoretical and applied linguistics; non-Anglophone literatures and cultures, including those of bilingual, deaf, postcolonial, and heritage communities; and aesthetics, cultural theory, and creative writing in languages other than English.

The division's Second Language Acquisition (p. 580) Program brings multidisciplinary resources together to examine the processes that underlie non-native-language learning. The Translation (p. 651) Program explores the literary, cultural, and historical contexts of work and their linguistic, aesthetic, and ideological dimensions while it builds skills for translating works from one language to another. The Comparative Literature (p. 199) Program addresses culture across regions and languages in relation to literature, social theory and philosophy, history, and other disciplines.

The division also administers the Language Media Center, which provides facilities for traditional language laboratory work as well as for language video and computer-based activities. The center sponsors a multimedia development studio, where faculty members and graduate students

produce and test media-based materials for language instruction.

Courses

World Languages, Literatures, and Cultures, Lower-Level Undergraduate

WLLC:1100 (218:050) Contraception Across Time and Cultures 3 s.h.

Methods and history of contraception and abortion; issues of unwanted pregnancy and birth control in fiction, film, and media around the world. Same as GHS:1100 (152:030).

WLLC:1355 (218:005) Approaches to Global Cultural Studies 3 s.h.

Framework for thinking about global perspectives on culture; examination of themes within a transnational context; analysis of cultural expression from national and linguistic contexts.

WLLC:2550 (218:070) Mardi Gras and More: Cultures of Carnival 3-4 s.h.

Literature and customs associated with carnival from antiquity through present day; readings on theories of carnivalesque (Mikhail Bakhtin, Peter Burke, and others); materials from three distinct carnival cultures—Renaissance Europe (Francois Rabelais, German carnival plays), 19th-century New Orleans, and present day Rio de Janeiro. GE: Values, Society, and Diversity.

World Languages, Literatures, and Cultures, Upper-Level Undergraduate and Graduate

WLLC:3185 (218:185) Global Women's Cinema 3 s.h.

Introduction to contemporary women's cinema and feminist filmmaking from around the world; emphasis on post-1968 period and cinema produced outside the United States. Same as GWSS:3185 (131:185), CINE:3185 (048:185).

WLLC:3191 (218:191) International Literature Today 1,3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3595 (008:191), IWP:3191 (181:191).

WLLC:3700 (218:160) Topics in Global Cinema 3 s.h.

Identification of new models and methods to investigate cinema's relationship to current global issues beyond traditional scholarly focus in Western Europe and the United States; exploration of an emerging field, moving away from the paradigm of national cinema and bringing together shared theoretical frameworks while acknowledging different historical and cultural contexts. Same as JPNS:3700 (39J:162), ASIA:3700 (039:164).

WLLC:3834 (218:165) Arab Spring in Context: Media, Religion, and Geopolitics 3 s.h.

Protest movements that started in Tunisia in 2011 and swept across North Africa and the Middle East transforming Arab and Islamic societies in radically different ways; function of social media, satellite television, communication technology; influence of religious leaders and groups on some protest outcomes; impact of wealth and geopolitics on social fabric of Islamic societies within and outside Arab countries. Requirements: for COMM:3834 (036:129) — g.p.a. of at least 2.50, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as RELS:3834 (032:134), IS:3834 (187:126), JMC:3146 (019:146), COMM:3834 (036:129).

WLLC:4512 (218:172) Topics in Global and Transnational Culture 3-4 s.h.

In-depth look at a theme in cultural expression arising from interactions between countries and regions; focus on contemporary or historical issues; use of materials ranging from literature and the visual arts to music, mass media, and more; general processes through which cultures are formed in mutual and uneven relationships; research project. Recommendations: completion of an international and global issues GE course. Same as GRMN:4512 (013:172), ARAB:4512 (195:172).

WLLC:4800 (218:195) Topics in Global and Transnational Culture arr.

In-depth look at a theme in cultural expression arising from interactions between countries and regions; focus on contemporary or historical issues; material from literature, visual arts, music, mass media, and more; general process through which cultures are formed in mutual and uneven relationships; original research project. Requirements: a general education course in international and global issues.

World Languages, Literatures, and Cultures, Graduate**WLLC:5000 (218:200) Teaching and Learning Languages** 3 s.h.

Readings in pedagogical theory and practice, second language acquisition; experience designing activities for teaching and assessment with critiques based on current theories and approaches; development of reflective practices toward one's language teaching. Same as SLA:5000 (164:200).

WLLC:6320 (218:210) Topics in Contemporary Critical Theory 3 s.h.

Focused discussion of critical discourses and paradigms that have contributed to development of contemporary literary and cultural theory.

Translation, Lower-Level Undergraduate**TRNS:1017 (218:017) Workshop in Literary Magazine Publishing** 2 s.h.

Hands-on introduction to literary magazine publishing; major differences between print and digital publishing, the processes of design, layout, soliciting work, editing copy, proofing, promotion, and distribution; University of Iowa and Iowa City community resources; editors and writers share their expertise through a series of informal question-and-answer sessions and task-based assignments.

TRNS:1018 (218:018) Workshop in Literary Review Writing 2 s.h.

Hands-on introduction to literary review; process of selecting books (poetry, fiction, creative nonfiction) for review; writing, revising, and submission of work; University of Iowa and Iowa City community resources; editors and writers share their expertise through a series of informal question-and-answer sessions and task-based assignments.

TRNS:2179 (218:079) Undergraduate Translation Workshop 3 s.h.

Translation exercises, discussion of translation works in progress; alternative strategies for translation projects. Requirements: working knowledge of a language other than English. Same as ENGL:2810 (08W:079).

TRNS:2499 (218:078) Undergraduate Translation Seminar 3 s.h.

Translation studies for undergraduates; topics related to practice of literary translation.

Translation, Upper-Level Undergraduate and Graduate**TRNS:3201 (218:130) Workshop in Japanese Literary Translation** 3 s.h.

Workshop in translation from Japanese to English, with emphasis on literary translation; issues in theory and practice of translation; special features of Japanese as a source language for translation. Corequisites: JPNS:3103 (39J:105), if not taken as a prerequisite. Same as JPNS:3201 (39J:130).

TRNS:3202 (218:131) Workshop in Chinese Literary Translation 3 s.h.

Translation from Chinese to English with emphasis on literary translation; issues in theory and practice of translation; special features of Chinese as a source language for translation. Prerequisites: CHIN:3102 (039:116). Same as CHIN:3201 (039:143).

TRNS:3480 (218:180) Literature and Translation 3 s.h.

Translation in the broadest sense; originality, authority, authorship, accuracy, ownership, audience; issues problematizing differences between medium and message. Same as SLAV:3480 (041:180), PORO:3480 (160:180).

TRNS:4481 (218:181) Introduction to Computer-Assisted Translation 1 s.h.

Translation memory, terminology management, multimodal translation, and project management to increase proficiency in a range of technological skills; evolving translation technologies emphasize learning skills required to employ tools of today and effectively learn to use those of tomorrow; use of translation technology in freelance and agency settings from document receipt through delivery. Requirements: completion of General Education Program rhetoric and interpretation of literature requirements.

TRNS:4497 (218:197) Techniques of Translation 3 s.h.

Prerequisites: FREN:3300 (009:112). Same as FREN:4890 (009:197).

Translation, Graduate

TRNS:5205 (218:205) International Translation Workshop 1-3 s.h.

International writers pair with University of Iowa translators to write new works of poetry and fiction in English; second-language fluency not required for international writers. Same as IWP:5205 (181:205).

TRNS:5491 (218:291) Translation Internship arr.

TRNS:6050 (218:299) Independent Study arr.

TRNS:6400 (218:240) Thesis arr.
Translation thesis with critical introduction.

TRNS:6459 (218:259) Issues in Translation 3 s.h.
Contemporary and historical theories.

TRNS:7460 (218:260) Translation Workshop 4 s.h.
Requirements: at least one foreign language. Same as IWP:7460 (181:260).

Earth and Environmental Sciences

Chair

- Charles "Tom" Foster Jr.

Professors

- Jonathan M. Adrain, Ann F. Budd, Charles "Tom" Foster Jr., Jane A. Gilotti, William C. McClelland, Mark K. Reagan, You-Kuan Zhang

Associate professors

- E. Arthur Bettis III, Christopher A. Brochu, Jeffrey A. Dorale, David W. Peate, Ingrid Ukstins Peate, Frank H. Weirich

Assistant professors

- Bradley D. Cramer, Emily S. Finzel, Hallie J. Sims, Adam S. Ward

Adjunct professor

- David L. Campbell

Adjunct associate professor

- Brian J. Witzke

Adjunct assistant professors

- Ray Anderson, Caroline Davis, Rhawn F. Denniston, Keith Schilling, Douglas Schnoebelen, Emily Walsh

Adjunct instructor

- Tiffany S. Adrain

Professors emeriti

- Richard G. Baker, Robert S. Carmichael, Lon D. Drake, Philip H. Heckel, Gilbert Klapper, George R. McCormick, Holmes A. Semken, Keene Swett

Undergraduate major: geoscience (B.A., B.S.)

Undergraduate minor: geoscience

Graduate degrees: M.S. in geoscience; Ph.D. in geoscience

Web site: <http://clas.uiowa.edu/ees/>

Faculty and students in the Department of Earth and Environmental Sciences study the physical, chemical, and biological systems of Earth. Using modern observational, analytical, and computational methods, they examine how the planet's interior, surface, hydrosphere, and atmosphere have evolved since Earth was born in the solar system 4.6 billion years ago. Topics commonly studied in the department include how plate movements cause earthquakes, volcanoes, and mountain building; global climate change and how climate change and catastrophic events cause changes in biodiversity; how and where economic resources are generated on Earth; and how these resources are located and used in modern society.

The earth and environmental sciences curriculum provides students with hands-on experience analyzing rocks, minerals, fossils, soils, and waters, generally in a small classroom setting. Much of this experience is obtained in laboratory and field courses. Field courses include travel to other states or countries to view Earth's materials and fossils in the context of their natural surroundings.

The master's degree in geoscience is regarded by most hiring agencies as the working degree, but an undergraduate degree is fully satisfactory in certain teaching, government, and industry situations. The doctoral degree is required for college and university faculty positions and for some research positions in industry.

Many of The University of Iowa's geoscience graduates find employment with resource companies, environmental corporations, and educational institutions. Others continue in graduate school or take jobs with government or conservation agencies. Some intend to enter law, business, or fields such as urban planning, environmental studies, engineering, archaeology, science education, or oceanography as advanced areas. Geoscience provides skills useful for all of these fields.

The department offers a variety of courses appropriate for nonmajors, including several approved for the Natural Sciences requirement of the General Education Program (p. 323); see "Courses for Nonmajors" below.

Many of the department's faculty members are involved in the interdisciplinary Environmental Sciences (p. 288) Program, and a number of the department's courses satisfy requirements of the Certificate in Sustainability (p. 1304).

Undergraduate Programs of Study

- Major in geoscience (Bachelor of Arts, Bachelor of Science)
- Minor in geoscience

Students majoring in geoscience take at least an academic year's work in three allied scientific areas—physics, chemistry, and mathematics—and a semester of biology in addition to a course in each major area of geology.

Geoscience students may elect to pursue an additional major or a minor in a related discipline, usually chemistry, physics, biology, engineering, environmental sciences, or anthropology. See Majors, Minors & Certificates under For Students on the College of Liberal Arts and Sciences web site.

Bachelor of Science

The Bachelor of Science with a major in geoscience requires a minimum of 120 s.h., including at least 70 s.h. (19 courses) of work for the major (39 s.h. in earth and environmental sciences courses and at least 31 s.h. in supporting disciplines). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). Transfer students must complete a minimum of 15 s.h. of course work in the Department of Earth and Environmental Sciences.

The geoscience major for the B.S. is designed to prepare students for immediate employment after graduation or to enter a graduate program in geology.

The department recommends that students fulfill the General Education Program's World Languages requirement with French, German, Russian, or Spanish

and the Social Sciences requirement with approved course work in economics, geography, or anthropology.

The geoscience major for the Bachelor of Science requires the following course work.

EARTH AND ENVIRONMENTAL SCIENCES

One of these:

EES:1030 (012:003) Introduction to Earth Science	4 s.h.
EES:1050 (012:005) Introduction to Geology (preferred)	4 s.h.

All of these:

EES:1040 (012:004) Evolution and the History of Life	4 s.h.
EES:2410 (012:041) Mineralogy	4 s.h.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3500 (012:150) Igneous and Metamorphic Petrology	4 s.h.
EES:3840 (012:132) Structural Geology	4 s.h.
EES:4831 (012:112) Geologic Field Methods	3 s.h.
EES:4832 (012:113) Geologic Field Analysis	3 s.h.
At least two geoscience electives (see "Recommended Electives" below)	6-7 s.h.

One of these:

EES:3210 (012:121) Principles of Paleontology	3 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4630 (012:166) Hydrogeology	3 s.h.
EES:4790 (012:179) Engineering Geology	3 s.h.
EES:4800 (012:180) Survey of Geophysical Methods	3 s.h.

MATHEMATICS

At least 8 s.h. of calculus, including one of these:

MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:1860 (22M:026) Calculus II	4 s.h.

And:

An additional course in mathematics, computer science, or statistics numbered MATH:2700 (22M:027) or above, or CS:1110 (22C:005) or above, or STAT:2010 (22S:030) or above

CHEMISTRY

B.S. students must complete at least 8 s.h. of college-level chemistry, including the following sequence or equivalent courses or more advanced courses. Chemistry courses numbered below CHEM:1110 (004:011) Principles of Chemistry I do not count toward this requirement.

CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
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PHYSICS

B.S. students must complete at least 8 s.h. of college-level physics, as follows. Physics courses numbered below PHYS:1511 (029:011) College Physics I do not count toward this requirement.

One of these sequences:

PHYS:1511 (029:011)-PHYS:1512 (029:012) College Physics I-II	8 s.h.
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PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II	8 s.h.
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BIOLOGY

B.S. students must complete at least one biology course that includes a laboratory (4 s.h.). Students with an interest in paleontology are encouraged to take BIOL:1411 (002:031) Foundations of Biology and BIOL:1412 (002:032) Diversity of Form and Function.

RECOMMENDED ELECTIVES

All B.S. students should take elective courses from the following groups in order to broaden their undergraduate experience and prepare themselves for graduate study or professional employment. Students who have clear career goals are advised to take three or more elective courses from the group that fits their needs most closely. Students also may seek a broad education in geoscience by choosing elective courses from a number of groups.

Quaternary Geology

EES:3020 (012:102) Earth Surface Processes	3 s.h.
EES:3100 (012:110) Introduction to Applied Remote Sensing	4 s.h.
EES:3360 (012:136) Soil Genesis and Geomorphology	3 s.h.
EES:3380 (012:138) Fluvial Geomorphology	3 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4520 (012:152) Isotope Geochemistry	3 s.h.
EES:4620 (012:185) Approaches to Geoarchaeology	3 s.h.
EES:4630 (012:166) Hydrogeology	3 s.h.
EES:4720 (012:172) Glacial and Pleistocene Geology	3 s.h.
EES:4790 (012:179) Engineering Geology	3 s.h.
EES:4870 (012:178) Applied Geostatistics	3 s.h.

Environmental Geology

EES:1400 (012:140) Natural Disasters	3 s.h.
EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:3080 (012:108) Introduction to Oceanography	2 s.h.
EES:3100 (012:110) Introduction to Applied Remote Sensing	4 s.h.
EES:3380 (012:138) Fluvial Geomorphology	3 s.h.
EES:3390 (012:139) Integrated Watershed Analysis	3 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4520 (012:152) Isotope Geochemistry	3 s.h.
EES:4630 (012:166) Hydrogeology	3 s.h.
EES:4680 (012:168) Field Methods in Hydrologic Science	3 s.h.
EES:4790 (012:179) Engineering Geology	3 s.h.
EES:4800 (012:180) Survey of Geophysical Methods	3 s.h.
EES:4870 (012:178) Applied Geostatistics	3 s.h.

Geochemistry

EES:3410 (012:141) Analytical Methods	2 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4520 (012:152) Isotope Geochemistry	3 s.h.
EES:4630 (012:166) Hydrogeology	3 s.h.
EES:4870 (012:178) Applied Geostatistics	3 s.h.
EES:5820 (012:191) Tectonics	3 s.h.

Tectonics/Petrology

EES:1400 (012:140) Natural Disasters	3 s.h.
EES:3410 (012:141) Analytical Methods	2 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4520 (012:152) Isotope Geochemistry	3 s.h.
EES:4750 (012:175) Mineral and Petroleum Exploration Geology	3 s.h.
EES:4800 (012:180) Survey of Geophysical Methods	3 s.h.
EES:5820 (012:191) Tectonics	3 s.h.

Sedimentary Geology

EES:3080 (012:108) Introduction to Oceanography	2 s.h.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3380 (012:138) Fluvial Geomorphology	3 s.h.
EES:3770 (012:177) Global Stratigraphy	3 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4520 (012:152) Isotope Geochemistry	3 s.h.
EES:4750 (012:175) Mineral and Petroleum Exploration Geology	3 s.h.
EES:5820 (012:191) Tectonics	3 s.h.

Paleobiology

EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:3080 (012:108) Introduction to Oceanography	2 s.h.
EES:3210 (012:121) Principles of Paleontology	3 s.h.
EES:3220 (012:122) Evolution of the Vertebrates	3 s.h.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3770 (012:177) Global Stratigraphy	3 s.h.
EES:4420 (012:142) Vertebrate Osteology and Phylogeny	3 s.h.
EES:4440 (012:144) Phylogenetics and Biodiversity	3 s.h.
EES:4450 (012:145) Morphometrics	1-3 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4520 (012:152) Isotope Geochemistry	3 s.h.
EES:4700 (012:170) Evolution of Ecosystems	3 s.h.
EES:4710 (012:171) Evolution of Plants	3 s.h.
EES:5820 (012:191) Tectonics	3 s.h.

INDEPENDENT RESEARCH OPTION FOR GEOSCIENCE MAJORS

A junior or senior who is ready to pursue independent research for credit in geoscience may assist a faculty member or graduate student with a current research project in EES:2190 (012:019) Directed Study or may initiate a small-scale project involving a combination of field, laboratory, and library investigation in EES:3190

(012:119) Directed Study. Independent study is encouraged and may lead to an honors thesis in EES:4999 (012:010) Honors Thesis in Geoscience or a senior thesis in EES:4990 (012:011) Senior Thesis in Geoscience that may be published subsequently.

Bachelor of Arts

The Bachelor of Arts with a major in geoscience requires a minimum of 120 s.h., including at least 51 s.h. of work for the major (at least 35 s.h. in earth and environmental sciences courses and at least 16 s.h. in supporting disciplines). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). Transfer students must complete a minimum of 15 s.h. of course work in the Department of Earth and Environmental Sciences.

The geoscience major for the B.A. is designed to provide students with a varied background in geology and a broader choice of electives than is practical in the Bachelor of Science program. The major for the Bachelor of Arts is intended for students who are interested in the fundamentals of geology or earth science teaching (see "B.A. or B.S. with Teacher Licensure" below). Completing the minimum requirements for this degree may not adequately prepare a student for an entry-level professional job in geology.

The department recommends that students fulfill the General Education Program's World Languages requirement with French, German, Russian, or Spanish and the Social Sciences requirement with approved course work in economics, geography, or anthropology.

The geoscience major for the Bachelor of Arts requires the following course work.

EARTH AND ENVIRONMENTAL SCIENCES

This course:

EES:2410 (012:041) Mineralogy	4 s.h.
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One of these:

EES:1030 (012:003) Introduction to Earth Science	4 s.h.
EES:1050 (012:005) Introduction to Geology	4 s.h.

One or both of these:

EES:1040 (012:004) Evolution and the History of Life	4 s.h.
EES:3210 (012:121) Principles of Paleontology	3 s.h.

At least three of these:

EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3360 (012:136) Soil Genesis and Geomorphology	3 s.h.
EES:3380 (012:138) Fluvial Geomorphology	3 s.h.
EES:3500 (012:150) Igneous and Metamorphic Petrology	4 s.h.
EES:3840 (012:132) Structural Geology	4 s.h.
EES:4630 (012:166) Hydrogeology	3 s.h.

And:

Geoscience electives	12 s.h.
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MATHEMATICS

B.A. students must complete the following course work in mathematics.

College-level mathematics (may include computer science and statistics)	10 s.h.
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CHEMISTRY

B.A. students must complete at least two college-level chemistry courses, as follows. Chemistry courses numbered below CHEM:1070 (004:007) General Chemistry I do not count toward this requirement.

One of these sequences:

CHEM:1070 (004:007) & CHEM:1080 (004:008) General Chemistry I-II	6 s.h.
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CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
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FIELD REQUIREMENT

To complete the major, B.A. students must have field experience. They may take two semesters of EES:1180 (012:018) Geology Field Trip: Selected National Parks, or two semesters of EES:3160 (012:116) Field Trip, or one semester of each of the two courses. Or they may take one semester of EES:4831 (012:112) Geologic Field Methods or the Iowa Lakeside Laboratory (p. 1267) session.

EES:1180 (012:018) Geology Field Trip: Selected National Parks	2 s.h.
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EES:3160 (012:116) Field Trip	2 s.h.
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EES:4831 (012:112) Geologic Field Methods	3 s.h.
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One natural science session at Iowa Lakeside Laboratory for a minimum of 3 s.h.

INDEPENDENT RESEARCH OPTION FOR GEOSCIENCE MAJORS

A junior or senior who is ready to pursue independent research for credit in geoscience may assist a faculty member or graduate student with a current research project in EES:2190 (012:019) Directed Study or may initiate a small-scale project involving a combination of field, laboratory, and library investigation in EES:3190 (012:119) Directed Study. Independent study is encouraged and may lead to an honors thesis in EES:4999 (012:010) Honors Thesis in Geoscience or a senior thesis in EES:4990 (012:011) Senior Thesis in Geoscience that may be published subsequently.

B.A. or B.S. with Teacher Licensure

Geoscience majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students with a strong interest in science teaching may complete a major offered by the Science Education Program. Students choose one of five emphases—biology, chemistry, earth science, physics, or all-science—and

earn a Bachelor of Science degree. They may apply for admission to the Teacher Education Program. See Science Education (p. 809) in the Catalog.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: These checkpoints show the range of required course work; the major for the Bachelor of Arts requires a minimum of 17 courses; the major for the Bachelor of Science requires 19.

The geoscience major requires field trip experiences, many of which take place during breaks in or between semesters or during the summer session. These checkpoints do not include the field trip requirements.

Before the third semester begins: competence in math through trigonometry and the first required chemistry course

Before the fifth semester begins: three to five courses in the major, including the remainder of the chemistry requirement and continuation of the mathematics requirement

Before the seventh semester begins: 7-11 courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: 10-14 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in geoscience have the opportunity to graduate with honors in the major. Departmental honors students must maintain a cumulative g.p.a. of at least 3.33 in all University of Iowa course work and in all geoscience courses. To graduate with honors in geoscience, students must complete a senior thesis, registering in EES:4999 (012:010) Honors Thesis in Geoscience. They must obtain approval of their honors thesis contract from their advisor and the department's undergraduate committee, and they must earn a grade of B or higher in EES:4999 (012:010).

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in geoscience requires a minimum of 15 s.h. in geoscience courses, including 12 s.h. in courses considered advanced for the minor offered by the Department of Earth and Environmental Sciences at The University of Iowa (EES:2410 (012:041) Mineralogy and all earth and environmental sciences courses numbered 3000 or above are considered advanced for the minor). Students must maintain a g.p.a. of at least 2.00 in all courses for the

minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

College-level courses in mathematics, physics, chemistry, and biology usually are required as collateral work for geoscience students. Those seeking a minor in geoscience should be sufficiently prepared in the areas of supporting sciences before they take advanced courses in geoscience.

Recommended advanced courses in geoscience that deal with important areas of earth materials and earth processes are as follows.

EES:2410 (012:041) Mineralogy	4 s.h.
EES:3020 (012:102) Earth Surface Processes	3 s.h.
EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:3080 (012:108) Introduction to Oceanography	2 s.h.
EES:3210 (012:121) Principles of Paleontology	3 s.h.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3360 (012:136) Soil Genesis and Geomorphology	3 s.h.
EES:3380 (012:138) Fluvial Geomorphology	3 s.h.
EES:3390 (012:139) Integrated Watershed Analysis	3 s.h.
EES:3500 (012:150) Igneous and Metamorphic Petrology	4 s.h.
EES:3840 (012:132) Structural Geology	4 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4790 (012:179) Engineering Geology	3 s.h.
EES:4800 (012:180) Survey of Geophysical Methods	3 s.h.
EES:4831 (012:112) Geologic Field Methods	3 s.h.
EES:5820 (012:191) Tectonics	3 s.h.

Courses for Nonmajors

Each year more than 1,800 students enroll in Department of Earth and Environmental Sciences introductory courses that are approved for General Education; look for courses with the prefix EES under "Natural Sciences" in the General Education Program (p. 323) section of the Catalog.

The department also offers the following upper-level courses with few or no prerequisites.

EES:3020 (012:102) Earth Surface Processes	3 s.h.
EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:3080 (012:108) Introduction to Oceanography	2 s.h.
EES:3100 (012:110) Introduction to Applied Remote Sensing	4 s.h.
EES:3210 (012:121) Principles of Paleontology	3 s.h.

National Honor Society

The department sponsors a chapter of Sigma Gamma Epsilon National Honor Society for the Earth Sciences. Students with an overall g.p.a. of at least 2.80 and at least 3.20 in geoscience courses are considered for membership after they have completed a minimum of 16 s.h. of course work in geoscience. Consult the departmental honors advisor for more information.

Graduate Programs of Study

- Master of Science in geoscience
- Doctor of Philosophy in geoscience

The Master of Science program in geoscience prepares students for employment in industry or for doctoral study. The Doctor of Philosophy program is designed to prepare students for future employment in higher education or research and to bring them to the forefront of a specialized area of geoscience.

All geoscience graduate students must meet the admission and degree requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College (particularly sections IX, X, and XII) or the Graduate (p. 940) College section of the Catalog. They also should acquaint themselves with the University calendar, for deadline dates and so forth.

All entering graduate students are required to enroll in EES:5070 (012:207) Geologic Orientation during the fall semester of their first year in the graduate program.

The department provides detailed information about current graduate degree requirements and timelines for making satisfactory progress toward a degree in the document "The University of Iowa Guidelines for Graduate Study in Geoscience"; see Graduate Student Guidelines under Academics/Geoscience Graduate Program/Information on the Department of Earth and Environmental Sciences web site.

Throughout their graduate study, all M.S. and Ph.D. students must maintain a g.p.a. of at least 3.00 in all course work required for their degree and in all graduate-level geoscience course work. Students whose grade-point average drops below 3.00 are placed on academic probation.

Geoscience graduate students are encouraged to present their research at local, regional, national, or international meetings. The department provides partial funding for travel to such meetings.

Master of Science

The Master of Science degree in geoscience requires a minimum of 30 s.h. of graduate credit. The program is designed primarily to prepare students for employment in industry or for study toward a Ph.D. degree. M.S. students may count up to 8 s.h. of research credit toward the 30 s.h. required for the degree. They must earn at least 24 s.h. toward the degree in University of Iowa courses taken after they enroll in the program. M.S. students also must complete EES:5010 (012:201) Geoscience Seminar Series each semester until they defend their thesis.

M.S. thesis students are responsible for obtaining their advisory committee's approval of a suitable program of course work and for satisfactory development of research plans as outlined in a thesis proposal, which should be completed and approved by the department chair before the end of the second semester of full-time study. The thesis typically has depth and breadth similar to those of one published research paper. Thesis students must deliver a half-hour public presentation of their thesis, followed by an oral defense. They also are required to present their research at a local, regional, national, or international meeting approved by the department chair before they may graduate.

Doctor of Philosophy

The Doctor of Philosophy degree in geoscience requires a minimum of 72 s.h. of graduate credit. The program is designed to prepare students for future employment in higher education or research and to bring them to the forefront of a specialized area of geoscience.

The Ph.D. requires a dissertation, which has the approximate research content of three published papers.

Ph.D. students usually enter the program with established fields of interest and a research advisor already selected. Under exceptional circumstances, a student may be admitted to the Ph.D. program without an established field of interest.

Entering Ph.D. students must consult with a research advisor or the department's director of graduate study before they enroll in courses. By the first month of their second semester of doctoral study, all Ph.D. students must select an advisor. Each student also must select a thesis topic and forward it to the department chair for approval by the end of the first month of the second semester of doctoral study.

Within broad limits, Ph.D. students should select courses that reflect their individual needs, interests, and talents; their advisor and advisory committee must approve their course selections.

During the second semester of doctoral study, each Ph.D. student should propose an advisory committee of at least five faculty members. Before the end of the second semester of doctoral study, each student must obtain his or her committee's approval of a suitable plan of study, which is then submitted to the department chair for approval. In consultation with the advisor and other faculty members, each doctoral candidate prepares a formal dissertation proposal, which must be submitted to the department chair by the end of the candidate's third semester of doctoral study.

Students are required to include in their plan of study at least 18 s.h. of regular course work taught by tenured or tenure-track faculty members of the Department of Earth and Environmental Sciences. Students must earn the 18 s.h. after being admitted to and enrolling in the Ph.D. program. Directed study and research credit do not count toward the required 18 s.h.

Ph.D. students must enroll in EES:5010 (012:201) Geoscience Seminar Series each semester they are registered until they successfully defend their dissertation, or for two consecutive semesters after the semester in which they pass their comprehensive examination, whichever comes first.

After earning their first 24 s.h. of graduate credit, Ph.D. students must be enrolled at least two consecutive semesters in full-time study (at least 9 s.h. per semester) at The University of Iowa; or they must be enrolled three consecutive semesters for at least 6 s.h. per semester at the University, during which time they hold at least a one-quarter-time assistantship that is certified by the department as contributing to their doctoral program.

Students should complete most of their course work before taking the comprehensive examination, which consists of both written and oral portions and which must be passed before the end of the fourth semester of doctoral study.

Once Ph.D. candidates have passed the comprehensive examination, they are required to register each semester until they receive the degree. Candidates who have completed their plan of study may register for GRAD:6002 (000:002) Doctoral Continuous Registration or GRAD:6003 (000:003) Doctoral Final Registration.

Students must submit their written dissertation to the committee at least two weeks before the final examination. All Ph.D. candidates must deliver a one-hour public presentation associated with the dissertation defense. They also are required to submit a manuscript presenting the results of their graduate research to a refereed journal or other publication approved by the department chair before they may defend their dissertation.

Facilities

Resources and equipment available for research in the Department of Earth and Environmental Sciences include the following.

Computer facilities: three teaching classrooms with 10-12 networked PC workstations; a computing classroom with 20 PCs and 10 Mac workstations with GIS, GMS, remote sensing, image analysis, and specialized computational software packages; a student computer room with six PCs and two Macs; and a number of multiprocessor workstations in research laboratories.

Electron microprobe: JOEL JXA-8230 electron probe microanalyzer with five wavelength-dispersive spectrometers capable of quantitatively analyzing a full spectrum of elements in solid materials to a spot size as small as one micron.

Environmental and Hydrogeology Laboratory: permeameters and tensionometers; pumping and slug/bail test units with transducers and data-loggers; water-quality analysis facility; advanced groundwater modeling and geostatistics software; advanced data logging systems for field research; 3-D sensor arrays (wind and water systems); and facilities for field instrumentation design and construction.

Environmental Instrumentation Laboratories: storage, testing, and teaching facility focusing on field instrumentation; assembly, housing, and testing of climatic, meteorological, fluvial, water quality and associated environmental instrumentation data recording systems and sampling systems.

Geomorphic Computing Laboratory: high-end visualization, digitizing, remote sensing and GIS systems; and high-end multiprocessor workstations.

Morphometric laboratories: reflex microscope and microscribe for capturing 3-D data; high-resolution digital cameras and microscopes for 2-D image analysis; and laboratories for micro- and macro-fossil preparation.

Paleontological Repository: more than a million specimens, including some 25,000 type and referred specimens, with 6,000-7,000 primary types; invertebrate, vertebrate, and plant fossils of all geologic ages, and more than 90 percent Paleozoic invertebrates; the fifth-largest university collection in North America (CONARIP 1977).

Petrology and geochemistry laboratories: laser-ablation inductively coupled plasma mass spectrometer (LA-ICPMS); clean laboratory for preparation of samples for elemental and isotopic analysis; alpha- and gamma-

spectrometry laboratories; image analysis; heating freezing stage; petrographic microscopes; photo microscopy; wet-chemistry facilities; rock preparation and mineral separation; UNIX, Windows, and Mac workstations for data analysis and modeling; and one atm gas-mixing furnace for melt inclusion homogenization.

Quaternary Materials Laboratory: pipette grain-size analysis apparatus; chittick apparatus; Sedigraph 5100 X-ray particle-size analyzer; Horiba Camsizer L digital image particle analyzer; wet-chemistry facilities; C-H-N element analyzer; a Flotech flotation system; and a Giddings drill rig.

Scanning Electron Microscope: Hitachi S-3400N, a variable-pressure scanning electron microscope (SEM) equipped with a motorized stage, large chamber, and digital image capture; capable of imaging specimens with no metal coating, or specimens that are slightly hydrated or porous, as well as conventionally processed specimens; equipped with a Bruker AXS Quantax 400 X-ray microanalysis system; XFlash silicon drift detector with excellent energy resolution and light element detection, providing ultra-fast acquisition of line scans and elemental maps.

Sedimentary geology laboratories: water ion chromatograph; image analysis; Sedigraph X-ray particle-size analyzer; Horiba Camsizer L digital image particle analyzer; and a soil/sediment characterization laboratory.

Thin-section and rock preparation laboratory: diamond saws and specialized grinding equipment used to prepare ultrathin slices (30 microns thick) of rocks and fossils for microscopic and electron microprobe analysis.

Cooperative Activities

The department does collaborative work with the Iowa Geological & Water Survey and the Office of the State Archaeologist of Iowa. Earth and environmental sciences students sometimes work on projects for the survey.

The Departments of Anthropology, Biology, Chemistry, Civil and Environmental Engineering, Earth and Environmental Sciences, and Geographical and Sustainability Sciences share services, expertise, joint instruction, and equipment. The Department of Earth and Environmental Sciences is an important participant in the Iowa Quaternary Studies group, an interdisciplinary program that promotes projects combining work in anthropology, biology, geography, geology, and statistics. Course work, degree programs, and facilities are shared among departments. The Department of Earth and Environmental Sciences and its faculty also support and actively participate in the interdisciplinary Environmental Sciences (p. 288) Program, which offers an undergraduate major, and a number of the department's courses satisfy requirements of the undergraduate Certificate in Sustainability (p. 1304).

Field Trips

Field trips are integral parts of several courses in earth and environmental sciences, with frequent weekend general-interest events. The geology of the Iowa City region is characterized by Quaternary glacial sediments on a largely Paleozoic sedimentary section a few hundred meters thick, overlying a Precambrian crystalline basement. Marine and terrestrial fossil assemblages, extensive reefs, and unique geode sites are located within a few hours'

drive. Numerous Pleistocene glaciations are represented in Iowa, and field studies of landforms, exposures, and cores continue to yield information on sedimentology, stratigraphy, soil formation, paleopedology, and fossil biotas from both glacial and interglacial deposits.

Spring break and summer provide time for longer trips, which are open to all geoscience students. In recent years, students have traveled to the southern Appalachians, Arizona, China, Death Valley, Dominican Republic, the Florida Keys, Hawaii, New Mexico, the Ozarks, Puerto Rico, and Texas. Advanced classes have visited California, Colorado, Kansas, Montana, Oklahoma, Wisconsin, and Ontario, Canada.

Courses

Not all courses are offered every year.

Lower-Level Undergraduate

EES:1000 (012:029) First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

EES:1020 (012:020) Loess Hills Service Learning Trip 1 s.h.
Special topics, directed research.

EES:1021 (012:021) Spring Break Service Learning Trip 1 s.h.
Special topics, directed research.

EES:1030 (012:003) Introduction to Earth Science 3-4 s.h.
Relationships between plate tectonics, geologic time, and the rock cycle with volcanoes and igneous, sedimentary, metamorphic rocks; fossils; radioactive isotopes; landscape evolution; mountain building; natural resources; their impacts on civilization. GE: Natural Sciences without Lab; Natural Sciences with Lab. Same as CEE:1030 (053:003).

EES:1040 (012:004) Evolution and the History of Life 3-4 s.h.
Fossils over the past 3.5 billion years, origin and evolution of life, evolutionary radiations and mass extinctions, the invasion of land, dinosaurs, the age of mammals, relationship between biological systems and environmental change in earth history. Offered spring semesters. GE: Natural Sciences without Lab; Natural Sciences with Lab.

EES:1050 (012:005) Introduction to Geology 4 s.h.
Minerals, rocks, and rock-forming processes (including volcanoes and sedimentary environments); surface processes (rivers, groundwater, glaciers, deserts, ocean shorelines), major earth processes (continental drift, plate tectonics, earthquakes, mountain building); impact on civilization. Offered fall semesters. GE: Natural Sciences with Lab.

EES:1060 (012:045) Origins of Life in the Universe (Part 1) 3 s.h.

Fundamental questions (How old is the universe? What is the nature of life? How has life evolved on Earth? What are our human origins? Are there other habitable planets in the universe?) that revolve around understanding origins from different perspectives (i.e., astronomy, physics, geoscience, biology, chemistry, anthropology); work with faculty from several departments to investigate these questions; inquiry-based activities to build success in critical thinking, teamwork, effective written and oral communication; origin of the universe, biochemistry of life, and origin of life on Earth; first of a two-part sequence. Recommendations: first-year or sophomore standing. GE: Natural Sciences without Lab. Same as ASTR:1060 (029:040), BIOL:1060 (002:050).

EES:1061 (012:046) Origins of Life in the Universe (Part 2) 4 s.h.

Fundamental questions (How old is the universe? What is the nature of life? How has life evolved on Earth? What are our human origins? Are there other habitable planets in the universe?) that revolve around understanding origins from different perspectives (i.e., astronomy, physics, geoscience, biology, chemistry, anthropology); work with faculty from several departments to investigate these questions; inquiry-based activities to build success in critical thinking, teamwork, and effective written and oral communication; second of a two-part sequence. Prerequisites: ASTR:1060 (029:040) or BIOL:1060 (002:050) or EES:1060 (012:045). Recommendations: first-year or sophomore standing. GE: Natural Sciences with Lab. Same as ASTR:1061 (029:041), BIOL:1061 (002:051), ANTH:1061 (113:041).

EES:1070 (012:007) Age of Dinosaurs 4 s.h.

Origin and evolutionary history of dinosaurs; diversity of dinosaurian groups, their geographic distributions and paleoecology; origins of flight among dinosaurs; environmental context, including other animals and plants that lived alongside dinosaurs; the so-called extinction of dinosaurs and radiation of modern forms; the role dinosaurs play in the interaction between science and the popular media. Offered fall semesters. GE: Natural Sciences with Lab.

EES:1080 (012:008) Introduction to Environmental Science 3-4 s.h.

Biological and physical character of the Earth; interaction of humans with the environment, including impacts on ecosystems, climate, natural processes, resources; alternative options, including sustainability, waste management, energy, land reform. GE: Natural Sciences without Lab; Natural Sciences with Lab. Same as ENVS:1080 (159:008).

EES:1090 (012:009) Introduction to Environmental Sciences Laboratory 1 s.h.

Laboratory component of EES:1080 (012:008). Requirements: completion of 3 s.h. in EES:1080 (012:008) or ENVS:1080 (159:008); or 3 s.h. of transfer equivalent. GE: Natural Sciences Lab only. Same as ENVS:1090 (159:009).

EES:1170 (012:017) Geology of the U.S. National Parks 2 s.h.

Geologic features, geologic history, important biological and archaeological characteristics, with emphasis on features that caused certain areas to be included in national park system. Offered spring semesters.

EES:1180 (012:018) Geology Field Trip: Selected National Parks 2 s.h.

Observation, interpretation of prominent geologic, geomorphic, biological features; semester-break or semester-end visits to different parks or groups of parks each year. Offered spring semesters.

EES:1400 (012:140) Natural Disasters 3 s.h.

How earth-atmosphere-hydrosphere-space systems produce events catastrophic to humans on the scale of individual lives to civilizations; root causes of earthquakes, landslides, volcanic eruptions, floods, hurricanes, tsunami, tornadoes, and asteroid impact, and their local, national, and global impact; spatial and temporal occurrences of these hazards; methods and processes for hazard preparedness, response, and recovery; social, economic, and policy aspects that affect and compound the magnitude of disasters associated with natural phenomena; case studies drawn from contemporary and ancient societies. GE: Natural Sciences without Lab.

EES:2115 (012:015) History and Science of Oil 3 s.h.

History, politics, and science of oil and oil industry. Same as ENVS:2115 (159:015), HIST:2115 (016:085), GEOG:2115 (044:016).

EES:2190 (012:019) Directed Study arr.

Special topics, independent research.

EES:2310 (012:104) Climatology 3 s.h.

Boundary layer processes that drive atmospheric dynamics; exchanges of energy and water at simple and complex surfaces; global climate change records, theories, models; impacts of climate on society. Prerequisites: EES:1020 (012:020). Same as GEOG:2310 (044:101).

EES:2410 (012:041) Mineralogy 4 s.h.

Physical, chemical, and optical properties of minerals; phase relations; structures; associations; diagnostic features for identification. Offered fall semesters. Prerequisites: EES:1030 (012:003) or EES:1050 (012:005), CHEM:1070 (004:007) or CHEM:1110 (004:011), and MATH:0100 (22M:001) or MATH:0300 (22M:003) or MATH:1010 (22M:005).

Upper-Level Undergraduate and Graduate

EES:3000 (012:100) Geologic Training Assignment 1-3 s.h.

Practical experience. Requirements: grade of C or higher in EES:3500 (012:150) and geology g.p.a. of at least 3.00.

EES:3020 (012:102) Earth Surface Processes 3 s.h.

Basic geomorphic and environmental processes that shape the earth's surface; emphasis on erosion, transport, deposition by land mass movement (creep, landslides, earth flow), fluid agents (wind, water, ice); methods used to study these processes. Prerequisites: EES:1050 (012:005) or EES:1080 (012:008) or ENVS:1080 (159:008) or GEOG:1020 (044:003). Same as ENVS:3020 (159:102), GEOG:3020 (044:102).

EES:3050 (012:115) Geology of Iowa 3 s.h.
Investigation of geologic history responsible for landscape, soil, rocks, fossils, and geologic resources of Iowa. Recommendations: previous geology course.

EES:3070 (012:107) Marine Ecosystems and Conservation 3 s.h.
Introduction to ocean ecosystems, including coral reefs, mangroves, estuaries and salt marshes, sandy and rocky shores, seagrass and kelp beds, the deep sea, plankton; biodiversity of each ecosystem; interrelationship of biota and physical/chemical environment; interactions among organisms, including food webs and symbiosis; local and global threats such as overfishing, pollution, ocean acidification, global warming, sea level change; ongoing biodiversity crisis, solutions for conservation problems.

EES:3080 (012:108) Introduction to Oceanography 2 s.h.
Descriptive, chemical, physical, biological, geological aspects of oceans; impact on weather, climate, shorelines, food supply, other aspects of civilization. Offered spring semesters. Recommendations: knowledge of basic chemistry, biology, physics, earth science.

EES:3090 (012:159) Topics in Museum Studies 1 s.h.
Systematic and analytic methods used for research in physical collections; tutorials in collection building, curation, and preservation; designed by members of the University of Iowa Collections Coalition. Same as MUSM:3090 (024:190).

EES:3100 (012:110) Introduction to Applied Remote Sensing 4 s.h.
Remote sensing of the earth's surface from aircraft, satellites; aerial photograph interpretation; remote sensing systems, methods, data analysis using electromagnetic spectrum and digital processing techniques, including visible, infrared, microwave radiation; remote sensing applied to geologic and environmental problems. Prerequisites: EES:1030 (012:003) or EES:1050 (012:005) or EES:1080 (012:008). Same as ENVS:3100 (159:110).

EES:3110 (012:111) Chemical Evolution of the Oceans 3 s.h.
Investigation of various physico-chemical states oceans have assumed over the past four billion years of Earth history; use of isotope geochemistry as a proxy for ancient ocean conditions; focus on integrated Earth system science, paleoceanographic and paleoclimate modeling, role of chemical stratigraphy in deciphering past climate states of ocean-atmosphere system; relationship between chemical changes in ocean/atmosphere and biological systems of the Earth. Same as ENVS:3110 (159:111).

EES:3140 (012:114) Energy and the Environment 3 s.h.
Scientific concepts related to potentially significant energy sources of the 21st century; environmental impacts, positive and negative, of each energy source as well as geologic and geographical distributions and applications. GE: Natural Sciences without Lab.

EES:3150 (012:193) Sustainability Project arr.
Individual or collective project related to sustainability under the direction and supervision of a faculty member; involves regularly scheduled meetings, data collection and interpretation, and a final project report.

EES:3160 (012:116) Field Trip 2 s.h.
Field trip to an area of geologic interest, such as carbonate area of Florida, Grand Canyon (Arizona), Rio Grande Rift (New Mexico), Death Valley (California, Nevada), Appalachian Mountains (Virginia); preceded by weekly discussions of destination's geology. Offered spring semester.

EES:3190 (012:119) Directed Study arr.
Special topics, independent research.

EES:3200 (012:120) Collection Care and Management 3 s.h.
How a museum's management policy relates to its administrative, legal, and ethical obligations to its collections; acquisitions, deaccessions, collection use, data standards, storage environment, health, safety, documentation. Same as MUSM:3200 (024:120).

EES:3206 (012:174) Seminar: Taphonomy 3 s.h.
Taphonomy (study of fossil record in paleontology and archaeology); processes for accumulation, modification, and deposition of remains in prehistory; instruction by archaeologist and paleontologist. Requirements: graduate standing. Same as ANTH:3206 (113:174).

EES:3210 (012:121) Principles of Paleontology 3 s.h.
Patterns of evolution in fossil record; species and analysis of their evolutionary relationships; paleoecology, paleocommunity evolution; evolutionary radiation and mass extinctions; large-scale relationships between biodiversity and climatic change. Offered fall semesters.

EES:3220 (012:122) Evolution of the Vertebrates 3 s.h.
Evolutionary history of vertebrates revealed by fossils and information from living animals; biogeographic, stratigraphic, paleoecological aspects of selected groups, especially mammals and dinosaurs; transitions from aquatic to terrestrial life, origins of flight, major events in vertebrate history (including mass extinctions and explosive radiations). Requirements: introductory course in geoscience or bioscience.

EES:3260 (012:126) Wetlands: Function, Geography, and Management 3 s.h.

Hydrological, geomorphological, and ecological processes and their interaction in wetlands; geographic differences in wetlands based on climate and hydrology; wetlands, lakes, and rivers; role of wetlands in drainage basin hydrology and flooding; values and valuation of wetlands; wetland law and wetland delineation; wetlands and water resources. Prerequisites: GEOG:2374 (044:103) or EES:2310 (012:104). Same as GEOG:3320 (044:126).

EES:3300 (012:130) Sedimentary Geology 4 s.h.
Basic concepts of sedimentology, stratigraphy, depositional environments, sedimentary petrology; hands-on analyses of sediments and sedimentary rocks, including thin-section petrography; lecture/laboratory. Offered fall semesters. Prerequisites: EES:1030 (012:003) or EES:1050 (012:005).

EES:3360 (012:136) Soil Genesis and Geomorphology 3 s.h.
Introduction to soil genesis, soil geomorphology, and classification including the basics of soil profile description and soil-landscape, soil-vegetation, and soil-climate relationships; emphasis on study of soils as the interface between living and non-living Earth systems and the role of soils in sustaining ecosystems and human societies; short field excursions and a weekend field trip. Requirements: college earth science and chemistry. Same as GEOG:3360 (044:186).

EES:3380 (012:138) Fluvial Geomorphology 3 s.h.
Hydrologic principles, stream channel processes, and fluvial geomorphology within drainage basin systems; spatial and temporal variations in water distribution, analysis of hydrological data, flow mechanisms, sediment transport, forecasting procedures, hydrograph construction, modeling. Requirements: EES:3020 (012:102) or another 3000-level geology or hydraulics course. Same as CEE:3328 (053:128).

EES:3390 (012:139) Integrated Watershed Analysis 3 s.h.
Integration of existing knowledge of physical, hydrological, and environmental processes with management issues and challenges in water resources and environmental management; aspects of water quantity and quality, water use and treatment; basin management issues related to forestry, agriculture, urbanization, floods, droughts.

EES:3410 (012:141) Analytical Methods 2 s.h.
Theory and practice of analyzing the chemical, isotopic, and mineralogical compositions of rocks, organic materials, and waters; use of modern analytical instruments. Offered spring semesters. Prerequisites: EES:3500 (012:150), CHEM:1070 (004:007), and PHYS:1512 (029:012) or PHYS:1702 (029:028).

EES:3500 (012:150) Igneous and Metamorphic Petrology 4 s.h.
Nature, origin, and petrography of igneous and metamorphic rocks in hand specimen and thin-section. Offered spring semesters. Prerequisites: EES:1030 (012:003) or EES:1050 (012:005), EES:2410 (012:041), CHEM:1070 (004:007) or CHEM:1110 (004:011), and MATH:0100 (22M:001) or MATH:0300 (22M:003) or MATH:1010 (22M:005).

EES:3770 (012:177) Global Stratigraphy 3 s.h.
Types of stratigraphy (e.g., biostratigraphy, lithostratigraphy, sequence stratigraphy, chemostratigraphy, magnetostratigraphy, cyclostratigraphy, chronostratigraphy) that share a number of procedures and practices and how differences cloud understanding of Earth history; central role of stratigraphy in modern geoscience pursuits; issue of time in stratigraphic record as an organizing theme for investigation of comparative stratigraphy.

EES:3840 (012:132) Structural Geology 4 s.h.
Rock deformation; description, classification of geologic structures such as faults and folds; processes that generate geologic structures; solution of structural problems; interpretation of geologic maps. Prerequisites: EES:1030 (012:003) or EES:1050 (012:005).

EES:4156 (012:156) Scanning Electron Microscopy and X-Ray Microanalysis arr.
Microscopy methods for research; all aspects of research, from sample preparation to imaging to data analysis; when to use a particular microscopy procedure; theory, operation, and application of scanning electron microscopy, scanning probe microscopy, laser scanning microscopy, X-ray microanalysis. Requirements: a physical science course. Same as CBE:4156 (052:156), ACB:4156 (060:156).

EES:4200 (012:160) Advanced Collection Care and Management 3 s.h.
Builds on MUSM:3200 (024:120); types of museum objects and materials, their care and management; care, storage, and use of paper, books, photographs, works of art, electronic information media, textiles, furniture, archaeological artifacts, natural history specimens, archives; digitization projects, integrated pest management, risk assessment, museum security, museum construction and renovation, grant writing; for students planning museum careers or for professions that require care of collections. Prerequisites: MUSM:3200 (024:120) or EES:3200 (012:120). Same as MUSM:4200 (024:140).

EES:4230 (012:131) Special Topics 1-3 s.h.
Contemporary issues in earth sciences.

EES:4420 (012:142) Vertebrate Osteology and Phylogeny 3 s.h.
Anatomy of the vertebrate skeleton from developmental, functional, and phylogenetic perspectives; relationship between skeletal, muscular, and nervous systems; history of the skeleton through modern forms; lecture and laboratory. Prerequisites: EES:3220 (012:122) or ANTH:3305 (213:190).

EES:4440 (012:144) Phylogenetics and Biodiversity 3 s.h.
Methods available for reconstructing evolutionary history and measuring biodiversity, including distance, parsimony, likelihood, and taxic approaches; applications to molecular and morphological systematics, historical biogeography, study of diversity through time. Prerequisites: EES:1040 (012:004) or EES:3210 (012:121), or BIOL:1411 (002:031) and BIOL:1412 (002:032).

- EES:4450 (012:145) Morphometrics** 1-3 s.h.
Quantitative methods for collection and analysis of morphologic data, including 2-D and 3-D geometric morphometrics and use of multivariate statistical methods to study of size and shape; applications of morphometric techniques to study development, adaptation, variation within and among species, related topics in paleontology and evolutionary biology. Offered alternate years. Prerequisites: EES:1040 (012:004) or EES:3210 (012:121).
- EES:4490 (012:149) Elements of Geochemistry** 3 s.h.
Introduction to application of chemical principles to solution of geologic problems concerning earth and environmental processes; origin of elements, chemical differentiation of Earth and the solar system, geochronology, application of radiogenic and stable isotopes, chemical equilibrium, elementary thermodynamics and kinetics, carbonate and silicate stability relationships, chemical weathering, adsorption, trace element behavior, oxidation-reduction reactions, characterization of surface and ground waters, and ocean chemistry. Prerequisites: EES:1050 (012:005) and CHEM:1080 (004:008).
- EES:4520 (012:152) Isotope Geochemistry** 3 s.h.
Radiogenic and stable isotope systematics, applications to geological, cosmological, and environmental problems.
- EES:4620 (012:185) Approaches to Geoarchaeology** 3 s.h.
Geoarchaeology as multidisciplinary contextual framework for human paleoecology; natural processes that create the archaeological record, approaches to reconstructing landscapes of the past as a context for archaeological deposits; weekend field trip. Prerequisites: EES:3360 (012:136) or EES:4720 (012:172) or ANTH:3205 (113:161) or ANTH:4205 (113:164). Same as ANTH:4620 (113:189).
- EES:4630 (012:166) Hydrogeology** 3 s.h.
Role of groundwater in water cycle, subsurface water profile, aquifers and aquitards, basic principles and laws of physical and chemical processes of groundwater flow and contaminant transport in geological formations for sustainable development and protection of groundwater resources; groundwater geology and hydrology, regional aquifer systems, well hydraulics, slug/bail and pumping test and their analyses, groundwater contamination and remediation, management and sustainability of groundwater resources.
- EES:4660 (012:184) Groundwater Modeling** 3 s.h.
Groundwater flow and contaminant transport modeling; numerical methods, applications of groundwater modeling to water supply, groundwater resources evaluation, remediation design using software; GMS (MODFLOW, MODPATH, and MT3D). Prerequisites: EES:4630 (012:166) or CEE:4103 (053:103), and MATH:1860 (22M:026). Same as CEE:4104 (053:104).
- EES:4680 (012:168) Field Methods in Hydrologic Science** 3 s.h.
Collection and interpretation of physical hydrology and hydraulics field measurements; basic data quality assurance and quality control; hands-on experience with field equipment and data collection; may lead to Hydrologic Technician Certification by American Institute of Hydrology. Prerequisites: EES:3020 (012:102) or EES:3300 (012:130) or EES:3360 (012:136) or EES:3380 (012:138) or EES:3390 (012:139) or EES:4630 (012:166) or EES:4720 (012:172) or EES:4790 (012:179) or EES:4800 (012:180) or EES:4831 (012:112) or CEE:3371 (053:071) or ENGR:2510 (057:020) or ENVS:3020 (159:102).
- EES:4700 (012:170) Evolution of Ecosystems** 3 s.h.
Evolutionary history of terrestrial and marine ecosystems; ecological processes from population to ecosystem levels; community assembly, trophic levels, networks, biodiversity dynamics; practical aspects of paleoecological data collection, statistical analysis, modeling. Requirements: two courses in geoscience, biology, environmental sciences, anthropology, or geography. Same as ENVS:4700 (159:170).
- EES:4710 (012:171) Evolution of Plants** 3 s.h.
Evolutionary history of plants over geologic time; relationships, morphology, and fossil record of major plant lineages; patterns and processes in evolution of plant morphology and diversity; ecological innovations and evolution of terrestrial ecosystems; relationships between biotic and environmental change; paleobotanical tools in stratigraphy, paleoclimatology, sedimentology; practical aspects of paleobotanical data collection, statistical analysis, modeling; field trip. Requirements: two courses in geoscience, anthropology, biology, environmental science, or geography.
- EES:4720 (012:172) Glacial and Pleistocene Geology** 3 s.h.
Introduction to glaciers and glacial and interglacial Earth systems; linkages among glacial, oceanic, and atmospheric systems and their effects on landscapes and biota over the past two million years; how oceans, atmosphere, and glaciers interact and landscape effects of past glacial and interglacial cycles. Requirements: physical geology or physical geography or anthropology.
- EES:4750 (012:175) Mineral and Petroleum Exploration Geology** 3 s.h.
Fundamentals of resource exploration philosophy and methods, with project-based presentation of techniques and strategies for mineral exploration and petroleum exploration; integration and evaluation of geological, geochemical, and geophysical techniques for mineral exploration; hydrocarbon systems and seismic interpretation for petroleum exploration. Corequisites: EES:3500 (012:150) and EES:3840 (012:132).
- EES:4790 (012:179) Engineering Geology** 3 s.h.
Application of geology, water, and earth processes to civil and environmental engineering practice; physical properties of rock and soil, geologic mapping and surveying, groundwater supplies and wells, stream engineering, watershed management, site investigations for environmental assessment, and geologic hazards. Prerequisites: EES:1030 (012:003) or EES:1050 (012:005) or EES:1080 (012:008).

- EES:4800 (012:180) Survey of Geophysical Methods** 3 s.h.
Geophysical methods used to address geological and engineering problems (e.g., finding petroleum and mineral deposits, studying groundwater resources, tracing contaminant plumes, evaluating archaeological sites); methods including gravity, magnetics, radiometrics, refraction and reflection seismography, geophysical well logging, and geoelectrical methods (direct current, frequency- and time-domain electromagnetics, induced polarization, magnetic resonance surveying, ground-penetrating radar); capabilities, drawbacks, costs; planning and budgeting surveys, processing the resulting digital data. Requirements: introductory geology or physics.
- EES:4831 (012:112) Geologic Field Methods** 3 s.h.
Introduction to basic methods of geologic field work in southwest Montana using topographic maps and GPS to locate oneself, identifying geologic map units (including superficial deposits), recognizing geologic contacts, constructing stratigraphic sections, measuring planar structures, and making geologic maps complete with a legend and cross-section. Offered summer session. Prerequisites: EES:1030 (012:003) or EES:1050 (012:005) or EES:1080 (012:008) or EES:1400 (012:140).
- EES:4832 (012:113) Geologic Field Analysis** 3 s.h.
Structural, stratigraphic, and regional analysis of geology in the Rocky Mountains of Montana; emphasis on making reasonable geologic interpretations from field relationships; mapping projects in vicinity of Dillon, Montana that build on experience gained in EES:4831 (012:112); capstone experience dedicated to synthesizing the geology of a fold-and-thrust belt near Glacier National Park. Offered summer session. Prerequisites: EES:3840 (012:132) and EES:4831 (012:112).
- EES:4870 (012:178) Applied Geostatistics** 3 s.h.
Applications of geostatistical methods to geology, geography, hydrology, environmental sciences, and engineering; variogram, Kriging, analysis of spatial-varied data with varied computer software in participants' specialties. Same as GEOG:4870 (044:188).
- EES:4990 (012:011) Senior Thesis in Geoscience** arr.
Independent research resulting in a senior thesis. Requirements: senior standing.
- EES:4999 (012:010) Honors Thesis in Geoscience** arr.
Independent research resulting in an honors thesis. Requirements: honors standing.
- Graduate**
- EES:5010 (012:201) Geoscience Seminar Series** 1 s.h.
Scholarly work and research in geoscience.
- EES:5015 (012:215) American Association of Petroleum Geologists Fall Field Trip** 1 s.h.
Resource-related topics in mineral and hydrocarbon exploration; joint field trip with Iowa State University. Requirements: AAPG student chapter member or graduate standing, and basic understanding of mineralogy, petrology, and structural geology.
- EES:5070 (012:207) Geologic Orientation** 1 s.h.
Department degree requirements, programs; field survey of local geology; tips for TAs; introduction to specialized facilities; for new graduate students.
- EES:5120 (012:189) Global Change Seminar** 1-2 s.h.
Current global change issues, including climate change, ecosystem changes and conservation, energy; seminar format with student presentations.
- EES:5250 (012:250) Environmental Seminar** 1 s.h.
Environmental topics selected by student and instructor.
- EES:5330 (012:233) Carbonate Petrology** 2 s.h.
Identification of constituents and interpretation of genesis, structures, environments of formation, and patterns and processes of diagenesis in limestones; laboratory-based. Requirements: familiarity with optical microscope and sedimentation principles.
- EES:5350 (012:235) Depositional Environments** 3-4 s.h.
Modern patterns of sedimentation; emphasis on interpreting depositional environments of ancient sedimentary rocks and deciphering resulting stratigraphic patterns. Requirements: knowledge of basic sedimentary geology and paleontology.
- EES:5380 (012:238) Process Geomorphology** 1-3 s.h.
Topics in process geomorphology ranging from fluvial dynamics to mass movement to sediment transport and related environmental processes.
- EES:5530 (012:253) Geochronology** 3 s.h.
How to evaluate published ages, and assumptions/errors involved; how to select and sample suitable materials for dating, and choose a suitable dating method and analytical technique; opportunity to develop skills for research and professional careers. Prerequisites: EES:4490 (012:149) or EES:4520 (012:152).
- EES:5550 (012:265) Metamorphic Petrology** 3 s.h.
Interpretation of metamorphic rocks using hand specimens, thin sections, field relationships, mineralogical composition, texture, geochronology, isotope geochemistry, thermodynamics, kinetics, and tectonic setting; phase equilibria in pelitic, mafic, and carbonate rocks; thermobarometry, petrogenetic grids, P-T-X relationships, and pseudosections; kinetic models of metamorphic textures, heat-flow modeling, P-T-t paths, and tectonic evolution of metamorphic rocks. Prerequisites: EES:3500 (012:150).

EES:5820 (012:191) Tectonics 3 s.h.

Dynamic processes responsible for crustal genesis, plate movements, mountain building; plate boundary zones; sedimentologic, structural, petrologic, geophysical characteristics of major tectonic settings; multidisciplinary approach; week-long field trip. Prerequisites: EES:3840 (012:132).

EES:6250 (012:225) Paleontology Seminar 1-3 s.h.

Current controversial issues in paleontology. Recommendations: EES:3210 (012:121).

EES:6390 (012:239) Advanced Watershed Analysis Seminar 1-3 s.h.

Integration of existing knowledge of physical, hydrological, and environmental processes with management issues and challenges in water resources and environmental management; aspects of water quantity and quality, water use and treatment, and basin management issues related to forestry, agriculture, urbanization, floods, droughts.

EES:6570 (012:257) Tectonics and Petrology Seminar 1-2 s.h.

Topics in tectonics, structural geology, petrology.

EES:6920 (012:293) Advanced Structural Geology 3 s.h.

Kinematic and dynamic analysis of deformed rocks; microstructural analysis; strain analysis, field investigations of highly deformed rocks. Prerequisites: EES:3840 (012:132).

EES:7990 (012:310) Research: Geoscience arr.

Independent research related to theses or dissertations in geoscience.

Elementary Education

Undergraduate major: elementary education (B.A., B.S.)

Web site: <http://www.education.uiowa.edu/teach>

Undergraduate Program of Study

- Major in elementary education (Bachelor of Arts, Bachelor of Science)

Bachelor of Arts, Bachelor of Science

The College of Education offers the major in elementary education. The major is available with a Bachelor of Arts or a Bachelor of Science; both degrees are awarded by the College of Liberal Arts and Sciences. The College of Education also offers endorsement for instruction of middle school students (secondary education).

Students interested in pursuing a degree in elementary education must first be admitted to the College of Liberal Arts and Sciences and then must apply to the College of Education. Admission to the College of Education's elementary education program is not guaranteed. In order to be considered for admission to the elementary education program, undergraduates must complete a minimum of 30 s.h. of course work and must have a University of Iowa and a cumulative g.p.a. of at least 3.00. All students must submit PRAXIS I or PRAXIS Core test scores with their application to the Teacher Education Program (TEP). Students should visit with an advisor or speak with Teacher Education Program staff about complete admission requirements.

The elementary education major prepares students to teach kindergarten through sixth grade. Students complete course work in the foundations and methods of teaching. They also may complete requirements for an endorsement, choosing from reading, English/language arts, science, social science, and other areas. Contact the College of Education's Office of Education Services for information about endorsement requirements.

Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323) and must satisfy all other requirements for graduation with a bachelor's degree from the College of Liberal Arts and Sciences.

For information about elementary and secondary education curriculum requirements, student teaching, and teacher licensure, see "TEP: Elementary Education (Undergraduate)" and "TEP: Secondary Education (Undergraduate and Graduate)" in the Teaching and Learning (p. 814) (College of Education) section of the Catalog and contact the Office of Education Services.

English

Chair

- Jonathan Wilcox

Professors

- Florence Boos, Ethan Canin, Lan Samantha Chang, Barbara Eckstein, Mary Lou Emery, Ed Folsom, Patricia Foster, Claire Fox (English/Spanish and Portuguese), James Galvin, Loren Glass, Cheryl T. Herr, Kevin Kopelson, Brooks Landon, James Alan McPherson, Christopher Merrill (International Writing Program/English), Peter Nazareth, Judith Pascoe, Horace Porter (English/American Studies), Marilynne Robinson, Phillip Round, Claire Sponsler, Garrett Stewart, Bonnie Sunstein (Teaching and Learning/English), Jonathan Wilcox

Associate professors

- Bluford Adams (English/American Studies), Linda Bolton, Lori Branch, Matthew Brown (English/Center for the Book), Corey Creekmur (English/Cinematic Arts), John D'Agata, Kathleen Diffley, Eric Gidal, Lena Hill (English/African American Studies), Michael Hill (English/African American Studies), Marie Kruger, Priya Kumar, Kathryn Lavezzo, Mark Levine, Jeff Porter, Laura Rigal (English/American Studies), Robyn Schiff, Thomas Simmons, Alvin Snider, Harilaos Stecopoulos, Miriam Thaggert (English/African American Studies), Doris S. Witt, David Wittenberg

Assistant professors

- Jennifer Buckley (English/Rhetoric), Blaine Greteman, Naomi Greyser (Rhetoric/English), Adam Hooks, Stephen Voyce

Lecturers

- Mary Ann Rasmussen (Gender, Women's, and Sexuality Studies/English), Anne Stapleton

Professors emeriti

- Marvin Bell, Clark Blaise, David S. Chamberlain, Carol de Saint Victor, Stavros Deligiorgis, Hualing Nieh Engle, Miriam Gilbert, John E. Grant, David Hamilton, Robin Hemley, John F. Huntley, Robert E. Kelley, Carl H. Klaus, Rudolf E. Kuenzli, William Kupersmith, John Leggett, Richard Lloyd-Jones, Susan Lohafer, Adalaide Morris, William Murray, Alan F. Nagel, William J. Paff, John Raeburn, Oliver Steele, Gerald Stern

Associate professors emeriti

- Paul Diehl, Robert F. Woerner, Fredrick Woodard

Assistant professor emeritus

- John B. Harper

Undergraduate major: English (B.A.)

Undergraduate minor: English

Graduate degrees: M.A. in English; M.F.A. in English (creative writing, nonfiction writing); Ph.D. in English

Web site: <http://english.uiowa.edu/>

The Department of English offers courses in literature, cultural studies, language, and writing. In these courses, students read poetry, fiction, essays, criticism, and theory to acquire methods for understanding literature and culture. In addition to providing these essential elements

of a liberal arts and sciences education, the department's courses can augment students' specialized interests in other fields.

Many undergraduate and graduate students enroll in the department's degree programs. Most Ph.D. students in English are preparing for careers as teachers and scholars, and many M.F.A. students in the creative writing program and the nonfiction writing program are preparing for lives as storytellers, essayists, and poets. The B.A. and M.A. programs provide valuable training for careers in a variety of fields. Students who have earned English degrees from The University of Iowa write for advertising firms, newspapers, the entertainment industry and book publishers; teach in primary and secondary schools; practice law and medicine; work in business, industry, and nonprofits; and participate in state and federal government. As far as possible, a student's course of study is arranged to meet his or her individual needs and objectives.

The Department of English participates in several of the University's interdisciplinary units: the Departments of American Studies, Cinematic Arts, and Gender, Women's, and Sexuality Studies; the African American Studies Program; the American Indian and Native Studies Program; the Comparative Literature Program; and the Center for the Book.

WRITING PROGRAMS

For the past 75 years, The University of Iowa has been a national leader in all areas of creative writing. The University offers graduate degrees in creative writing, with specializations in fiction, nonfiction, and poetry. Undergraduate students majoring in English have the opportunity to enter the major's creative writing track, and all qualified undergraduates in other majors may enroll in creative writing courses offered by the Department of English.

Find creative writing courses (prefixes CW and CNW) under "Courses" toward the end of this Catalog section. See which ones are offered in certain semesters by searching for course subjects CW and CNW on the ISIS Courses page.

Undergraduate Programs of Study

- Major in English (Bachelor of Arts)
- Minor in English

The Department of English offers undergraduate courses in literature, film, digital media, critical theory, cultural studies, language, and writing. In these courses, students acquire methods for understanding the history and significance of texts in the cultures from which they emerge.

The department challenges students to strive for excellence as writers. It provides instruction in and opportunities for writing in all of its classes and offers students the option of building individual concentrations in creative or nonfiction writing. It also offers an honors program and a creative writing track, both of which have selective admission.

The Department of English is home to Alpha Tau Iota, the University of Iowa chapter of Sigma Tau Delta International

English Honor Society. Membership is by invitation to high achieving students.

Students who plan to teach English in secondary schools should consult with an advisor in the College of Education as early as possible; contact the Office of Education Services. The education endorsement requires that students choose particular courses in the English major in order to meet state requirements. See "B.A. with Teacher Licensure" below.

Students interested in an English major should consult the academic advisor in the English undergraduate advising office. Visit the Department of English web site to learn about the faculty, courses, and upcoming events.

Bachelor of Arts

The Bachelor of Arts with a major in English requires a minimum of 120 s.h., including at least 36 s.h. (12 courses) of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Students must earn at least 21 s.h. of credit for the major at The University of Iowa. Transfer students may count a maximum of 15 s.h. of approved transfer credit toward the major.

Students majoring in English should not use ENGL:1200 (08G:001) The Interpretation of Literature to fulfill the General Education Program's Interpretation of Literature requirement. They may substitute a course from the Literary, Visual, and Performing Arts area of General Education, excluding these:

DANC:1010 (137:001) through DANC:2040 (137:024);
DANC:4880 (137:106) Dance Performance; and
MUS:1020 (025:059) Performance Instruction for Nonmajors.

The following courses do not count toward the English major:

ENGL:1410 (008:003) Sex and Popular Culture in the Postwar U.S.;
ENGL:1420 (008:006) Technologies and Literatures of the Future;
CNW:1620 (08N:020) Introduction to Creative Nonfiction;
CW:1800 (08C:001) Creative Writing Studio Workshop; courses with the prefix ENNM; and
courses numbered ENGL:1200 (08G:001) through ENGL:1355 (08G:005).

Students may count up to 6 s.h. earned in courses with prefix CW toward the English major.

All English majors must complete ENGL:2010 (008:005) Foundation of the English Major: Histories, Literatures, Pleasures.

Other course work for the major is divided into six areas and three historical periods. Students must complete a total of eight area courses (see "Areas" below) and six historical period courses (see "Historical Periods" below). Most courses (except those in the creative writing and nonfiction writing list) satisfy both an area and a historical period requirement, so many students complete the historical period requirements as they complete the area

requirements. This allows them to choose additional elective course work to complete the major.

Each course's area and period designations are included in its course description, which is provided in the comprehensive list of Department of English courses; see "Courses" at the end of this Catalog section. A course's area and/or period designation may vary by semester; consult ISIS for semester-specific course information. Additional information about courses is available on the Department of English web site and from the academic advisor.

The major in English requires the following course work.

INTRODUCTORY COURSE

All English majors must complete this course and are encouraged to enroll in it as soon as they declare the major.

ENGL:2010 (008:005) Foundation of the English Major: Histories, Literatures, Pleasures	3 s.h.
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AREAS

Students must complete at least one course (3 s.h.) from each of the following six areas. Each student also must choose one of the six areas as a concentration area and take an additional two courses in that area, for a total of three courses (9 s.h.) in one area, and eight area courses in all.

Literary Theory and Interdisciplinary Studies

ENGL:2100 (008:033) Introduction to Criticism and Theory	3 s.h.
ENGL:2105 (008:070) Disability in Literature and Cultural Theory	3 s.h.
ENGL:2120 (008:030) Introduction to Cultural Studies	3 s.h.
ENGL:2130 (008:034) Introduction to the Novel	3 s.h.
ENGL:2140 (008:035) Introduction to Poetry	3 s.h.
ENGL:2150 (008:036) Introduction to the Short Story	3 s.h.
ENGL:2160 (008:037) Introduction to Drama	3 s.h.
ENGL:2170 (008:038) Introduction to the Essay	3 s.h.
ENGL:2191 (008:001) Modern Fiction	3 s.h.
ENGL:2192 (008:002) Postmodern Fiction	3 s.h.
ENGL:2193 (008:052) Literature, Culture, and Women	3 s.h.
ENGL:2194 (008:053) Lyric Structures	3 s.h.
ENGL:3100 (008:129) Topics in Criticism and Theory	3 s.h.
ENGL:3102 (008:168) Topics in Poetry and Poetics	3 s.h.
ENGL:3105 (008:136) Topics in Popular Culture	3 s.h.
ENGL:3120 (008:188) Prose by Women Writers	3 s.h.
ENGL:3130 (008:175) Topics in Film and Literature	3 s.h.
ENGL:3135 (008:172) Narrative and the Cinema	3 s.h.
ENGL:3140 (008:130) Literature and the Book	3 s.h.
ENGL:3142 (008:190) Topics in Book History	3 s.h.
ENGL:3150 (008:176) Literature and Philosophic Thought	3 s.h.

ENGL:3152 (008:179) Literature and Society	3 s.h.	ENGL:2329 (008:090) Topics in Modern British Literature Before 1900	3 s.h.
ENGL:3155 (008:177) Literature and Art	3 s.h.	ENGL:2330 (008:091) Topics in Modern British Literature After 1900	3 s.h.
ENGL:3160 (008:170) Literary Genres and Modes	3 s.h.	ENGL:2338 (008:062) Eighteenth-Century British Literature	3 s.h.
ENGL:3173 (008:174) Gender, Sexuality, and Literature	3 s.h.	ENGL:2348 (008:063) British Romanticism	3 s.h.
ENGL:3175 (008:194) Introduction to Feminist Criticism	3 s.h.	ENGL:2359 (008:064) Victorian Literature	3 s.h.
ENGL:3180 (008:173) Topics in Digital Media	3 s.h.	ENGL:2360 (008:065) Twentieth-Century British Literature	3 s.h.
ENGL:3181 (008:171) Digital Media and Poetics	3 s.h.	ENGL:2361 (008:066) Twenty-first-Century British Literature	3 s.h.
ENGL:3182 (008:189) Digital Cultures and Literacies	3 s.h.	ENGL:2369 (008:085) Topics in British Culture and Identity	3 s.h.
ENGL:3186 (008:182) Science Fiction	3 s.h.	ENGL:3320 (008:178) Modern British Drama	3 s.h.
ENGL:3190 (08P:182) Language and Learning	2-3 s.h.	ENGL:3329 (008:103) Literature and Culture of Eighteenth-Century Britain	3 s.h.
ENGL:3191 (08P:198) Reading and Teaching Adolescent Literature	3 s.h.	ENGL:3338 (008:112) Literature and Culture of the Romantic Period	3 s.h.
ENGL:4150 (008:134) Introduction to Book Studies	3 s.h.	ENGL:3339 (008:104) Literature and Culture of Nineteenth-Century Britain	3 s.h.
ENGL:4172 (008:128) London Performance Study	3 s.h.	ENGL:3348 (008:107) Literature and Culture of Nineteenth-Century Scotland	3 s.h.
ENGL:4195 (008:192) Interdisciplinary Studies	3 s.h.	ENGL:3350 (008:110) Literature and Culture of 20th- and 21st-Century Britain	3 s.h.
Medieval and Early Modern Literature and Culture		ENGL:3355 (008:121) British Poetry	3 s.h.
ENGL:2206 (008:008) Classical and Biblical Literature	3 s.h.	ENGL:3360 (008:158) British Fiction	3 s.h.
ENGL:2216 (008:060) Selected Works of the Middle Ages	3 s.h.	American Literature and Culture	
ENGL:2236 (008:076) Selected Early Authors	3 s.h.	ENGL:2409 (008:087) Selected American Authors Before 1900	3 s.h.
ENGL:3216 (008:150) Topics in Medieval and Renaissance Literature	3 s.h.	ENGL:2410 (008:088) Selected American Authors After 1900	3 s.h.
ENGL:3226 (008:101) Literature and Culture of the Middle Ages	3 s.h.	ENGL:2420 (008:056) American Literary Classics	3 s.h.
ENGL:3228 (008:111) Literature and Culture of the Restoration	3 s.h.	ENGL:2425 (008:055) American Poetry	3 s.h.
ENGL:3236 (008:102) Literature and the Culture of the Renaissance	3 s.h.	ENGL:2438 (008:057) American Novel Before 1900	3 s.h.
ENGL:3237 (008:100) Literature and Culture of Seventeenth-Century England	3 s.h.	ENGL:2440 (008:058) American Novel After 1900	3 s.h.
ENGL:3246 (008:122) 16th- and 17th-Century Poetry	3 s.h.	ENGL:2450 (008:059) American Short Story	3 s.h.
ENGL:3256 (008:140) Elementary Old English	3 s.h.	ENGL:2460 (008:080) Black Literature and Politics: Controversies of National Allegiance	3 s.h.
ENGL:3257 (008:141) Old English Beowulf	3 s.h.	ENGL:2463 (008:083) Topics in African American Literature	3 s.h.
ENGL:3266 (008:142) Medieval Celtic Literature	3 s.h.	ENGL:2465 (008:069) Selected African American Authors	3 s.h.
ENGL:3267 (008:143) Medieval Norse Literature	3 s.h.	ENGL:2475 (008:086) Topics in Asian American Literature	3 s.h.
ENGL:3276 (008:144) Medieval Drama	3 s.h.	ENGL:3418 (008:108) Literature and Culture of America Before 1800	3 s.h.
ENGL:3277 (008:145) English Renaissance Drama	3 s.h.	ENGL:3419 (008:105) Literature and Culture of Nineteenth-Century America	3 s.h.
ENGL:3286 (008:146) Chaucer	3 s.h.	ENGL:3420 (008:106) Literature and the Culture of Twentieth-Century America	3 s.h.
ENGL:3287 (008:147) Shakespeare	3 s.h.	ENGL:3429 (008:135) Topics in American Literature Before 1900	3 s.h.
ENGL:3296 (008:148) Milton	3 s.h.	ENGL:3430 (008:139) Topics in American Literature After 1900	3 s.h.
Modern British Literature and Culture		ENGL:3431 (008:196) American Novel Since 1945	3 s.h.
ENGL:2309 (008:078) Selected British Authors Before 1900	3 s.h.		
ENGL:2310 (008:079) Selected British Authors After 1900	3 s.h.		

ENGL:3439 (008:180) American Drama Before 1900	3 s.h.
ENGL:3440 (008:197) American Drama Since 1900	3 s.h.
ENGL:3441 (008:153) Native American Literature	3 s.h.
ENGL:3444 (008:115) Literatures of the American Peoples	3 s.h.
ENGL:3450 (008:154) American Regional Literatures	3 s.h.
ENGL:3455 (008:118) Jewish American Literature	3 s.h.
ENGL:3459 (008:116) African American Literature Before 1900	3 s.h.
ENGL:3460 (008:117) African American Literature After 1900	3 s.h.
ENGL:3462 (008:186) African American Drama	3 s.h.
ENGL:3465 (008:137) African American Autobiography	3 s.h.
ENGL:3480 (008:123) American Literature and History	3 s.h.
ENGL:3489 (008:184) Contemporary American Women Writers	3 s.h.
ENGL:4410 (008:162) Midwest African American Literature and Culture	3 s.h.

Transnational Literature and Postcolonial Studies

ENGL:2505 (008:031) Introduction to Postcolonial Studies	3 s.h.
ENGL:2510 (008:075) Selected Transnational Authors	3 s.h.
ENGL:2560 (008:084) Topics in Culture and Identity	3 s.h.
ENGL:3510 (008:164) Topics in Transnational Literature	3 s.h.
ENGL:3515 (008:138) Topics in Postcolonial Studies	3 s.h.
ENGL:3519 (008:167) Literature and Culture of Empire	3 s.h.
ENGL:3520 (008:109) Literature and Culture of the 20th and 21st Century	3 s.h.
ENGL:3525 (008:113) Literature and Culture of the Americas	3 s.h.
ENGL:3530 (008:114) Caribbean Literature and Culture	3 s.h.
ENGL:3532 (008:195) Modernist Women Writers	3 s.h.
ENGL:3535 (008:133) Inter-American Studies	3 s.h.
ENGL:3540 (008:132) Literature of the Indian Subcontinent	3 s.h.
ENGL:3550 (008:119) African Literature	3 s.h.
ENGL:3555 (008:157) Topics in African Cinema	3 s.h.
ENGL:3570 (008:161) Transnational and Postcolonial Writing by Women	3 s.h.
ENGL:3580 (008:163) Identity and Social Issues	3 s.h.
ENGL:3590 (008:165) People on the Move	3 s.h.
ENGL:3595 (008:191) International Literature Today	1, 3 s.h.

Nonfiction and Creative Writing

ENGL:3720 (8WS:120) Creative Writing Track Colloquium	3 s.h.
ENGL:3721 (8WS:121) Writers' Seminar: Fiction	2 s.h.
ENGL:3722 (8WS:122) Writers' Seminar: Poetry	2 s.h.
ENGL:3723 (8WS:123) Writers' Seminar: Nonfiction	2 s.h.
ENGL:3724 (8WS:124) Writers' Seminar: Literary Translation	2 s.h.
ENGL:3725 (8WS:125) Writers' Seminar: Playwriting	2 s.h.
ENGL:4720 (8WS:170) Creative Writing Track: Special Topics	3 s.h.
CNW:2680 (08N:080) The Art and Craft of Creative Nonfiction	3 s.h.
CNW:2690 (08N:090) The Art and Craft of Writing About Business	3 s.h.
CNW:2700 (08N:081) The Art and Craft of Personal Writing	3 s.h.
CNW:2710 (08N:082) The Art and Craft of Food Writing	3 s.h.
CNW:2720 (08N:083) The Art and Craft of Writing About Culture	3 s.h.
CNW:2730 (08N:084) The Art and Craft of Science Writing	3 s.h.
CNW:2740 (08N:085) The Art and Craft of Writing about the Environment	3 s.h.
CNW:2760 (08N:087) The Art and Craft of Writing for Social Change	3 s.h.
CNW:2770 (08N:088) The Art and Craft of Writing for New Media	3 s.h.
CNW:2780 (08N:089) The Art and Craft of Writing About Sports	3 s.h.
CNW:2790 (08N:091) The Art and Craft of Humor Writing	3 s.h.
CNW:2800 (08N:092) The Art and Craft of Writing Across Genres	3 s.h.
CNW:2810 (08N:093) The Art and Craft of Writing with Emotion	3 s.h.
CNW:2820 (08N:096) The Art and Craft of the Literary Essay	3 s.h.
CNW:2830 (08N:095) The Art and Craft of Immersion Journalism	3 s.h.
CNW:2900 (08N:099) The Essay Prize	3 s.h.
CNW:3450 (08N:125) Freelance Reporting and Writing	4 s.h.
CNW:3600 (08N:131) Issues in Creative Nonfiction	3 s.h.
CNW:3630 (08N:120) Advanced Nonfiction Writing	3 s.h.
CNW:3632 (08N:102) Prose Style	3 s.h.
CNW:3633 (08N:104) Personal Writing	3 s.h.
CNW:3640 (08N:113) Writing for Business and Industry	3 s.h.
CNW:3644 (08N:192) Dublin Writing Workshop	3 s.h.
CNW:3660 (08N:145) Multimedia Writing	3 s.h.
CNW:3661 (08N:146) Film and Writing	3 s.h.
CNW:3662 (08N:147) Graphic Writing	3 s.h.
CNW:3663 (08N:148) Radio and Writing	3 s.h.

CNW:3664 (08N:149) Writing About Science	3 s.h.
CNW:4355 (08N:141) Approaches to Teaching Writing	3 s.h.
CNW:4631 (08N:150) Undergraduate Essay Workshop	3 s.h.
CNW:4642 (08N:133) Team Writing for Business	3 s.h.
CNW:4690 (08N:199) Undergraduate Project in Nonfiction Writing	1-2 s.h.
CW:2100 (08C:023) Creative Writing	3 s.h.
CW:2870 (08C:097) Fiction Writing	3 s.h.
CW:2875 (08C:098) Poetry Writing	3 s.h.
CW:3001 (08C:101) Creative Writing for Business	3 s.h.
CW:3107 (08C:107) Creative Writing for the Health Professions	3 s.h.
CW:3210 (08C:110) Creative Writing and the Natural World	3 s.h.
CW:3215 (08C:115) Creative Writing and Popular Culture	3 s.h.
CW:3217 (08C:117) Writing and Reading Young Adult Fiction	3 s.h.
CW:3218 (08C:108) Creative Writing for New Media	3 s.h.
CW:3870 (08C:194) Advanced Fiction Writing	3 s.h.
CW:3875 (08C:198) Advanced Poetry Writing	3 s.h.
CW:4870 (08C:163) Undergraduate Writers' Workshop: Fiction	arr.
CW:4875 (08C:166) Undergraduate Writers' Workshop: Poetry	arr.
CW:4880 (08C:167) Undergraduate Writers' Seminar	3 s.h.
CW:4894 (08C:195) Undergraduate Project in Creative Writing	arr.

Area Determined by Course Content

The following course's area is designated either as literary theory and interdisciplinary studies or as modern British literature and culture, depending on course context, which varies by semester. Consult ISIS for the semester-specific area designation.

ENGL:3010 (008:126) Children's Literature	3 s.h.
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HISTORICAL PERIODS

Students must take at least two courses from each of the following three historical periods.

Early Literatures Through the 17th Century

ENGL:2206 (008:008) Classical and Biblical Literature	3 s.h.
ENGL:2216 (008:060) Selected Works of the Middle Ages	3 s.h.
ENGL:2236 (008:076) Selected Early Authors	3 s.h.
ENGL:3216 (008:150) Topics in Medieval and Renaissance Literature	3 s.h.
ENGL:3226 (008:101) Literature and Culture of the Middle Ages	3 s.h.
ENGL:3228 (008:111) Literature and Culture of the Restoration	3 s.h.
ENGL:3236 (008:102) Literature and the Culture of the Renaissance	3 s.h.

ENGL:3237 (008:100) Literature and Culture of Seventeenth-Century England	3 s.h.
ENGL:3246 (008:122) 16th- and 17th-Century Poetry	3 s.h.
ENGL:3256 (008:140) Elementary Old English	3 s.h.
ENGL:3257 (008:141) Old English Beowulf	3 s.h.
ENGL:3266 (008:142) Medieval Celtic Literature	3 s.h.
ENGL:3267 (008:143) Medieval Norse Literature	3 s.h.
ENGL:3276 (008:144) Medieval Drama	3 s.h.
ENGL:3277 (008:145) English Renaissance Drama	3 s.h.
ENGL:3286 (008:146) Chaucer	3 s.h.
ENGL:3287 (008:147) Shakespeare	3 s.h.
ENGL:3296 (008:148) Milton	3 s.h.

Literature of the 18th/19th Century

ENGL:2309 (008:078) Selected British Authors Before 1900	3 s.h.
ENGL:2329 (008:090) Topics in Modern British Literature Before 1900	3 s.h.
ENGL:2338 (008:062) Eighteenth-Century British Literature	3 s.h.
ENGL:2348 (008:063) British Romanticism	3 s.h.
ENGL:2359 (008:064) Victorian Literature	3 s.h.
ENGL:2409 (008:087) Selected American Authors Before 1900	3 s.h.
ENGL:2438 (008:057) American Novel Before 1900	3 s.h.
ENGL:3329 (008:103) Literature and Culture of Eighteenth-Century Britain	3 s.h.
ENGL:3338 (008:112) Literature and Culture of the Romantic Period	3 s.h.
ENGL:3339 (008:104) Literature and Culture of Nineteenth-Century Britain	3 s.h.
ENGL:3348 (008:107) Literature and Culture of Nineteenth-Century Scotland	3 s.h.
ENGL:3418 (008:108) Literature and Culture of America Before 1800	3 s.h.
ENGL:3419 (008:105) Literature and Culture of Nineteenth-Century America	3 s.h.
ENGL:3429 (008:135) Topics in American Literature Before 1900	3 s.h.
ENGL:3439 (008:180) American Drama Before 1900	3 s.h.
ENGL:3459 (008:116) African American Literature Before 1900	3 s.h.

Literature of the 20th/21st Century

ENGL:2100 (008:033) Introduction to Criticism and Theory	3 s.h.
ENGL:2105 (008:070) Disability in Literature and Cultural Theory	3 s.h.
ENGL:2120 (008:030) Introduction to Cultural Studies	3 s.h.
ENGL:2150 (008:036) Introduction to the Short Story	3 s.h.
ENGL:2160 (008:037) Introduction to Drama	3 s.h.
ENGL:2170 (008:038) Introduction to the Essay	3 s.h.

ENGL:3160 (008:170) Literary Genres and Modes	3 s.h.
ENGL:3320 (008:178) Modern British Drama	3 s.h.
ENGL:3355 (008:121) British Poetry	3 s.h.
ENGL:3360 (008:158) British Fiction	3 s.h.
ENGL:3444 (008:115) Literatures of the American Peoples	3 s.h.
ENGL:3450 (008:154) American Regional Literatures	3 s.h.
ENGL:3462 (008:186) African American Drama	3 s.h.
ENGL:3480 (008:123) American Literature and History	3 s.h.
ENGL:3519 (008:167) Literature and Culture of Empire	3 s.h.

The historical period of each of the following courses is designated as early literatures through the 17th century, or 18th/19th-century literature, or 20th/21st-century literature, depending on course content, which varies by semester. Consult ISIS for semester-specific period designations.

ENGL:3140 (008:130) Literature and the Book	3 s.h.
ENGL:3142 (008:190) Topics in Book History	3 s.h.
ENGL:4000 (008:098) English Honors Seminar	3 s.h.
ENGL:4150 (008:134) Introduction to Book Studies	3 s.h.

Creative Writing Track

Students majoring in English may be eligible to enter the creative writing track. The track maintains the English major's emphasis on training artful and intelligent readers while providing a focus on creativity and excellence in writing.

ADMISSION TO THE TRACK

Admission to the creative writing track is selective; students must apply and be admitted. Students who apply must have junior or senior standing (at least 60 s.h. earned) at the beginning of the semester in which they intend to start the track; a g.p.a. of at least 3.33 in English (based on all English courses taken, including creative writing courses); at least 9 s.h. earned in University of Iowa English literature courses, excluding those with prefixes CNW and CW; and two completed prerequisites for admission to the track (see list below).

For more information and online application forms, visit the creative writing track web page.

PREREQUISITES FOR ADMISSION TO THE TRACK

Applicants must have completed two prerequisites for admission to the creative writing track (6 s.h.), chosen from the following list of introductory writing courses.

CNW:2680 (08N:080) The Art and Craft of Creative Nonfiction	3 s.h.
CNW:2690 (08N:090) The Art and Craft of Writing About Business	3 s.h.
CNW:2700 (08N:081) The Art and Craft of Personal Writing	3 s.h.
CNW:2710 (08N:082) The Art and Craft of Food Writing	3 s.h.
CNW:2720 (08N:083) The Art and Craft of Writing About Culture	3 s.h.

CNW:2730 (08N:084) The Art and Craft of Science Writing	3 s.h.
CNW:2740 (08N:085) The Art and Craft of Writing about the Environment	3 s.h.
CNW:2760 (08N:087) The Art and Craft of Writing for Social Change	3 s.h.
CNW:2770 (08N:088) The Art and Craft of Writing for New Media	3 s.h.
CNW:2780 (08N:089) The Art and Craft of Writing About Sports	3 s.h.
CNW:2790 (08N:091) The Art and Craft of Humor Writing	3 s.h.
CNW:2800 (08N:092) The Art and Craft of Writing Across Genres	3 s.h.
CNW:2810 (08N:093) The Art and Craft of Writing with Emotion	3 s.h.
CNW:2820 (08N:096) The Art and Craft of the Literary Essay	3 s.h.
CNW:2830 (08N:095) The Art and Craft of Immersion Journalism	3 s.h.
CNW:2900 (08N:099) The Essay Prize	3 s.h.
CW:2100 (08C:023) Creative Writing	3 s.h.
CW:2870 (08C:097) Fiction Writing	3 s.h.
CW:2875 (08C:098) Poetry Writing	3 s.h.
THTR:2301 (049:062) Playwriting I	3 s.h.
THTR:3301 (049:155) Playwriting II	3 s.h.

CREATIVE WRITING TRACK REQUIREMENTS

The creative writing track requires 13 s.h. of credit. Students earn 4 s.h. in genre-based writing seminars, 3 s.h. in a special topics course, and 6 s.h. in approved upper-level creative writing courses.

The creative writing track requires the following course work.

Genre-based writing seminars—two of these (4 s.h.):

ENGL:3721 (8WS:121) Writers' Seminar: Fiction	2 s.h.
ENGL:3722 (8WS:122) Writers' Seminar: Poetry	2 s.h.
ENGL:3723 (8WS:123) Writers' Seminar: Nonfiction	2 s.h.
ENGL:3724 (8WS:124) Writers' Seminar: Literary Translation	2 s.h.
ENGL:3725 (8WS:125) Writers' Seminar: Playwriting	2 s.h.

Special topics course (3 s.h.):

ENGL:4720 (8WS:170) Creative Writing Track: Special Topics	3 s.h.
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Upper-level creative writing—two of these (6 s.h.):

ENGL:4020 (008:120) Honors Thesis Workshop	3 s.h.
ENGL:4720 (8WS:170) Creative Writing Track: Special Topics	3 s.h.
CW:4870 (08C:163) Undergraduate Writers' Workshop: Fiction	3 s.h.
CW:4875 (08C:166) Undergraduate Writers' Workshop: Poetry	3 s.h.
CNW:3630 (08N:120) Advanced Nonfiction Writing	3 s.h.
CNW:3632 (08N:102) Prose Style	3 s.h.

CNW:3633 (08N:104) Personal Writing	3 s.h.
CNW:3660 (08N:145) Multimedia Writing	3 s.h.
CNW:3663 (08N:148) Radio and Writing	3 s.h.
CNW:3664 (08N:149) Writing About Science	3 s.h.
CNW:4631 (08N:150) Undergraduate Essay Workshop	3 s.h.
THTR:3300 (049:165) Advanced Playwriting	3 s.h.
THTR:3310 (049:169) Undergraduate Playwriting Workshop	1-3 s.h.
THTR:3320 (049:168) Writing for Film/Television	3 s.h.

In order to take ENGL:4020 (008:120) Honors Thesis Workshop (an honors thesis in creative writing), students must be in the creative writing track and must be members of the English Honors Program. They must fulfill all requirements for registration in the course; see "Honors in the Major" below.

B.A. with Teacher Licensure

English majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the College of Education's Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students interested in earning elementary school licensure should contact the Office of Education Services for information about requirements.

The following courses are required for students earning secondary school licensure.

ENGLISH COURSES

Students complete these courses as part of the English major.

ENGL:3190 (08P:182)/EDTL:3382 (07S:182) Language and Learning (area: literary theory and interdisciplinary studies)	2-3 s.h.
ENGL:3191 (08P:198)/EDTL:3393 (07S:193) Reading and Teaching Adolescent Literature (area: literary theory and interdisciplinary studies)	3 s.h.
CNW:4355 (08N:141)/EDTL:4355 (07S:155) Approaches to Teaching Writing (area: nonfiction and creative writing)	3 s.h.
A Shakespeare course	
Three American literature courses	
A British literature course	
One nonfiction or creative writing course in addition to CNW:4355 (08N:141)	

EDUCATION COURSES

These College of Education courses are required for teacher education.

EDTL:3002 (07E:102) Technology in the Classroom	2 s.h.
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EDTL:3090 (07S:190) Orientation to Secondary Education	1 s.h.
EDTL:4087 (07S:187) Seminar: Curriculum and Student Teaching	1-3 s.h.
EDTL:4091 (07S:191) Observation and Laboratory Practice in the Secondary School (student teaching)	6 s.h.
EDTL:4092 (07S:192) Observation and Laboratory Practice in the Secondary School (student teaching)	6 s.h.
EDTL:4314 (07S:114) Introduction and Practicum: Secondary English	3 s.h.
EDTL:4315 (07S:115) Methods: Secondary English	3 s.h.
EDTL:4394 (07S:194) Methods: Secondary Reading	2-3 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.
PSQF:1075 (07P:075) Educational Psychology and Measurement	3 s.h.
One college-level mathematics or statistics course	

ADMISSION

Applicants to the Teacher Education Program in English must complete a minimum of 30 s.h., including ENGL:2010 (008:005) Foundation of the English Major: Histories, Literatures, Pleasures and an additional 12 s.h. in English courses, before they are admitted to the program. The following courses do not count toward the additional 12 s.h.:

ENGL:1200 (08G:001) through ENGL:1355 (08G:005);
ENGL:3190 (08P:182) Language and Learning;
ENGL:3191 (08P:198) Reading and Teaching Adolescent Literature; and
CNW:4355 (08N:141) Approaches to Teaching Writing.

Admission to the Teacher Education Program is selective; contact the College of Education's Office of Education Services for information.

Minor Licensure in English

Students who seek licensure for secondary teaching in fields other than English may seek minor licensure in English. First-year courses in rhetoric, speech, or writing do not count toward this requirement.

The English minor licensure program includes the following course work.

ENGL:3190 (08P:182)/EDTL:3382 (07S:182) Language and Learning	2-3 s.h.
ENGL:3191 (08P:198)/EDTL:3393 (07S:193) Reading and Teaching Adolescent Literature	3 s.h.
CNW:4355 (08N:141)/EDTL:4355 (07S:155) Approaches to Teaching Writing	3 s.h.
EDTL:4315 (07S:115) Methods: Secondary English	3 s.h.
EDTL:4394 (07S:194) Methods: Secondary Reading	2-3 s.h.
An American literature course	

A British literature course
 A course in creative or nonfiction writing
 An additional English course

While this program meets minimum requirements for licensure, the department recommends that students who want to teach English have considerably more training in the field.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the fifth semester begins: at least two courses in the major

Before the seventh semester begins: at least four more courses (total of six) in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least two more courses (total of eight) in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in English have the opportunity to graduate with honors in the major and to enhance their course of study through honors seminars and thesis writing. All students interested in taking honors course work are encouraged to join the English Honors Program as soon as they qualify. Students may join online; visit English Honors Program.

Students who wish to graduate with honors in the English major must take two honors seminars, complete a two-semester thesis project, and maintain a University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.50 in English.

Each year the department offers four honors seminars covering a wide range of subject areas and historical periods. Honors seminars are limited to 18 students, carry 3 s.h. of credit, and meet three hours each week. These courses require substantial reading and research and culminate in a 15-20 page essay. Students register for ENGL:4000 (008:098) English Honors Seminar.

To register for a seminar, students are encouraged to have a University of Iowa g.p.a. of at least 3.33 and must have completed three English courses (not including introductory courses in nonfiction or creative writing) with a g.p.a. of at least 3.33 in English. The department also recommends that students complete ENGL:2010 (008:005) Foundation of the English Major: Histories, Literatures, Pleasures before taking an honors seminar.

The two-semester thesis project requires ENGL:4020 (008:120) Honors Thesis Workshop (fall) and ENGL:4040 (008:198) Undergraduate Honors Project (independent study), for a total of 6 s.h. To enroll in ENGL:4020 (008:120), students must have completed one honors seminar with a grade of A-minus or higher and must have a University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.50 in English.

The English Honors Program has established careful guidelines for each of the six types of honors theses accepted by the department: literary and cultural studies, nonfiction writing, electronic writing and multimedia production, English education, creative writing, and the interdisciplinary thesis for double honors, which allows a student to earn honors in two majors with one longer project. Information on thesis guidelines is available on the English Honors Program web site.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in English requires a minimum of 15 s.h. in English courses, including 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may count a maximum of 3 s.h. of approved transfer credit toward the minor. Before taking courses for the minor, students must complete the General Education Program requirement ENGL:1200 (08G:001) The Interpretation of Literature.

The minor must include at least 6 s.h. in literature courses numbered ENGL:2100 (008:033) through ENGL:4810 (08P:190); the remaining 9 s.h. may be selected from additional courses in literature and from most courses in writing (prefixes CNW and CW), with a maximum of 6 s.h. earned in courses with the prefix CW. The following courses do not count toward the minor:

ENGL:1410 (008:003) Sex and Popular Culture in the Postwar U.S.;
 ENGL:1420 (008:006) Technologies and Literatures of the Future;
 CNW:1620 (08N:020) Introduction to Creative Nonfiction;
 CW:1800 (08C:001) Creative Writing Studio Workshop; courses with the prefix ENNM; and
 courses numbered ENGL:1200 (08G:001) through ENGL:1355 (08G:005).

Students may declare the English minor on ISIS. In order for the minor to be recorded, students must indicate completion of the minor on their Application for Degree.

Students who would like help declaring the minor or in planning how to meet its requirements may stop by the Department of English advising office or schedule an appointment with an advisor by contacting the undergraduate English secretary.

Graduate Programs of Study

- Master of Arts in English
- Master of Fine Arts in English (creative writing or nonfiction writing)
- Doctor of Philosophy in English

The Master of Arts program in English introduces students to the professional study of literature; the Doctor of Philosophy program prepares them to serve as faculty members at colleges and universities.

The Master of Fine Arts program in creative writing features advanced courses in writing fiction and poetry.

Students in creative writing study at the Iowa Writers' Workshop, renowned as a pioneer in teaching writers since its founding in 1936. The Master of Fine Arts program in nonfiction writing is one of the few programs in the nation that offer a full range of graduate courses in literary nonfiction.

The M.A. is appropriate for students who would like graduate training in English and who may have an undergraduate major in a different field or who may intend to earn a Ph.D. at another institution. Students interested in careers in any area of book studies (professional writing, editing, web design, or publishing) may wish to earn the M.A. as a terminal degree, as may teachers seeking to enhance their credentials or students pursuing intellectual growth unrelated to a specific career.

M.A. and Ph.D. students in English mix freely in graduate courses, share the same access to faculty, and meet the same standards of quality in their work.

EXAM FOR THE MASTER OF ARTS IN TEACHING

The department administers the English component of the exam for the Master of Arts in Teaching (M.A.T.) in coordination with the College of Education. M.A.T. students should contact the Department of Teaching and Learning for information.

Master of Arts

The Master of Arts program in English requires a minimum of 30 s.h. of graduate credit. The program's focus is literary studies. The required 30 s.h. includes 24 s.h. earned in residence at The University of Iowa with a g.p.a. of at least 3.25. Students who wish to transfer to Iowa's Ph.D. program must complete two semesters or 15 s.h. of course work in literature (whichever they complete first) before applying for admission to the doctoral program.

COURSE WORK

Each student must take the following five courses numbered 5000 or above. Applicable transfer courses must be approved by the director of graduate study in English.

One course in criticism and theory numbered 5000 or above

Four courses numbered 5000 or above, chosen from the following five eras of British or American literature and culture: pre-1500; 1500-1660; 1660-1800; 1800-1900; 20th and 21st centuries

Elective courses constitute half of the total credit for the degree and may be chosen from graduate courses both in and outside the English department. Students may wish to explore opportunities for interdisciplinary study, language study, experience in theory and practice of writing, or specialization in a field of literary scholarship.

Department of English graduate courses are repeatable with the written approval of the department's director of graduate studies.

Completion of the M.A. requires either a thesis or a portfolio. Students submit a written description of their choice to the director of the program before the semester in which they plan to graduate.

M.A. THESIS

Students who choose to write an M.A. thesis must submit a brief prospectus approved by a thesis director before they register for thesis credit and at least one semester before they submit the thesis. The thesis committee consists of the thesis director, the director of the M.A. program, and one other faculty member. The thesis is evaluated by the committee as either satisfactory or unsatisfactory.

A copy of the thesis must be presented to the Graduate College for approval. For detailed information about Graduate College deadlines and policies, see the Manual of Rules and Regulations of the Graduate College.

PORTFOLIO

Near the end of their course work, students who do not choose the thesis option must submit a portfolio of work to the M.A. examination committee, which consists of the director of the M.A. program and two other English faculty members. All three read the full portfolio. To pass, the candidate must win a majority vote of the committee members.

Students take the first step toward preparing to submit a portfolio by meeting with the director of the M.A. program to discuss the portfolio, early during the semester in which they plan to graduate. After fulfilling all distribution and eligibility requirements and clearing all incomplete grades, students present the director with a draft of the portfolio's introductory statement. Students planning to graduate at the end of fall semester should present the statement by the first week of October; those who plan to graduate at the end of spring semester should present the statement by the first week of March. Once the director approves the statement, the student must submit three copies of the full portfolio; the submission deadline is November 1 for students planning to graduate at the end of fall semester and April 1 for those who will graduate at the end of spring semester.

The work in the portfolio should demonstrate the student's knowledge of literature as a broad historical and theoretical inquiry. Students submit approximately 50 pages (12,500 words) of their best work, along with a self-reflective introductory statement of five to seven pages. The body of the portfolio should contain papers originally produced for classes, revised for a broader audience unfamiliar with the original classes. The introduction should detail the student's trajectory in the program and the literary-critical or methodological skills he or she has gained. It also should explain the contents of the portfolio; contextualize each paper; and give a brief overview of the writing. Students are expected to describe the research methods used in assembling their portfolios and the critical practices that ground their work.

Master of Fine Arts: Creative Writing

The Master of Fine Arts program in creative writing requires a minimum of 48 s.h. of graduate credit. The degree is offered through the Creative Writing Program (Iowa Writers' Workshop), a two-year residency program that culminates in a creative thesis, such as a novel, a collection of stories, or a book of poetry.

Throughout the program, workshop students craft their manuscripts and engage in an exchange of ideas about

writing and reading with each other and with the renowned teacher-authors who make up the workshop's faculty.

Admission to the program is competitive.

For details about the M.F.A. in creative writing and about the Iowa Writers' Workshop, see *Creative Writing (Iowa Writers' Workshop)* (p. 219) in the Catalog.

Master of Fine Arts: Nonfiction Writing

The Master of Fine Arts program in nonfiction writing requires 48 s.h. of graduate credit. It is designed for accomplished students and writers of literary nonfiction; most complete it in three years. The program culminates in a thesis of at least 75 pages.

M.F.A. students must complete 32 s.h. in residence at The University of Iowa, in courses specified by the program. They may choose electives widely, from courses offered by the English department and by all other University of Iowa departments.

Department of English graduate courses are repeatable with the written approval of the department's director of graduate studies.

In addition to completing course work, students are required to enroll for at least 2 s.h. and no more than 8 s.h. of thesis credit. The thesis may be a single extended piece of nonfiction, a collection of shorter nonfiction pieces, or a collection of essays. Whatever the project, the thesis is expected to be of publishable quality.

For more information, consult the director of the Nonfiction Writing Program.

Doctor of Philosophy

The Doctor of Philosophy program in English requires a minimum of 72 s.h. of graduate credit. The program is designed as preparation for the teaching, publishing, and administrative service required of college and university faculty members. Concentrations are offered in areas such as literary history and critical theory, as well as interdisciplinary areas such as cultural studies and transnational studies.

Of the minimum 72 s.h. required for the degree, at least 30 s.h. must be earned in residence at The University of Iowa with a g.p.a. of at least 3.50.

Students must gain formal admission to Ph.D. candidacy by a vote of the Graduate Steering Committee, usually during the third semester of doctoral study.

Students complete course work in literature and culture of any four of these historical periods, as expressed in texts of the English-speaking and -writing world (usually but not always British or American): pre-1500; 1500-1660; 1660-1800; 1800-1900; 20th and 21st centuries. They also complete three seminars in the University of Iowa Department of English.

Students also must fulfill the program's language requirement, usually by completing an advanced undergraduate course numbered 3000 or above in a language other than English.

The comprehensive examination consists of the following: a portfolio of five scholarly questions based on a period of literary history (usually British or American); a review essay and annotated bibliography in a special area of

interest; two course syllabi; an article to be submitted for publication; and an introduction to the portfolio that synthesizes its parts in preparation for a two-hour oral exam.

A dissertation is required. Students present their prospectus formally to a faculty committee and must undergo a final exam defending the dissertation.

All doctoral candidates are required to gain some teaching experience, preferably in the College of Liberal Arts and Sciences Department of Rhetoric and in General Education Program (p. 323) literature courses.

For application forms and a complete description of the Ph.D. program, contact the department's graduate program academic coordinator.

Admission

Applications for admission must be postmarked by the following deadlines.

- M.A. and Ph.D.: postmark by January 3
- M.F.A. (creative writing): postmark by January 3
- M.F.A. (nonfiction writing): postmark by December 15

Applicants must meet the admission requirements of the Graduate College; see the *Manual of Rules and Regulations of the Graduate College* or the Graduate (p. 940) College section of the Catalog.

Financial Support

Graduate scholarships, fellowships, and teaching and research assistantships are awarded on a competitive basis. The department strives to provide five years of support for students who enter with an M.A. and six years of support for students who enter with a B.A. Students must be in good standing, which requires a University of Iowa g.p.a. of at least 3.50 and full-time enrollment.

Financial aid applications are considered only from students who have applied or been admitted to a degree program in the Graduate College. Applications and all necessary supporting material must be submitted by the end of January for the following academic year. Forms are available from the Department of English and the University's Office of Admissions.

Facilities and Resources

The University of Iowa Libraries collection is strong in all areas of English and American literature. Partly because of the influence of the Iowa Writers' Workshop, University Libraries has particular strengths in 20th-century fiction and poetry, including manuscript collections of 20th-century authors.

Several periodicals are published under the department's aegis. The *Iowa Review*, *Walt Whitman Quarterly Review*, and *Philological Quarterly* offer opportunities for especially qualified graduate students to work as research assistants or editorial associates. The *Iowa Journal of Cultural Studies*, edited by English department graduate students, features creative and scholarly work by students in English and related areas.

The Department of English and the Iowa Writers' Workshop sponsor a rich and extensive series of readings and lectures by poets, fiction writers, and scholars, all open to students in the department.

The Association of Graduate Students in English sponsors social and intellectual events during the year and provides a forum for student opinion. All graduate students in the department are members.

Courses

Individual descriptions for most English courses are not included because content and emphasis may vary considerably from one semester to the next. For detailed descriptions of each semester's courses, visit the University's ISIS web site.

Courses for Non-English Majors

Lower-Level Undergraduate

ENNM:2100 (08A:080) Nonfiction Writing for Non-English Majors 3 s.h.

ENNM:2455 (08A:059) American Short Story for Non-English Majors 3 s.h.

Upper-Level Undergraduate and Graduate

ENNM:3105 (08A:142) Popular Literature for Non-English Majors 3 s.h.

ENNM:3120 (08A:188) Prose by Women Writers for Non-English Majors 3 s.h.

ENNM:3170 (08A:135) Forms of the Essay for Non-English Majors 3 s.h.

ENNM:3320 (08A:133) British Novel: Scott to Conrad for Non-English Majors 3 s.h.

ENNM:3420 (08A:106) Literature and Culture of 20th-Century America for Non-English Majors 3 s.h.

ENNM:3633 (08A:104) Personal Writing for Non-English Majors 3 s.h.

ENNM:3640 (08A:113) Writing for Business and Industry for Non-English Majors 3 s.h.

General Education, Lower-Level Undergraduate

Note: CW:1800 (08C:001) Creative Writing Studio Workshop and CNW:1620 (08N:020) Introduction to Creative Nonfiction do not count toward the English major or minor.

CNW:1620 (08N:020) Introduction to Creative Nonfiction 3 s.h.

Exploration of creative nonfiction genres through readings, discussion, and writing exercises; introduction to workshop environment. Requirements: English nonmajor. GE: Literary, Visual, and Performing Arts.

CW:1800 (08C:001) Creative Writing Studio Workshop 3 s.h.

Experience reading and writing fiction, poetry, and personal narrative in a workshop setting; study of published work and critical discussion from a writer's standpoint; critique of class members' work. GE: Literary, Visual, and Performing Arts.

Literature, General Education

All students earning a degree from the College of Liberal Arts and Sciences, except English majors, must take ENGL:1200 (08G:001) The Interpretation of Literature as part of the General Education Program (p. 323). English majors should substitute a course from the Literary, Visual, and Performing Arts area of General Education, excluding MUS:1020 (025:059) Performance Instruction for Nonmajors, DANC:1010 (137:001) Beginning Tap through DANC:2040 (137:024) Intermediate Modern, and DANC:4880 (137:106) Dance Performance.

Course ENGL:1200 (08G:001) The Interpretation of Literature (or its equivalent by examination or transfer) is a prerequisite for courses ENGL:1320 (08G:004) Heroes and Villains through ENGL:1355 (08G:005) Literatures of Native American Peoples. The pass/nonpass option is available only for students in the Colleges of Nursing and Engineering with consent of the student's advisor and the instructor.

Lower-Level Undergraduate

ENGL:1200 (08G:001) The Interpretation of Literature 3 s.h.

Ways of reading; focus on reader, text, contexts; poetry, short fiction, drama, novels. Prerequisites: RHET:1030 (010:003). Requirements: successful completion of the rhetoric requirement. GE: Interpretation of Literature.

ENGL:1320 (08G:004) Heroes and Villains 3 s.h.

Heroes, heroines, and villains as products of the imagination; literary representations of heroes, heroines, and villains in varied social and historical situations; how their representation shapes our understanding of heroism and of villainy. Prerequisites: ENGL:1200 (08G:001) and RHET:1030 (010:003). Requirements: successful completion of the rhetoric requirement and then ENGL:1200 (08G:001). Recommendations: closed to students who have taken ENGL:1325 (08G:012). GE: Literary, Visual, and Performing Arts.

ENGL:1325 (08G:012) Comic and Tragic Literature 3 s.h.

Interrelations of comic and tragic literature, including film and other popular media, and their connection with human experience; comic and tragic forms and their uses in different social and historical situations. Prerequisites: ENGL:1200 (08G:001) and RHET:1030 (010:003). Requirements: successful completion of the rhetoric requirement and then ENGL:1200 (08G:001). Recommendations: closed to students who have taken ENGL:1320 (08G:004). GE: Literary, Visual, and Performing Arts.

ENGL:1330 (08G:006) The Art of Storytelling 3 s.h.

Selected masterpieces and recent developments in the art of storytelling in poetry and prose. Prerequisites: ENGL:1200 (08G:001) and RHET:1030 (010:003). Requirements: successful completion of the rhetoric requirement and then ENGL:1200 (08G:001). GE: Literary, Visual, and Performing Arts.

ENGL:1345 (08G:009) American Lives 3 s.h.
Major works of American literature. Prerequisites: ENGL:1200 (08G:001) and RHET:1030 (010:003). Requirements: successful completion of the rhetoric requirement and then ENGL:1200 (08G:001). GE: Literary, Visual, and Performing Arts.

ENGL:1350 (08G:011) Literature and Sexualities 3 s.h.
Works from various genres, time periods, cultures that reflect and construct a wide range of sexual identities. Prerequisites: ENGL:1200 (08G:001) and RHET:1030 (010:003). Requirements: successful completion of the rhetoric requirement and then ENGL:1200 (08G:001). GE: Literary, Visual, and Performing Arts.

ENGL:1355 (08G:005) Literatures of Native American Peoples 3 s.h.
Genres of Native American literature, including oral literature; focus on written literature (fiction, essays, poetry, drama). Prerequisites: ENGL:1200 (08G:001) and RHET:1030 (010:003). Requirements: successful completion of the rhetoric requirement and then ENGL:1200 (08G:001). GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity. Same as AINS:1355 (149:005).

Literature

English department courses are open to all undergraduates who have satisfied the rhetoric requirement. Undergraduates are encouraged to complete the required course ENGL:2010 (008:005) Foundation of the English Major: Histories, Literatures, Pleasures as soon as they declare the English major. Students also are encouraged to take one or more introductory departmental courses, ENGL:2120 (008:030) Introduction to Cultural Studies through ENGL:2170 (008:038) Introduction to the Essay, before attempting courses numbered 3000 or above.

Courses ENGL:4000 (008:098) English Honors Seminar, ENGL:4040 (008:198) Undergraduate Honors Project, and ENGL:4010 (008:199) Special Project for Undergraduates may be repeated. Most courses with the prefix ENGL may not be repeated. Occasionally, with written consent from the department's Undergraduate Advising Office, a student may repeat a course if the course's subject matter is different from that of a course the student already has taken.

Lower-Level Undergraduate

ENGL:1410 (008:003) Sex and Popular Culture in the Postwar U.S. 3 s.h.
Critical and historical introduction to representation of human sexuality in American popular culture from World War II to the present. GE: Values, Society, and Diversity. Same as AMST:1060 (045:060), GWSS:1060 (131:061).

ENGL:1420 (008:006) Technologies and Literatures of the Future 3 s.h.

Introduction to discourses of futurology; dramatic advances in machine intelligence, promise of nanotechnology, and future of biological research that have blurred long-held distinctions between science and science fiction; issues and controversies prominent in this futurological discourse. GE: Values, Society, and Diversity.

ENGL:2010 (008:005) Foundation of the English Major: Histories, Literatures, Pleasures 3 s.h.
History and practice of English as a discipline; four central aspects of literary study.

ENGL:2030 (008:004) Literary Readings Attendance 1 s.h.
Attendance at diverse literary readings and scholarly presentations on The University of Iowa campus and in Iowa City, featuring visiting, local, and University of Iowa writers and scholars.

ENGL:2040 (008:007) English at Work 1 s.h.
What can be done with an English degree; knowledge and skills gained as an English major that are in high demand among a wide variety of employers; important steps taken as a student that translate unique career dreams into reality; work with Pomerantz Career Center staff.

ENGL:2080 (008:054) English Winter Practicum 2 s.h.

ENGL:2100 (008:033) Introduction to Criticism and Theory 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:2105 (008:070) Disability in Literature and Cultural Theory 3 s.h.
Introduction to disability studies; examination of disability in cultural and literary contexts; core course for the Certificate in Disability Studies. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:2120 (008:030) Introduction to Cultural Studies 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:2130 (008:034) Introduction to the Novel 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:2140 (008:035) Introduction to Poetry 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

- ENGL:2150 (008:036) Introduction to the Short Story** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.
- ENGL:2160 (008:037) Introduction to Drama** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.
- ENGL:2170 (008:038) Introduction to the Essay** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.
- ENGL:2191 (008:001) Modern Fiction** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.
- ENGL:2192 (008:002) Postmodern Fiction** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.
- ENGL:2193 (008:052) Literature, Culture, and Women** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as GWSS:2193 (131:052).
- ENGL:2194 (008:053) Lyric Structures** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.
- ENGL:2206 (008:008) Classical and Biblical Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.
- ENGL:2216 (008:060) Selected Works of the Middle Ages** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.
- ENGL:2236 (008:076) Selected Early Authors** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.
- ENGL:2309 (008:078) Selected British Authors Before 1900** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature.
- ENGL:2310 (008:079) Selected British Authors After 1900** 3 s.h.
English majors may apply the following course to the area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th/21st-Century Literature.
- ENGL:2329 (008:090) Topics in Modern British Literature Before 1900** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature.
- ENGL:2330 (008:091) Topics in Modern British Literature After 1900** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th/21st-Century Literature.
- ENGL:2338 (008:062) Eighteenth-Century British Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British literature and Culture. PERIOD: 18th/19th-Century Literature.
- ENGL:2348 (008:063) British Romanticism** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature.
- ENGL:2359 (008:064) Victorian Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature.
- ENGL:2360 (008:065) Twentieth-Century British Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th/21st-Century Literature.
- ENGL:2361 (008:066) Twenty-first-Century British Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th/21st-Century Literature.
- ENGL:2369 (008:085) Topics in British Culture and Identity** 3 s.h.

How culture and identity of British society are created and reflected through literature and other discursive systems; focus on a specific topic and area. English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:2409 (008:087) Selected American Authors Before 1900 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:2410 (008:088) Selected American Authors After 1900 2-3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:2420 (008:056) American Literary Classics 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:2425 (008:055) American Poetry 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:2438 (008:057) American Novel Before 1900 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:2440 (008:058) American Novel After 1900 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:2450 (008:059) American Short Story 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:2460 (008:080) Black Literature and Politics: Controversies of National Allegiance 3 s.h.

Black literature born amid political controversy, from slave narratives to award-winning texts of late 20th century; evolving politics of African American writers; changing political landscape of this expansive period and representative literature; how African American writers shape U.S. political debate; surprising politics of many canonical African American writers. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as AFAM:2781 (129:081), POLI:2107 (030:099).

ENGL:2463 (008:083) Topics in African American Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:2465 (008:069) Selected African American Authors 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as AFAM:2465 (129:069).

ENGL:2475 (008:086) Topics in Asian American Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:2505 (008:031) Introduction to Postcolonial Studies 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:2510 (008:075) Selected Transnational Authors 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:2560 (008:084) Topics in Culture and Identity 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

Upper-Level Undergraduate and Graduate

ENGL:3100 (008:129) Topics in Criticism and Theory 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3102 (008:168) Topics in Poetry and Poetics 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:3105 (008:136) Topics in Popular Culture 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3107 (008:151) Literature and Anthropology 3 s.h.

Topics vary. Same as ANTH:3107 (113:109), CL:3107 (218:151).

ENGL:3010 (008:126) Children's Literature 3 s.h.

Classic children's literature and contemporary critical approaches to the genre. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies, or Modern British Literature. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:3120 (008:188) Prose by Women Writers 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as GWSS:3120 (131:188).

ENGL:3130 (008:175) Topics in Film and Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3135 (008:172) Narrative and the Cinema 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as CINE:3135 (048:172).

ENGL:3140 (008:130) Literature and the Book 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: Early Literatures through 17th-Century, 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as UICB:3140 (108:181).

ENGL:3142 (008:190) Topics in Book History 3 s.h.

Authorship, publishing, and so forth within specific historical and cultural contexts. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: Early Literatures Through 17th Century, 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as UICB:3142 (108:186).

ENGL:3150 (008:176) Literature and Philosophic Thought 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3152 (008:179) Literature and Society 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as CL:3379 (218:179).

ENGL:3155 (008:177) Literature and Art 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as CL:3277 (218:177).

ENGL:3160 (008:170) Literary Genres and Modes 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:3173 (008:174) Gender, Sexuality, and Literature 3 s.h.

Representations of gender, class, and sexuality in British, American, or postcolonial literature. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as GWSS:3173 (131:156).

ENGL:3175 (008:194) Introduction to Feminist Criticism 3 s.h.

Introduction to feminist interpretation of literature, feminist literature, feminist theories, and uses of literature in forming feminist politics. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as GWSS:3175 (131:194).

ENGL:3180 (008:173) Topics in Digital Media 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as THTR:3180 (049:174).

ENGL:3181 (008:171) Digital Media and Poetics 3 s.h.

Theory and practice of one or more varieties of digital composition; digital art analyzed and created in specific forms—radio drama, interactive fiction, procedural and constructivist poetics. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3182 (008:189) Digital Cultures and Literacies 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3186 (008:182) Science Fiction 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3216 (008:150) Topics in Medieval and Renaissance Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3226 (008:101) Literature and Culture of the Middle Ages 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as MDVL:3226 (162:101).

ENGL:3228 (008:111) Literature and Culture of the Restoration 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3236 (008:102) Literature and the Culture of the Renaissance 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3237 (008:100) Literature and Culture of Seventeenth-Century England 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3246 (008:122) 16th- and 17th-Century Poetry 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3256 (008:140) Elementary Old English 3 s.h.

Reading knowledge of Old English; introduction to Anglo-Saxon literature and culture. English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3257 (008:141) Old English Beowulf 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3266 (008:142) Medieval Celtic Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3267 (008:143) Medieval Norse Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3276 (008:144) Medieval Drama 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as THTR:3276 (049:181).

ENGL:3277 (008:145) English Renaissance Drama 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as THTR:3277 (049:184).

ENGL:3286 (008:146) Chaucer 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3287 (008:147) Shakespeare 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as THTR:3287 (049:072).

ENGL:3296 (008:148) Milton 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

ENGL:3320 (008:178) Modern British Drama 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:3329 (008:103) Literature and Culture of Eighteenth-Century Britain 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:3338 (008:112) Literature and Culture of the Romantic Period 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:3339 (008:104) Literature and Culture of Nineteenth-Century Britain 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:3348 (008:107) Literature and Culture of Nineteenth-Century Scotland 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:3350 (008:110) Literature and Culture of 20th- and 21st-Century Britain 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:3355 (008:121) British Poetry 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:3360 (008:158) British Fiction 3 s.h.

British fiction written since 1700. English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:3418 (008:108) Literature and Culture of America Before 1800 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:3419 (008:105) Literature and Culture of Nineteenth-Century America 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:3420 (008:106) Literature and the Culture of Twentieth-Century America 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:3429 (008:135) Topics in American Literature Before 1900 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:3430 (008:139) Topics in American Literature After 1900 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:3431 (008:196) American Novel Since 1945 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:3439 (008:180) American Drama Before 1900 3 s.h.

American playwrights and plays before 1900. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature.

ENGL:3440 (008:197) American Drama Since 1900 3 s.h.

American playwrights and plays after 1900. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as THTR:3440 (049:117).

ENGL:3441 (008:153) Native American Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as AINS:3441 (149:113).

ENGL:3444 (008:115) Literatures of the American Peoples 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:3450 (008:154) American Regional Literatures 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature.

ENGL:3455 (008:118) Jewish American Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:3459 (008:116) African American Literature Before 1900 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature. Same as AFAM:3459 (129:116).

ENGL:3460 (008:117) African American Literature After 1900 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as AFAM:3460 (129:117).

ENGL:3462 (008:186) African American Drama 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as THTR:3462 (049:186), AFAM:3462 (129:186).

ENGL:3465 (008:137) African American Autobiography 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as AFAM:3465 (129:181).

ENGL:3480 (008:123) American Literature and History 3 s.h.

Examination of fictional histories (novels about history), their relationship to historical interpretation. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as AMST:3480 (045:123).

ENGL:3489 (008:184) Contemporary American Women Writers 3 s.h.

Interdisciplinary study of contemporary American women writers whose works depict the shaping force of race, class, gender, and sexuality on individuals, families, and communities.

ENGL:3510 (008:164) Topics in Transnational Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3515 (008:138) Topics in Postcolonial Studies 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3519 (008:167) Literature and Culture of Empire 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 18th/19th-Century Literature or 20th/21st-Century Literature.

ENGL:3520 (008:109) Literature and Culture of the 20th and 21st Century 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3525 (008:113) Literature and Culture of the Americas 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:3530 (008:114) Caribbean Literature and Culture 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Culture. PERIOD: 20th/21st-Century Literature.

ENGL:3532 (008:195) Modernist Women Writers 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3535 (008:133) Inter-American Studies 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3540 (008:132) Literature of the Indian Subcontinent 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3550 (008:119) African Literature 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature. Same as AFAM:3550 (129:119).

ENGL:3555 (008:157) Topics in African Cinema 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature. Same as AFAM:3555 (129:158).

ENGL:3570 (008:161) Transnational and Postcolonial Writing by Women 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature. Same as CL:3570 (218:161).

ENGL:3580 (008:163) Identity and Social Issues 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3590 (008:165) People on the Move 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature.

ENGL:3595 (008:191) International Literature Today 1,3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature. Same as IWP:3191 (181:191), WLLC:3191 (218:191).

ENGL:4150 (008:134) Introduction to Book Studies 3 s.h.

Theory and practice of book studies; meanings of word and image in the book format; comparative study of other media, applied study of the codex as physical artifact. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: Early Literatures Through 17th Century, or 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as UICB:4150 (108:185), SLIS:4150 (021:185).

ENGL:4172 (008:128) London Performance Study 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as THTR:4630 (049:177).

ENGL:4195 (008:192) Interdisciplinary Studies 3 s.h.

Exploration of how readings of theory can be evaluated through discussions and readings in literature. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature.

ENGL:4410 (008:162) Midwest African American Literature and Culture 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as AFAM:4710 (129:162).

Nonfiction and Creative Writing

Many courses may be repeated.

Other courses listed below may be repeated with consent of the instructor.

Courses CW:1800 (08C:001) Creative Writing Studio Workshop and CNW:1620 (08N:020) Introduction to Creative Nonfiction do not count toward the English major or minor.

Course CNW:3630 (08N:120) Advanced Nonfiction Writing has a prerequisite.

Course CNW:4631 (08N:150) Undergraduate Essay Workshop requires consent of instructor (see course description on ISIS).

Creative Nonfiction Writing, Lower-Level Undergraduate

CNW:2680 (08N:080) The Art and Craft of Creative Nonfiction 3 s.h.

How we tell stories—every time people talk about themselves, someone they know, places visited or events experienced; creation of a story with intention to entertain and inform a particular audience; how to create compelling, thought-provoking, and resonant texts from raw material of daily life; exploration of three fundamentals of great storytelling—taking emotional and intellectual risks, being imaginatively rigorous, and revising, revising, revising. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2690 (08N:090) The Art and Craft of Writing About Business 3 s.h.

Preparation for real world writing situations; techniques for revision; creation of texts that are clear, persuasive, and coherent; practice techniques by revising many kinds of transactional documents, from letters and memos to procedures and reports; examples from actual business transactions; enhancement of writing, editing, job search, and managerial skills. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2700 (08N:081) The Art and Craft of Personal Writing 3 s.h.

Moments of wonder, confusion, and blips in memory that can reveal deep and complicated truths in life; different kinds of personal writing with focus on strategies that writers employ to create rich and compelling stories; character, scene, voice, point of view, suspense, and timing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2710 (08N:082) The Art and Craft of Food Writing 3 s.h.

Vivid prose that evokes memories, moods, places, and events; creating a visceral bond with readers as powerful as in any other art form; basics of food writing; how to heighten awareness of physical world through exercises that focus on sensory details. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2720 (08N:083) The Art and Craft of Writing About Culture 3 s.h.

Writing about the culture surrounding us—literature, songs, movies, magazines, television, food, concerts, theater, commercials, billboards, comic books, the Internet, museums, sports, architecture; readings, field trips, and multiple approaches to writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2730 (08N:084) The Art and Craft of Science Writing 3 s.h.

Introduction to science writing; development of a clear and engaging prose style through readings and workshops. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2740 (08N:085) The Art and Craft of Writing about the Environment 3 s.h.

Tradition of nature writing and how it has inspired writers, artists, and activists to find more complicated and daring interpretations of what constitutes an environment; reading and writing that challenges assumptions and pushes boundaries of environmental writing and nonfiction. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2760 (08N:087) The Art and Craft of Writing for Social Change 3 s.h.

How nonfiction writers have responded to tumultuous social, political, and cultural topics of their day through reading and writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2770 (08N:088) The Art and Craft of Writing for New Media 3 s.h.

Fundamental elements of new media; readings that celebrate and challenge today's newest experiments in podcasts, video games, the Internet, Twitter feeds, and Tumblr narratives; crafting and critiquing texts in these media. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2780 (08N:089) The Art and Craft of Writing About Sports 3 s.h.

Introduction to sports writing through reading and writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2790 (08N:091) The Art and Craft of Humor Writing 3 s.h.

How comedy functions as one of many tools a writer has at his or her disposal through reading and writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2800 (08N:092) The Art and Craft of Writing Across Genres 3 s.h.

Hybrid texts that defy classification—graphic books, stand-up comedy, lists, letters, poems, freestyle rap—engaged through reading and writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2810 (08N:093) The Art and Craft of Writing with Emotion 3 s.h.

Role of emotion in creative writing through readings and writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2820 (08N:096) The Art and Craft of the Literary Essay 3 s.h.

Different forms of the essay—reviews, memoirs, profiles, travelogues, journalism, cultural criticism—through readings and writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2830 (08N:095) The Art and Craft of Immersion Journalism 3 s.h.

Immersion in field work, leading to nonfiction writing; writer-in-residence for a particular place, institution, or organization; observation and exploration of everything that happens within those boundaries. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CNW:2900 (08N:099) The Essay Prize 3 s.h.

Discussion and evaluation of a variety of essays nominated by an independent committee of writers, editors, filmmakers, sound designers, performance artists, and readers for the Essay Prize; selection of winner. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing. Prerequisites: RHET:1030 (010:003).

Creative Writing, Lower-Level Undergraduate

CW:2100 (08C:023) Creative Writing 3 s.h.

Guidance in the process of writing fiction and poetry; writing as exploration; development of students' critical skills as readers; application of new knowledge and skills to students' own writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CW:2870 (08C:097) Fiction Writing 3 s.h.

Analysis of works of accomplished fiction writers; critique of class members' short stories, in writing and in class; discussion of how class members use language, characterization, point of view, other elements of fiction in their work. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CW:2875 (08C:098) Poetry Writing 3 s.h.

Careful writing of poems, reading of poetry by class members as well as established poets; supportive workshop context. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

Creative Nonfiction Writing, Upper-Level Undergraduate and Graduate

CNW:3450 (08N:125) Freelance Reporting and Writing 4 s.h.

Approaches to writing and marketing articles to magazines, newspapers, other publications; developing ideas, researching periodical markets, writing queries, writing and rewriting articles for publication. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major. Same as JMC:3450 (019:125).

CNW:3600 (08N:131) Issues in Creative Nonfiction 3 s.h.

Exploration and discussion of a single topic in creative nonfiction through a variety of reading assignments and creative writing exercises. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing. Prerequisites: RHET:1030 (010:003).

CNW:3630 (08N:120) Advanced Nonfiction Writing 3 s.h.

Essay writing; focus on workshop environment. Prerequisites: CNW:2680 (08N:080). Requirements: undergraduate standing.

- CNW:3632 (08N:102) Prose Style** 3 s.h.
Sentences: how they work, what they do; how sentences can help writing, expand understanding of prose style, stretch options.
- CNW:3633 (08N:104) Personal Writing** 3 s.h.
- CNW:3640 (08N:113) Writing for Business and Industry** 3 s.h.
- CNW:3644 (08N:192) Dublin Writing Workshop** 3 s.h.
Intensive writing workshops for aspiring creative writers; study abroad in Dublin, Ireland. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.
- CNW:3660 (08N:145) Multimedia Writing** 3 s.h.
Multidisciplinary sessions mixing media production, creative nonfiction, and literary theory; topics ranging from hypertext authoring and electronic magazine publishing to sound art and digital video; principles and practices of writing for alternative media, theoretical understanding of how various media frame the situation; radio essay, video essay, interactive animation, web authoring, electronic magazine publishing.
- CNW:3661 (08N:146) Film and Writing** 3 s.h.
Writers' introduction to digital video; compelling forms of nonfiction filmmaking from the film essay to the environmental documentary; how to convert texts into film, conduct interviews, and shoot and edit digital video; emphasis on careful analysis and making of whitely films.
- CNW:3662 (08N:147) Graphic Writing** 3 s.h.
The photo essay and the graphic memoir, two modes of nonfiction that have steadily increased in prominence and popularity; key texts in both genres (i.e., Dorothea Lange's *American Exodus*, Marjane Satrapi's *Persepolis*, or Art Spiegelman's *Maus*); writing and producing photo essays and short graphic memoirs.
- CNW:3663 (08N:148) Radio and Writing** 3 s.h.
Writing with sound; introduction to radio essays and documentaries with focus on digital audio; analyze key radio works and essayists; produce voiceovers, record interviews, mix music, edit sound and spoken texts in making radio art.
- CNW:3664 (08N:149) Writing About Science** 3 s.h.
Writing about science and technology from neurobiology to astrophysics; exploration of classic literary nonfiction on the sciences; focus on various stylistic practices for making complex topics compelling for a general audience and developing a clear and readable prose style.
- CNW:4355 (08N:141) Approaches to Teaching Writing** 3 s.h.
Theories, practices, strategies, and history of writing and teaching writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing. Same as EDTL:4355 (07S:155).
- CNW:4631 (08N:150) Undergraduate Essay Workshop** 3 s.h.
- Experience working on new nonfiction projects, drafting and preparing one piece throughout a semester; individualized work to promote understanding of and creation in genres of nonfiction writing. Requirements: undergraduate standing, successful completion of two CNW (08N) courses, and submission of manuscript.
- CNW:4642 (08N:133) Team Writing for Business** 3 s.h.
- CNW:4690 (08N:199) Undergraduate Project in Nonfiction Writing** arr.
- Creative Writing, Upper-Level Undergraduate and Graduate**
- CW:3001 (08C:101) Creative Writing for Business** 3 s.h.
Opportunity to broaden understanding of literature, improve writing, and enhance ability to approach business problems in a creative and inspired manner; close reading and creative writing exercises used to develop appreciation of the written word, improve ability to express thoughts and ideas, and become more conscious of the quality of students' own written work. Requirements: rhetoric. Same as INTD:3001 (145:101).
- CW:3003 (08C:103) Writing and Reading Science Fiction** 3 s.h.
Science fiction literature as an ongoing conversation about the possible; exploration of world boundaries we have by imagining worlds that we don't (yet); alien encounters that consider ways we react to beings we see as unlike ourselves; alternate histories to illuminate what might have been; transhumanist fiction to explore what we may become; issues of composition and craft that underlie all effective fiction; students write and revise works of science fiction and engage in constructive discussion of each other's work.
- CW:3005 (08C:105) Professional and Creative Business Communication** 3 s.h.
Solid foundation for creative and professional communication in today's modern work world; exploration of techniques, strategies, and craft of writing résumés, letters of interest, email and its related etiquette, and organization of ideas into presentable form; semester-long creative project that builds a bridge between office and the world using modern technology and social media; readings and discussions of literature to better understand issues of ethics, leadership, conflict, moral judgment, decision making, and human nature; how to navigate and succeed in business or any professional field. Same as INTD:3005 (145:105).
- CW:3107 (08C:107) Creative Writing for the Health Professions** 3 s.h.
Same as INTD:3107 (145:107).
- CW:3210 (08C:110) Creative Writing and the Natural World** 3 s.h.
How humans tether to their environment through stories; students write stories and through writing explore if there is a new tie to sustainable history. Same as INTD:3210 (145:110).

- CW:3215 (08C:115) Creative Writing and Popular Culture** 3 s.h.
Creative writing through the lens of popular culture; topics include television, film writing, adaptations, commercials, advertising, magazines, newspapers, comic books, song lyrics, billboards, and backs of cereal boxes. Same as INTD:3300 (145:115).
- CW:3217 (08C:117) Writing and Reading Young Adult Fiction** 3 s.h.
Early to contemporary young adult fiction; how the genre addresses issues that are relevant to young people through its wide-ranging subject matter; issues facing the genre, including the debate over what constitutes it; readings and experience writing young adult fiction.
- CW:3218 (08C:108) Creative Writing for New Media** 3 s.h.
Prepares creative writers for evolving marketplace of electronic text, media; experience writing in varied media such as the Internet, e-books, video games, mobile devices, emergent social narratives. Same as INTD:3200 (145:108).
- CW:3870 (08C:194) Advanced Fiction Writing** 3 s.h.
Analysis of accomplished fiction writers' work; critique of class members' short stories, in writing and in class; discussion of how class members use language, characterization, point of view, other elements of fiction in their work. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing. Prerequisites: CW:2870 (08C:097)
- CW:3875 (08C:198) Advanced Poetry Writing** 3 s.h.
Writing poems, reading poetry by class members and established poets; workshop context. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing. Prerequisites: CW:2875 (08C:098).
- CW:4745 (08C:145) The Sentence: Strategies for Writing** 3 s.h.
Writing dynamic, cogent, and grammatically correct sentences; effectively communicating ideas; writing with clarity and confidence; review of grammar and various types of sentences; building complexity by adding adverbial, subordinate, and connective clauses to simple sentences; how rhythm, syntax, and word order expand the meaning of a sentence; application and appreciation.
- CW:4747 (08C:147) Creative Writing for the Socially Aware** 3 s.h.
Reading short stories, essays, poems, and plays to examine seven subject areas (education; gender and sex roles; relationship and family dynamics; criminal behavior; race, ethnicity, and identity; terrorism and war; death and dying); varied writing assignments, including message boards posts, reading responses, critiques, arguments, research papers, creative writing, and public relations material; analyzing the effectiveness of an argument; supporting claims made in persuasive writing.
- CW:4750 (08C:150) Writing and Activism** 3 s.h.
Exploration of writing as a political act; examination of texts that focus on activism (e.g., environment, social inequality, racism, war); best practices for literary advocacy and social/political persuasion/instruction; improving dexterity with written persuasion; argumentation, and personal statements; application of study of writing to broader world.
- CW:4751 (08C:151) Creative Writing for the Musician** 3 s.h.
Better writing by focused appreciation of classical and popular music; musical forms and storytelling; music as a source of inspiration, performance of free-form writing exercises set to different soundtracks; what music can teach about language; scansion; methods for applying musical techniques in word form; how punctuation and grammar create rhythm; tone and diction used to create and modify dynamics of prose; multimedia project incorporating written, visual, and audio storytelling techniques.
- CW:4760 (08C:160) The Art of Revision: Rewriting Prose for Clarity and Impact** 3 s.h.
Writing and rewriting of short stories and essays; specific choices to help writing reach its full potential; examination of first drafts and making strategic or radical decisions on what needs to happen in subsequent drafts in order for writing to better match original intentions; students gain insight from peers on where first drafts are succeeding or falling short, and write second and third drafts of short stories and personal narratives; structural and aesthetic choices.
- CW:4870 (08C:163) Undergraduate Writers' Workshop: Fiction** arr.
English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.
- CW:4875 (08C:166) Undergraduate Writers' Workshop: Poetry** arr.
English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.
- CW:4880 (08C:167) Undergraduate Writers' Seminar** 3 s.h.
Exploration of literature to develop substance and craft; class sessions designed around topic chosen by instructor; modeled after Writers' Workshop graduate reading seminars. English majors may apply this course (except for EX sections) to the following area and/or period requirement. AREA: Nonfiction and Creative Writing. Requirements: completion of rhetoric requirement.
- CW:4894 (08C:195) Undergraduate Project in Creative Writing** arr.
English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing.

CW:4897 (08C:197) Novel Writing 3 s.h.

Introduction to the process of writing a novel through focused lessons on character, perspective, plot, scene, and dialogue; organizing a longer work; creating notes and sections of a novel with progression towards completing a draft. Requirements: creative writing or fiction writing course.

Writers' Seminars, Upper-Level Undergraduate and Graduate**ENGL:3720 (8WS:120) Creative Writing Track Colloquium** 3 s.h.

In-depth focus on works by and about visiting writers and literature that contextualizes their work; multiple genres; seminar. Requirements: English major and admission to Undergraduate Creative Writing track.

ENGL:3721 (8WS:121) Writers' Seminar: Fiction 2 s.h.

In-depth exploration and analysis of creative works in fiction. Requirements: English major and admission to Undergraduate Creative Writing track.

ENGL:3722 (8WS:122) Writers' Seminar: Poetry 2 s.h.

In-depth exploration and analysis of creative works in poetry. Requirements: English major and admission to Undergraduate Creative Writing track.

ENGL:3723 (8WS:123) Writers' Seminar: Nonfiction 2 s.h.

Rigorous exploration and analysis of a range of nonfiction creative works. Requirements: English major and admission to Undergraduate Creative Writing track.

ENGL:3724 (8WS:124) Writers' Seminar: Literary Translation 2 s.h.

Rigorous exploration and analysis of a range of creative works in literary translation. Requirements: English major and admission to Undergraduate Creative Writing track.

ENGL:3725 (8WS:125) Writers' Seminar: Playwriting 2 s.h.

Rigorous exploration and analysis of a range of creative works in drama. Corequisites: ENGL:3720 (8WS:120). Requirements: admission to Undergraduate Creative Writing track.

ENGL:4720 (8WS:170) Creative Writing Track: Special Topics 3 s.h.

Advanced writing and reading for undergraduate creative writing track; topics vary. Requirements: admission to Undergraduate Creative Writing track.

Special Topics, Lower-Level Undergraduate

This course does not fulfill area or period requirements for the English major. It may be used to earn elective credit in the major.

ENGL:1000 (008:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

Special Topics, Upper-Level Undergraduate and Graduate

This course does not fulfill area or period requirements for the English major. It may be used to earn elective credit in the major.

ENGL:4010 (008:199) Special Project for Undergraduates arr.**Honors, Upper-Level Undergraduate and Graduate****ENGL:4000 (008:098) English Honors Seminar** 3 s.h.

English majors may apply this course to varied area and/or period requirements. Requirements: undergraduate standing and English major g.p.a. of 3.33.

ENGL:4020 (008:120) Honors Thesis Workshop 3 s.h.

Prerequisites: ENGL:4000 (008:098). Requirements: English major g.p.a. of 3.33.

ENGL:4040 (008:198) Undergraduate Honors Project 1-3 s.h.

Requirements: admission to English honors program.

Literature, Graduate

Department of English graduate courses are repeatable with the written approval of the department's director of graduate studies.

Introductory Courses**ENGL:5000 (008:201) Introduction to Graduate Study** 1 s.h.**ENGL:5050 (008:202) Placement Practicum** 1 s.h.

Navigation of academic job market and exploration of career opportunities; writing cover letters, curriculum vitae, dissertation abstracts, and teaching statements; application strategies for various jobs in research, liberal arts, community colleges, and outside academia; opportunity to practice interviews and other hands-on coaching; for advanced English department Ph.D., M.A., and M.F.A. students.

ENGL:6950 (008:205) Colloquium: Teaching Foundations of the English Major 1 s.h.**ENGL:6960 (008:206) Colloquium: Teaching Literature** 2 s.h.

Professional development program for new ENGL:1200 (08G:001) teachers, including three-day pre-semester workshop.

Reading Courses

ENGL:6000 (008:229) Introduction to Contemporary Theory	3 s.h.	ENGL:6602 (008:254) Readings in American Literature II	3 s.h.
		Nineteenth-century American literature.	
ENGL:6015 (008:243) Feminist Cultural Studies	3 s.h.	ENGL:6603 (008:258) Readings in American Literature III	3 s.h.
Same as RHET:6015 (010:243), COMM:6215 (036:222), GWSS:6015 (131:243).		Twentieth- and twenty-first-century American literature.	
ENGL:6020 (008:275) Literature as Letters	3 s.h.	ENGL:6610 (008:228) Studies in African American Literature	3 s.h.
ENGL:6060 (008:260) Modes of Critical Analysis	3 s.h.	ENGL:6620 (008:238) Readings in Native American Literatures	3 s.h.
Critical practice applicable to English language and literature.		Same as AINS:6620 (149:238).	
ENGL:6075 (008:271) Studies in Sentimentalism	3 s.h.	ENGL:6630 (008:252) Readings in Latina/o Literary and Cultural Studies	3 s.h.
Readings in sentimentalism as literary genre, rhetorical practice, cultural mode, and psycho-social phenomenon; focus on attendant theories of affect; integration of literature and culture with work on the politics of affect in postcolonial and transnational studies, critical race and ethnic studies, American studies, and gender and sexuality studies. Same as RHET:6071 (010:271).		Survey of Latina/o literature and criticism to prepare for comprehensive exam; organized by thematic units that stress canonical and emerging research areas in Latina/o literary and cultural studies.	
ENGL:6080 (008:283) New Media Poetics	3 s.h.	ENGL:6640 (008:240) Readings in American Literary Genres	3 s.h.
ENGL:6090 (008:272) Topics in Interdisciplinary Studies	3 s.h.	ENGL:6635 (008:231) Crossing Borders Seminar	2-3 s.h.
Interdisciplinary approaches to literature and culture.		Same as HIST:6635 (016:247), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).	
ENGL:6100 (008:218) Readings in Medieval Literature and Culture	3 s.h.	ENGL:6670 (008:246) American Literary Magazines	3 s.h.
ENGL:6110 (008:216) Medieval Authors	3 s.h.	Aspects of American literary magazines, from city journals to monthly periodicals, historical moment to marketplace demand.	
ENGL:6200 (008:219) Sixteenth- and Seventeenth-Century Authors	3 s.h.	ENGL:6720 (008:285) Twentieth-Century Literatures	3 s.h.
ENGL:6210 (008:220) Readings in Sixteenth- and Seventeenth-Century Genres	3 s.h.	Literatures of 20th century; varied topics (e.g., transnational approach, focus on particular theme, genre, or critical perspective).	
ENGL:6220 (008:253) Shakespeare	3 s.h.	ENGL:6730 (008:249) Modernist Studies	3 s.h.
Same as THTR:6403 (049:213).		ENGL:6750 (008:261) Studies in Postmodernism	3 s.h.
ENGL:6300 (008:222) Restoration and Eighteenth-Century Literature	3 s.h.	Aspects of postmodernism as aesthetic practice and critical theory in literary and cultural studies.	
ENGL:6400 (008:223) Romantic Literature	3 s.h.	ENGL:6760 (008:241) Topics in Contemporary Literature	3 s.h.
Same as CL:6323 (218:223).		ENGL:6770 (008:276) Writing and Revolution	3 s.h.
ENGL:6500 (008:224) Victorian Literature	3 s.h.	ENGL:6800 (008:273) Readings in Postcolonial Literature and Theory	3 s.h.
ENGL:6510 (008:225) Late Victorian and Edwardian Literature	3 s.h.		
ENGL:6601 (008:250) Readings in American Literature	3 s.h.		
American literature of the 18th century.			

Introduction to central concerns and questions of postcolonial theory; impact of imperial ideologies on formation of racial and ethnic identities; nationalist and pan-nationalist challenges to colonialism; postcolonial revisions of Western history; representations of gender and sexuality; diasporic and transnational cultural production; alternative versions of modernity; relationship between past and contemporary forms of globalization.

ENGL:6900 (008:210) Doctoral Workshop in English 2 s.h.

Seminars

Advanced work in literary history, criticism, and theory; concentration varies by semester.

ENGL:7000 (008:462) Seminar: Cultural Studies arr.

ENGL:7010 (008:461) Seminar: Literary Criticism and Theory 3 s.h.

Analysis of issues in current literary criticism and theory and of texts from related fields, such as aesthetics, cultural studies, political science, psychology, and philosophy.

ENGL:7050 (008:467) Seminar: Performance Theory and Practice 3 s.h.

Foundational and recent work in interdisciplinary field of performance studies; focus on intersections of performance theory and theater and drama studies; production and reception of visual and participatory art, dance, music, and various forms of embodied activity.

ENGL:7100 (008:402) Seminar: Medieval Literature and Culture arr.

Same as CL:7302 (218:402).

ENGL:7200 (008:407) Seminar: Early Modern Literature and Culture arr.

Same as CL:7307 (218:407).

ENGL:7300 (008:421) Seminar: Restoration and Eighteenth-Century Literature arr.

ENGL:7400 (008:431) Seminar: Romantic Literatures arr.

ENGL:7500 (008:432) Seminar: Victorian Literature arr.

ENGL:7560 (008:452) Seminar: Walt Whitman 3 s.h.

Walt Whitman's writings and career.

ENGL:7600 (008:458) Seminar: American Literature and Culture arr.

ENGL:7700 (008:440) Seminar: Studies in the Twentieth Century arr.

ENGL:7800 (008:450) Seminar: Postcolonial Studies 3 s.h.

Same as CL:7054 (218:454).

Independent Study

ENGL:5999 (008:585) M.A. Thesis in Literary Studies arr.

ENGL:7900 (008:500) Advanced Studies in an Author arr.

ENGL:7910 (008:505) Advanced Studies in a Literary Period arr.

ENGL:7920 (008:510) Advanced Studies in a Literary Form arr.

ENGL:7930 (008:515) Advanced Studies in a Literary Genre arr.

ENGL:7940 (008:520) Advanced Studies in a Literary Mode arr.

ENGL:7950 (008:525) Advanced Studies in a Literary Movement arr.

ENGL:7960 (008:530) Advanced Studies in a Literary Theme arr.

ENGL:7970 (008:535) Advanced Studies in Literary Criticism arr.

ENGL:7980 (008:550) Advanced Studies in an Interdisciplinary Subject arr.

ENGL:7990 (008:590) Special Project for Graduate Students arr.

ENGL:7999 (008:595) Ph.D. Thesis arr.

Professional Training

The following courses offer theoretical and practical training for those who plan to teach.

Upper-Level Undergraduate and Graduate

ENGL:3190 (08P:182) Language and Learning 2-3 s.h.

How language reflects and constructs learners' identities and cultures; readings related to oral and written language, native and second language development, linguistic diversity; discussion of the relationship of language theory to schools of language instruction. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. Same as EDTL:3382 (07S:182).

ENGL:3191 (08P:198) Reading and Teaching Adolescent Literature 3 s.h.

Reading and evaluation of literature suitable for junior and senior high school students. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. Same as EDTL:3393 (07S:193).

ENGL:4810 (08P:190) Methods: Secondary English 3 s.h.

Organizational techniques, methods, materials for teaching high school English; experience in simulated teaching situations during laboratory sessions, integrated with lectures and discussions. Prerequisites: EDTL:4314 (07S:114). Same as EDTL:4315 (07S:115).

Graduate

ENGL:6104 (08P:204) Literature for Children II 3 s.h.

Current theory, research, and practice in reading and responding to children's literature; genre and topic vary. Same as EDTL:6104 (07E:204).

ENGL:6315 (08P:405) M.A. Seminar: English Education arr.

Significant developments in English education; primary and collateral readings. Same as EDTL:6315 (07S:315).

Nonfiction Writing

Courses CNW:6654 (08N:255) Forms of the Essay, CNW:6650 (08N:262) Readings in Nonfiction, CNW:6610 (08N:350) Essay Writing Workshop, and CNW:6620 (08N:355) Nonfiction Writing Workshop may be repeated. Others may be repeated with consent of the instructor and the director of graduate studies.

Practice in Writing, Graduate

These courses give intensive attention to composition and exposition and to formal and thematic problems, both in the meditative essay and in extended works of nonfiction.

CNW:6610 (08N:350) Essay Writing Workshop 4 s.h.

CNW:6620 (08N:355) Nonfiction Writing Workshop arr.

CNW:6630 (08N:360) Graduate Thesis Workshop 4 s.h.

Thesis work in supportive workshop environment. Prerequisites: CNW:6610 (08N:350) and CNW:6620 (08N:355).

CNW:6654 (08N:255) Forms of the Essay arr.

Theory and Practice of Writing, Graduate

These courses combine theory and analysis of nonfiction writing with practical experimentation in writing. They are intended for people who want to practice, criticize, and/or teach nonfiction writing.

CNW:5375 (08N:375) Teaching in a Writing Center 3 s.h.

Seminar/practicum to prepare graduate students to teach in the University of Iowa Writing Center or similar settings; seminar component on writing and reading processes, tutoring strategies, English-as-a-second-language issues; practicum experience tutoring in the Writing Center. Same as RHET:5375 (010:375).

CNW:6600 (08N:202) Teaching Nonfiction 3 s.h.
Theories and practices of teaching nonfiction writing; writing workshop approaches, strategies to encourage response and revision, connections between reading and writing, diversity of form, language, and assessment.

CNW:6650 (08N:262) Readings in Nonfiction 3 s.h.

CNW:6656 (08N:257) Approaches to Nonfiction 3 s.h.
Investigation into forms of nonfiction writing.

CNW:6660 (08N:270) Twenty-first-Century Nonfiction arr.

CNW:6670 (08N:365) Overseas Writing Workshop arr.

Independent Study, Graduate

CNW:7900 (08N:550) Special Project in Nonfiction Writing arr.

CNW:7950 (08N:580) Thesis in Nonfiction Writing arr.

Creative Writing

All may be repeated.

Workshops and Seminars, Graduate

Open only to Iowa Writers' Workshop students or to others with consent of instructor.

CW:5870 (08C:297) Graduate Fiction Writing 3 s.h.

Reading and discussion of published stories and those written by class members, with the aim of improving writing through careful reading and reflection, spirited discussion, and written comments.

CW:5875 (08C:298) Graduate Poetry Writing 3 s.h.

Careful writing and reading of poems by students as well as by established poets; thorough discussion in a supportive context.

CW:7810 (08C:270) Form of Fiction 3 s.h.

CW:7820 (08C:275) Form of Poetry 3 s.h.

CW:7830 (08C:490) Seminar: Problems in Modern Fiction arr.

CW:7840 (08C:495) Seminar: Problems in Modern Poetry arr.

CW:7870 (08C:251) Fiction Workshop arr.

CW:7875 (08C:252) Poetry Workshop arr.

Independent Study, Graduate

CW:7890 (08C:555) Graduate Project in Creative Writing arr.

CW:7895 (08C:590) M.F.A. Thesis arr.

Translation Studies, Lower-Level Undergraduate

This course does not fulfill area or period requirements for the English major but may be used to earn elective credit for the major.

ENGL:2810 (08W:079) Undergraduate Translation Workshop 3 s.h.

Translation exercises, discussion of translation works in progress; alternative strategies for translation projects. Requirements: working knowledge of a language other than English. Same as TRNS:2179 (218:079).

English as a Second Language

Director

- Maureen Burke

Lecturers

- Eric Bodin, Jennifer Brown, Craig Dresser, Susan Isham, Katherine Kasten, Jeffrey Knowling, Melissa Meisterheim

Web site: <http://clas.uiowa.edu/esl/>

The University of Iowa offers English as a Second Language (ESL) instruction in three distinct, but related, programs: ESL credit classes, the Iowa Intensive English Program (IIEP), and the Teaching Assistant Preparation in English program (TAPE).

These programs meet the needs of students whose first language is not English. ESL credit classes help students raise their English proficiency so they can complete a degree successfully. IIEP provides intensive instruction for students who must raise their English proficiency to gain admission to a university or college. TAPE helps students improve their oral competence in English so they may assume classroom teaching responsibilities.

Programs

ESL Credit Program

English as a Second Language credit classes bridge the gap between full-time language instruction and full-time academic work, serving students who score a minimum of 80-100 (Internet-based) with no subscore below 17 on the Test of English as a Foreign Language (TOEFL). ESL courses are offered to help students increase their proficiency in four skill areas: reading, writing, speaking, and listening. A course in grammar also is available. Each course offers 3 s.h. of credit, which undergraduates may count as elective credit toward graduation. Courses are taught by ESL lecturers and by teaching assistants pursuing advanced degrees in linguistics.

Acceptable TOEFL scores may change. Check with the Office of Admissions for more information.

Courses taken to meet the College of Liberal Arts and Sciences English proficiency requirement must be completed with a grade of C or higher. If a student earns a grade of C-minus or lower in an ESL course, the course must be retaken in order for the student to fulfill the ESL course requirement. An ESL course must be taken for a letter grade and may not be taken pass/nonpass or satisfactory/unsatisfactory. Students are not allowed to drop ESL courses once the semester begins. A student held for ESL courses may not enroll in a rhetoric course until the ESL requirement is completed.

Visit the ESL Credit Program web site for more information.

Iowa Intensive English Program (IIEP)

The Iowa Intensive English Program (IIEP) primarily serves students on conditional admission and persons who have not yet been admitted to the University and who

score below 80 (Internet-based) on the Test of English as a Foreign Language (TOEFL). The program welcomes international students preparing to enter universities and colleges as well as other adults who want to improve their English skills.

IIEP offers intensive English instruction and a cultural, social, and academic orientation to the United States. Instruction emphasizes proficiency in spoken and written English, which is crucial to college and university work. Grammar and the basic language skills of writing, reading, listening comprehension, and speaking are taught each day at all levels, from beginning through advanced. Instruction is by full-time professional ESL instructors.

Each IIEP student receives 20 hours of classroom instruction each week plus individual work in the language laboratory. IIEP students have full access to all University facilities. Field trips and cultural and social experiences are integral parts of the program.

International students admitted to the IIEP receive a certificate of eligibility (Form I-20), which enables them to apply for a student visa at the nearest U.S. consulate or embassy. Application materials are available from the ESL Programs Office and on the Iowa Intensive English Program web site.

Teaching Assistant Preparation in English (TAPE)

The Teaching Assistant Preparation in English program (TAPE) is designed for graduate students whose first language is not English, who need additional work on English communication, and who will hold teaching assistantships while enrolled at The University of Iowa. Only students who need the program and who have sufficient competence in English to profit from it are eligible. TAPE courses are open to graduate students who have been evaluated for TA certification and to others if space is available. Students are taught by full-time professional ESL instructors.

Courses

ESL Credit Program

The following courses are for students whose first language is not English. Courses taken to meet the College of Liberal Arts and Sciences English proficiency requirement may not be taken pass/nonpass. English as a Second Language (ESL) courses may not be taken satisfactory/unsatisfactory. In order to enroll in ESL courses, undergraduates must score 80 (Internet-based) or higher on the Test of English as a Foreign Language (TOEFL), or the equivalent; graduate students must score 81 (Internet-based) or higher on TOEFL, or the equivalent. Consent of ESL director is required for all courses.

ESL:1000 (212:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

ESL:1050 (212:050) Understanding U.S. Dialects 1 s.h.

Introduction and overview of American English sound system; survey of major U.S. dialects; analysis of social and political issues related to dialects.

ESL:1100 (212:060) Vocabulary for Academic Success 1 s.h.

English word formation; expansion of academic vocabulary for students whose first language is not English; skill development using dictionaries and corpora; word samples drawn from actual use.

ESL:1150 (212:070) Introduction to the U.S. Constitution 1 s.h.

Origin and analysis of the U.S. Constitution; current constitutional questions and related issues.

ESL:1200 (212:080) Exploring Cultural Values Through the Arts 1 s.h.

Survey of major world cultures; analysis of artistic works; relationship between art and culture and its significance.

ESL:1250 (212:090) Presentation Skills for Academic Success 1 s.h.

Organization and coherence of materials; intelligibility of speech and clarity of expression; active participation and practice in recorded presentations; for students whose first language is not English.

ESL:4100 (212:184) English as a Second Language: Academic Oral Skills 3 s.h.

Speaking skills for the U.S. academic setting and society; pronunciation, grammar, vocabulary; structured opportunity to develop fluency.

ESL:4130 (212:183) English as a Second Language: Academic Listening Skills 3 s.h.

Development of listening skills for students whose first language is not English; focus on listening skills necessary for success in a U.S. academic setting; academic lectures, note-taking skills, fast-paced classroom discussions. Requirements: placement test.

ESL:4160 (212:186) English as a Second Language Grammar 3 s.h.

English structure; troublesome grammar patterns.

ESL:4190 (212:187) English as a Second Language: Academic Writing 3 s.h.

Complex grammatical constructions, discourse considerations, formal vocabulary use expected of university students; organization styles, types of argumentation, analytic methods used in academic writing. Requirements: undergraduate standing.

ESL:4200 (212:189) English as a Second Language: Academic Reading Skills 3 s.h.

Increasing reading speed and comprehension of university-level writing and vocabulary; exercises, discussion, and note-taking assignments to develop critical analysis skills.

ESL:6000 (212:190) English as a Second Language: Writing Skills for Graduate Students 3 s.h.

Discourse considerations; styles of organization, types of argumentation, methods of analysis expected of graduate students. Requirements: TOEFL score of at least 550 (paper-based) or 213 (computer-based) or 81 (Internet-based), and graduate standing.

Iowa Intensive English Program (IIEP)

These courses are for students whose first language is not English. The Iowa Intensive English Program primarily serves students on conditional admission, those who have not yet been admitted to the University, and those who score below 80 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

IIEP:0001 (212:001) Iowa Intensive English Program Orientation 0 s.h.

Acquaint new intensive English students with Iowa City, the University, and the intensive English program; policies and procedures, classroom expectations, and cultural differences. Requirements: enrollment in intensive English program.

IIEP:0010 (212:010) TOEFL Prep 0 s.h.

Development of students' test-taking skills for the TOEFL examination; emphasis on listening comprehension, grammar, and reading comprehension; test taking skills developed through exercises and practice TOEFL tests. Requirements: IIEP high-intermediate or advanced-level standing.

IIEP:0115 (212:011) Iowa Intensive English Communication Skills: Beginning 0 s.h.

Focus on aural comprehension, spoken English, and American attitudes, values, and customs; practice giving and receiving information; learn language more quickly in a comfortable, familiar environment; understand and accept cultural differences; gain positive feelings toward American culture; provides link between classroom and community; interview Americans, class discussions.

IIEP:0135 (212:031) Iowa Intensive English Reading: Beginning 0 s.h.

Comprehensive reading curriculum designed to help students become effective readers; variety of skills and opportunities to practice many strategies while reading different kinds of written material (i.e., newspapers, magazines, schedules, documents, textbooks, correspondence, literature); emphasis on learning by doing; eclectic teaching approach.

IIEP:0145 (212:041) Iowa Intensive English Grammar: Beginning 0 s.h.

Correct use of the grammatical structures of English; learning grammar in a systematic and logical way; extensive practice to meet the goal of communicative competence in English.

IIEP:0155 (212:051) Iowa Intensive English Writing: Beginning 0 s.h.

Personal and formal writing; experiment with varied forms of writing, from journal entries and letters to critiques, essay examinations, and short papers that involve use of the library; students read and respond to each other's writing, and in the process become more aware of their own strengths and weaknesses as writers.

<p>IIEP:0170 (212:002) Iowa Intensive English: Communication Skills for Professionals</p> <p>Listening and speaking skills for international professionals; conversational fluency, language for professional interactions (e.g., discussions and presentations).</p>	0 s.h.	<p>Correct use of the grammatical structures of English; learning grammar in a systematic and logical way; extensive practice to meet the goal of communicative competence in English.</p>
<p>IIEP:0215 (212:012) Iowa Intensive English Communication Skills: Low Intermediate</p> <p>Focus on aural comprehension, spoken English, and American attitudes, values, and customs; practice giving and receiving information; learn language more quickly in a comfortable, familiar environment; understand and accept cultural differences; gain positive feelings toward American culture; provides link between classroom and community; interview Americans, class discussions.</p>	0 s.h.	<p>IIEP:0355 (212:053) Iowa Intensive English Writing: Intermediate</p> <p>Personal and formal writing; experiment with varied forms of writing, from journal entries and letters to critiques, essay examinations, and short papers that involve use of the library; students read and respond to each other's writing, and in the process become more aware of their own strengths and weaknesses as writers.</p>
<p>IIEP:0235 (212:032) Iowa Intensive English Reading: Low Intermediate</p> <p>Comprehensive reading curriculum designed to help students become effective readers; variety of skills and opportunities to practice many strategies while reading different kinds of written material (i.e., newspapers, magazines, schedules, documents, textbooks, correspondence, literature); emphasis on learning by doing; eclectic teaching approach.</p>	0 s.h.	<p>IIEP:0415 (212:014) Iowa Intensive English Communication Skills: High Intermediate</p> <p>Spoken English and American attitudes, values, and customs; practice giving and receiving information; learn language more quickly in a comfortable, familiar environment; understand and accept cultural differences; gain positive feelings toward American culture; provides link between classroom and community; interview Americans, class discussions.</p>
<p>IIEP:0245 (212:042) Iowa Intensive English Grammar: Low Intermediate</p> <p>Correct use of the grammatical structures of English; learning grammar in a systematic and logical way; extensive practice to meet the goal of communicative competence in English.</p>	0 s.h.	<p>IIEP:0435 (212:034) Iowa Intensive English Reading: High Intermediate</p> <p>Comprehensive reading curriculum designed to help students become effective readers; variety of skills and opportunities to practice many strategies while reading different kinds of written material (i.e., newspapers, magazines, schedules, documents, textbooks, correspondence, literature); emphasis on learning by doing; eclectic teaching approach.</p>
<p>IIEP:0255 (212:052) Iowa Intensive English Writing: Low Intermediate</p> <p>Personal and formal writing; experiment with varied forms of writing, from journal entries and letters to critiques, essay examinations, and short papers that involve use of the library; students read and respond to each other's writing, and in the process become more aware of their own strengths and weaknesses as writers.</p>	0 s.h.	<p>IIEP:0445 (212:044) Iowa Intensive English Grammar: High Intermediate</p> <p>Correct use of the grammatical structures of English; learning grammar in a systematic and logical way; extensive practice to meet the goal of communicative competence in English.</p>
<p>IIEP:0315 (212:013) Iowa Intensive English Communication Skills: Intermediate</p> <p>Focus on aural comprehension, spoken English, and American attitudes, values, and customs; practice giving and receiving information; learn language more quickly in a comfortable, familiar environment; understand and accept cultural differences; gain positive feelings toward American culture; provides link between classroom and community; interview Americans, class discussions.</p>	0 s.h.	<p>IIEP:0455 (212:054) Iowa Intensive English Writing: High Intermediate</p> <p>Personal and formal writing; varied forms of writing, from journal entries and letters to critiques, essay examinations, and short papers that involve use of the library; students read and respond to each other's writing, and in the process become more aware of their own strengths and weaknesses as writers.</p>
<p>IIEP:0335 (212:033) Iowa Intensive English Reading: Intermediate</p> <p>Comprehensive reading curriculum designed to help students become effective readers; variety of skills and opportunities to practice many strategies while reading different kinds of written material (i.e., newspapers, magazines, schedules, documents, textbooks, correspondence, literature); emphasis on learning by doing; eclectic teaching approach.</p>	0 s.h.	<p>IIEP:0465 (212:064) IIE Listening Skills: High Intermediate</p> <p>Listening skills needed for academic success; note taking and listening skills associated with small group discussions and everyday conversations.</p>
<p>IIEP:0345 (212:043) Iowa Intensive English Grammar: Intermediate</p>	0 s.h.	<p>IIEP:0515 (212:015) Iowa Intensive English Communication Skills: Advanced</p> <p>Spoken English and American attitudes, values, and customs; practice giving and receiving information; learn language more quickly in a comfortable, familiar environment; understand and accept cultural differences; gain positive feelings toward American culture; provides link between classroom and community; interview Americans, class discussions.</p>

- IIEP:0535 (212:035) Iowa Intensive English Reading: Advanced** 0 s.h. Student expectations, typical teacher/student relationships, basic classroom management at the University.
Comprehensive reading curriculum designed to help students become effective readers; variety of skills and opportunities to practice many strategies while reading different kinds of written material (i.e., newspapers, magazines, schedules, documents, textbooks, correspondence, literature); emphasis on learning by doing; eclectic teaching approach.
- IIEP:0545 (212:045) Iowa Intensive English Grammar: Advanced** 0 s.h.
Correct use of the grammatical structures of English; learning grammar in a systematic and logical way; extensive practice to meet the goal of communicative competence in English.
- IIEP:0555 (212:055) Iowa Intensive English Writing: Advanced** 0 s.h.
Personal and formal writing; experiment with varied forms of writing, from journal entries and letters to critiques, essay examinations, and short papers that involve use of the library; students read and respond to each other's writing, and in the process become more aware of their own strengths and weaknesses as writers.
- IIEP:0565 (212:065) IIE Listening Skills: Advanced** 0 s.h.
Listening skills needed for academic success; note taking and listening skills associated with small group discussions and everyday conversations.

Teaching Assistant Preparation in English (TAPE)

The TAPE program is designed for prospective teaching assistants whose first language is not English and who need additional work on English communication skills. Entry to the program is determined by a test.

- TAPE:5100 (212:250) Pronunciation, Fluency Building, and Culture** 0 s.h.
Attain greater fluency for teaching by making short presentations and participating in natural interactions about U.S. culture; intensive work on pronunciation to help future teaching assistants attain maximum intelligibility.
- TAPE:5200 (212:006) TA Preparation in English: Fluency Building** 0 s.h.
Pronunciation, fluency building, knowledge of the University of Iowa classroom.
- TAPE:5220 (212:007) TA Preparation in English: Pronunciation** 0 s.h.
Intensive work toward maximum intelligibility; emphasis on stress, timing, intonation.
- TAPE:5300 (212:008) TA Preparation in English: Presentation Skills** 0 s.h.
Intelligibility of speech and clarity of expression in presenting and responding; practice in videotaped lectures.
- TAPE:5330 (212:009) TA Preparation in English: Orientation** 0 s.h.

Environmental Policy and Planning

Coordinator

- Richard Tyler Priest (History)

Affiliated faculty

- Margaret Beck (Anthropology), George Malanson (Geographical and Sustainability Sciences), Heather Sander (Geographical and Sustainability Sciences), Wenfang Tang (Political Science)

Undergraduate major: Environmental Policy and Planning (B.A., B.S.)

Undergraduate minor: Environmental Policy and Planning

Web site: <http://clas.uiowa.edu/geography/undergraduate-program/environmental-policy-and-planning-eppl-babs>

The undergraduate programs of study in environmental policy and planning are administered by the Department of Geographical and Sustainability Sciences.

Undergraduate Programs of Study

- Major in environmental policy and planning (Bachelor of Arts, Bachelor of Science)
- Minor in environmental policy and planning

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts with a major in environmental policy and planning requires a minimum of 120 s.h., including at least 40-43 s.h. of work for the major. The Bachelor of Science with a major in environmental policy and planning requires a minimum of 120 s.h., including at least 47-49 s.h. of work for the major. Credit required for the major depends on the student's choice of track. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). Transfer students must complete at least 21 s.h. of work for the major in residence at The University of Iowa.

The major in environmental policy and planning concentrates on the social science and policy dimensions of environmental problems, which often are caused by people and may have significant economic effects. Environmental issues are embedded in a complex mesh of economics, politics, culture, and behavior. Planners and policy makers must understand the human dimensions of these factors in order to solve environmental problems.

The environmental policy and planning major is interdisciplinary; it draws courses from geographical and sustainability sciences, anthropology, economics, political science, and other disciplines. Work for the major includes introductory courses, methods courses, intermediate courses, and one of two tracks: the planning track or the policy track.

Students who earn a second major in anthropology, geography, or political science must complete a minimum of 12 s.h. of course work in the second major that they do not also count toward the major in environmental policy and planning. The 12 s.h. of courses must be offered by the second major's administrative home: anthropology (prefix ANTH), geographical and sustainability sciences (prefix GEOG), or political science (prefix POLI). This requirement applies whether students earn the same degree (B.A. or B.S.) with both majors or earn a B.A. with one major and a B.S. with the other. Exception: honors students in environmental policy and planning may count their honors thesis credit toward this 12 s.h. requirement.

Students may not use a course to satisfy more than one requirement of the major.

The major in environmental policy and planning requires the following course work.

Common Requirements (B.A. and B.S.)

INTRODUCTORY COURSES (B.A. AND B.S.):

Both of these:

ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.

One of these:

ANTH:1046 (113:046)/GWSS:1046 (131:046)/GEOG:1046 (044:046) People and the Environment: Technology, Culture, and Social Justice	3 s.h.
ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.

One of these:

EES:1080 (012:008)/ENVS:1080 (159:008) Introduction to Environmental Science	3-4 s.h.
GEOG:1020 (044:003) The Global Environment	3 s.h.

INTERMEDIATE COURSES (B.A. AND B.S.)

This course:

GEOG:3780 (044:120)/GHS:3780 (152:178) U.S. Energy Policy in Global Context	3 s.h.
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One of these:

ANTH:3103 (113:143) Environment and Culture	3 s.h.
ANTH:3112 (113:114) Environmentalisms	3 s.h.
ANTH:4130 (113:139)/RELS:4730 (032:130) Religion and Environmental Ethics	3 s.h.

One of these:

POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
POLI:3111 (030:126) American Public Policy	3 s.h.

METHODS COURSES (B.A.)

This course:

GEOG:1050 (044:005) Foundations of GIS	3 s.h.
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One of these:

STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.

METHODS COURSES (B.S.)

All of these:

GEOG:1050 (044:005) Foundations of GIS	3 s.h.
GEOG:3520 (044:110) GIS for Environmental Studies	3 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.
STAT:6513 (22S:148)/PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.

Tracks (B.A. and B.S.)

Students choose either the planning track or the policy track and complete their track's required course work.

PLANNING TRACK

The planning track requires 12 s.h.; all students complete ECON:3625 (06E:133) and choose three additional courses from the list below. Some of these courses have prerequisites; students must complete all of a course's prerequisites before they may register for the course or seek permission of the instructor.

This course:

ECON:3625 (06E:133)/URP:3135 (102:135) Environmental and Natural Resource Economics	3 s.h.
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Three of these:

ECON:3640 (06E:135)/URP:3134 (102:134) Regional and Urban Economics	3 s.h.
GEOG:2410 (044:104) Environment and Development	3 s.h.
GEOG:2930 (044:111) Water Resources	3 s.h.
GEOG:3340 (044:179) Ecosystem Services: Human Dependence on Natural Systems	3 s.h.
GEOG:3350 (044:116) Urban Ecology	3 s.h.
GEOG:3400 (044:117) Iowa Environmental Policy in Practice	3 s.h.
GEOG:3760 (044:175)/GHS:3760 (152:180) Hazards and Society	3 s.h.
GEOG:4770 (044:177) Environmental Justice	3 s.h.
URP:3001 (102:101)/GEOG:3920 (044:136) Planning Livable Cities	3 s.h.
URP:3350 (102:133)/ECON:3750 (06E:145)/ GEOG:3940 (044:133) Transportation Economics	3 s.h.

POLICY TRACK

The policy track requires 13 s.h.; all students complete GEOG:4750 (044:125) and choose three additional courses from the list below. Some of these courses have

prerequisites; students must complete all of a course's prerequisites before they may register for the course.

This course:

GEOG:4750 (044:125)/URP:4750 (102:125) Environmental Impact Analysis	4 s.h.
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Three of these:

ANTH:3237 (113:124)/MUSM:3237 (024:124) Politics of the Archaeological Past	3 s.h.
ANTH:3240 (113:170) Cultural Resources Management Archaeology: Practice and Practicalities	3 s.h.
GEOG:3400 (044:117) Iowa Environmental Policy in Practice	3 s.h.
GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy	3 s.h.
OEH:3210 (175:101)/GEOG:3210 (044:174) Health, Work, and the Environment	3 s.h.
POLI:2700 (030:189) Business, Government, and Society (section EXW)	3 s.h.
POLI:3100 (030:113) American State Politics	3 s.h.
POLI:3102 (030:152) The U.S. Congress	3 s.h.
POLI:3110 (030:111) Local Politics	3 s.h.
POLI:3111 (030:126) American Public Policy	3 s.h.
POLI:3117 (030:120) Public Administration and Bureaucratic Politics	3 s.h.
POLI:3118 (030:125) Interest Groups	3 s.h.
POLI:3122 (030:121) Public Choice	3 s.h.
POLI:3123 (030:110) State Politics in Iowa (section EXW)	3 s.h.
POLI:3125 (030:188) Perspectives on Contemporary Iowa	3 s.h.
POLI:3204 (030:171)/SOC:3525 (034:153) Public Opinion	3 s.h.
POLI:3404 (030:150) Public Policy Around the World	3 s.h.
POLI:3408 (030:148) Government and Politics of China	3 s.h.

The course POLI:3125 (030:188) Perspectives on Contemporary Iowa must be taken concurrently with POLI:3124 (030:187) Political Science Des Moines Internship Program. Credit from POLI:3124 (030:187) does not count toward the major.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

Before the third semester begins: one introductory course in the major

Before the fifth semester begins: four courses in the major

Before the seventh semester begins: eight courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: 11 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Before the third semester begins: one introductory course in the major

Before the fifth semester begins: five courses in the major

Before the seventh semester begins: eight courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: 12 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in environmental policy and planning have the opportunity to graduate with honors in the major. Honors students in the program must maintain a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in all work for the major. They must be admitted to the major's honors program by the first semester of their senior year or earlier.

Honors students in environmental policy and planning pursue study beyond the typical undergraduate level. In order to graduate with honors in the major, they work under the direction of a faculty member to conduct original research and then prepare and present an honors thesis based on their research. The thesis is reviewed by a committee of at least three faculty members. Students earn credit for the thesis by registering for GEOG:4995 (044:199) Honors Thesis or POLI:4601 (030:186) Honors Senior Thesis, or ANTH:4995 (113:186) Honors Research Seminar and ANTH:4996 (113:176) Honors Research.

In addition to honors in the major, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in environmental policy and planning requires a minimum of 18 s.h., including 12 s.h. in University of Iowa courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. For help in selecting courses, students should contact the department secretary to request an advisor for the minor.

Students may apply a maximum of 6 s.h. toward both the minor in environmental policy and planning and any major or minor in the Departments of Anthropology (p. 55), Geographical and Sustainability Sciences (p. 334), or Political Science (p. 535).

The minor in environmental policy and planning requires three core courses plus three courses from the student's

choice of track: the planning track or the policy track. Students may not use a course to satisfy more than one requirement of the minor.

All students complete three core courses.

This course:

GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
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One of these:

ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
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ANTH:3103 (113:143) Environment and Culture	3 s.h.
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ANTH:3112 (113:114) Environmentalisms	3 s.h.
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ANTH:4130 (113:139)/RELS:4730 (032:130) Religion and Environmental Ethics	3 s.h.
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One of these:

POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
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POLI:3111 (030:126) American Public Policy	3 s.h.
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Students also complete course work in a single track, choosing three courses from either the planning track list or the policy track list below.

Planning track:

GEOG:2410 (044:104) Environment and Development	3 s.h.
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GEOG:2930 (044:111) Water Resources	3 s.h.
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GEOG:3340 (044:179) Ecosystem Services: Human Dependence on Natural Systems	3 s.h.
---	--------

GEOG:3350 (044:116) Urban Ecology	3 s.h.
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GEOG:3400 (044:117) Iowa Environmental Policy in Practice	3 s.h.
---	--------

GEOG:3760 (044:175) Hazards and Society	3 s.h.
---	--------

GEOG:4770 (044:177) Environmental Justice	3 s.h.
---	--------

URP:3001 (102:101)/GEOG:3920 (044:136) Planning Livable Cities	3 s.h.
--	--------

URP:3134 (102:134)/ECON:3640 (06E:135) Regional and Urban Economics	3 s.h.
---	--------

URP:3135 (102:135)/ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
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URP:3350 (102:133)/ECON:3750 (06E:145)/GEOG:3940 (044:133) Transportation Economics	3 s.h.
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URP:3350 (102:133)/ECON:3750 (06E:145)/GEOG:3940 (044:133) Transportation Economics	3 s.h.
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Policy track:

ANTH:3237 (113:124)/MUSM:3237 (024:124) Politics of the Archaeological Past	3 s.h.
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ANTH:3240 (113:170) Cultural Resources Management Archaeology: Practice and Practicalities	3 s.h.
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GEOG:3400 (044:117) Iowa Environmental Policy in Practice	3 s.h.
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GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy	3 s.h.
--	--------

GEOG:3760 (044:175)/GHS:3760 (152:180) Hazards and Society	3 s.h.
--	--------

GEOG:3780 (044:120)/GHS:3780 (152:178) U.S. Energy Policy in Global Context	3 s.h.
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GEOG:4750 (044:125)/URP:4750 (102:125) Environmental Impact Analysis	4 s.h.
OEH:3210 (175:101)/GEOG:3210 (044:174) Health, Work, and the Environment	3 s.h.
POLI:2700 (030:189) Business, Government, and Society	3 s.h.
POLI:3100 (030:113) American State Politics	3 s.h.
POLI:3102 (030:152) The U.S. Congress	3 s.h.
POLI:3110 (030:111) Local Politics	3 s.h.
POLI:3111 (030:126) American Public Policy	3 s.h.
POLI:3117 (030:120) Public Administration and Bureaucratic Politics	3 s.h.
POLI:3118 (030:125) Interest Groups	3 s.h.
POLI:3122 (030:121) Public Choice	3 s.h.
POLI:3123 (030:110) State Politics in Iowa	3 s.h.
POLI:3125 (030:188) Perspectives on Contemporary Iowa	3 s.h.
POLI:3204 (030:171)/SOC:3525 (034:153) Public Opinion	3 s.h.
POLI:3404 (030:150) Public Policy Around the World	3 s.h.
POLI:3408 (030:148) Government and Politics of China	3 s.h.

The course POLI:3125 (030:188) Perspectives on Contemporary Iowa must be taken concurrently with POLI:3124 (030:187) Political Science Des Moines Internship Program. Credit from POLI:3124 (030:187) does not count toward the minor.

Environmental Sciences

Coordinator

- E. Arthur Bettis III

Executive committee

- Mark A. Arnold, David Bennett, Bernd Fritzsich, Mark K. Reagan

Advisory committee

- E. Arthur Bettis III, Andrew A. Forbes, Tori M. Forbes, Erin E. Irish, George P. Malanson, William C. McClelland, Frank Weirich

Affiliated faculty

- Jonathan M. Adrain (Earth and Environmental Sciences), Marc P. Armstrong (Geographical and Sustainability Sciences), David A. Bennett (Geographical and Sustainability Sciences), E. Arthur Bettis III (Earth and Environmental Sciences), Christopher A. Brochu (Earth and Environmental Sciences), Ann F. Budd (Earth and Environmental Sciences), Gregory R. Carmichael (Civil and Environmental Engineering/Chemical and Biochemical Engineering), Josep Comeron (Biology), Jeffrey Dorale (Earth and Environmental Sciences), Andrew A. Forbes (Biology), Tori M. Forbes (Chemistry), C. Thomas Foster Jr. (Earth and Environmental Sciences), Jane A. Gilotti (Earth and Environmental Sciences), Vicki H. Grassian (Chemistry/Chemical and Biochemical Engineering/Occupational and Environmental Health/Education), Stephen D. Hendrix (Biology), Erin E. Irish (Biology), Craig L. Just (Civil and Environmental Engineering), Sarah C. Larsen (Chemistry), Johna Leddy (Chemistry), Marc A. Linderman (Geographical and Sustainability Sciences), John Logsdon (Biology), Leonard R. MacGillivray (Chemistry), George P. Malanson (Geographical and Sustainability Sciences), Sara E. Mason (Chemistry), Bryant F. McAllister (Biology), William C. McClelland (Earth and Environmental Sciences), Maurine Neiman (Biology), David W. Peate (Earth and Environmental Sciences), R. Rajagopal (International Programs/Civil and Environmental Engineering/Geographical and Sustainability Sciences), Mark K. Reagan (Earth and Environmental Sciences), Heather A. Sander (Geographical and Sustainability Sciences), Michelle M. Scherer (Civil and Environmental Engineering), Jerald L. Schnoor (Civil and Environmental Engineering/Occupational and Environmental Health), Holmes A. Semken (Earth and Environmental Sciences), Hallie J. Sims (Earth and Environmental Sciences), Betsy Stone (Chemistry), Eric Tate (Geographical and Sustainability Sciences), Ingrid Ukstins Peate (Earth and Environmental Sciences), Adam S. Ward (Earth and Environmental Sciences), Larry J. Weber (Civil and Environmental Engineering), Frank Weirich (Earth and Environmental Sciences/Civil and Environmental Engineering), You-Kuan Zhang (Earth and Environmental Sciences/Civil and Environmental Engineering)

Undergraduate major: Environmental Sciences (B.A., B.S.)

Undergraduate minor: Environmental Sciences

Web site: <http://clas.uiowa.edu/envsci/>

The Environmental Sciences Program provides rigorous interdisciplinary training in the scientific study of the environment. It promotes an understanding of the earth as a complex network of interacting organic and inorganic systems. The program's undergraduate curricula reflect the diversity in the broad field of environmental sciences and draw upon the College of Liberal Arts and Sciences' disciplinary strengths, giving students the opportunity to develop particular areas of expertise.

Hands-on field experience is a crucial component of the program. Students are strongly encouraged to engage in research and study abroad.

The Department of Earth and Environmental Sciences (p. 238) is the administrative home for the Environmental Sciences Program.

Undergraduate Programs of Study

- Major in environmental sciences (Bachelor of Arts, Bachelor of Science)
- Minor in environmental sciences

Bachelor of Science

The Bachelor of Science with a major in environmental sciences requires a minimum of 120 s.h., including 78-84 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323); some courses required for the major in environmental sciences may be used to satisfy General Education Program requirements.

Bachelor of Science students majoring in environmental sciences must complete requirements in three areas: the science and mathematics foundation, the environmental sciences foundation, and one of four environmental sciences tracks. Each student is assigned an advisor who specializes in his or her track.

The science and mathematics foundation develops fundamental skills and comprehension in biology, chemistry, geology, mathematics, and statistics. The environmental sciences foundation includes an introductory course in environmental science and additional courses that focus on remote sensing techniques, design and use of geographic information technologies, the geomorphic and environmental processes that shape the earth's surface, and ecological factors that influence the distribution and abundance of organisms.

Each of the program's four tracks focuses on areas of specialization within environmental sciences:

biosciences (green) track—biological systems and ecological approaches;

chemical sciences (yellow) track—environmental systems and chemistry;

geosciences (brown) track—earth materials and surficial geologic processes; and

hydrosciences (blue) track—hydrogeology and hydrogeologic systems, and water chemistry.

The tracks aim to prepare scientists who can tackle problems that require particular areas of expertise, and to help students develop the skills needed for future employment or graduate study.

The environmental sciences major for the Bachelor of Science requires the following course work.

SCIENCE AND MATHEMATICS FOUNDATION

Students must complete at least 31 s.h. of course work for the science and mathematics foundation, as follows.

All of these:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
EES:1050 (012:005) Introduction to Geology	4 s.h.
MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.

One of these:

CHEM:2021 (004:021) Basic Measurements	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4200 (22S:105) Statistical Methods and Computing	3 s.h.

ENVIRONMENTAL SCIENCES FOUNDATION

Students must complete at least 17-18 s.h. of course work for the environmental sciences foundation, as follows.

All of these:

ENVS:1080 (159:008) Introduction to Environmental Science	4 s.h.
ENVS:2673 (159:134) Ecology	3 s.h.
ENVS:3000 (159:100) Environmental Sciences Seminar (taken twice; section 1 for 0 s.h. and section 2 for 1 s.h.)	1 s.h.
ENVS:3020 (159:102) Earth Surface Processes	3 s.h.
GEOG:1050 (044:005) Foundations of GIS	3 s.h.

One of these:

ENVS:3100 (159:110) Introduction to Applied Remote Sensing	4 s.h.
GEOG:3500 (044:105) Introduction to Environmental Remote Sensing	3 s.h.

Tracks for the Bachelor of Science

Bachelor of Science students majoring in environmental sciences must choose one of the following four tracks. Each track includes required general sciences courses, track foundation courses, field study courses, and elective courses.

BIOSCIENCES (GREEN) TRACK

The environmental biosciences track provides the essential skills for entry-level positions that require a good knowledge of biotic systems and the ability to inventory biologic resources. The track's aim is to produce scientists who are capable of tackling environmental problems in which links and interactions with life sciences are crucial and in which a substantial knowledge of biological/

ecological sciences is required. The track also provides a strong foundation for graduate or professional training in disciplines such as ecology, wildlife management, and natural resource management.

Students must complete at least 32 s.h. of environmental biosciences track course work, including one field study course.

Biosciences Track: General Sciences

CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
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Students are encouraged to take at least one semester of physics.

Biosciences Track: Foundation

Both of these:

BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.

At least 7 s.h. from these:

BIOL:2346 (002:108) Vertebrate Zoology	4 s.h.
EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:3220 (012:122) Evolution of the Vertebrates	3 s.h.
EES:4700 (012:170) Evolution of Ecosystems	3 s.h.
EES:4710 (012:171) Evolution of Plants	3 s.h.
GEOG:2374 (044:103) Biogeography	3 s.h.
IALL:3105 (00L:105) Plant Taxonomy	4 s.h.
IALL:3115 (00L:115) Field Mycology	4 s.h.
IALL:3117 (00L:117) Ecology and Systematics of Diatoms	4 s.h.

Biosciences Track: Field Study

One of these:

ENVS:3095 (159:195) Field Ecology	4 s.h.
IALL:3103 (00L:103) Aquatic Ecology	4 s.h.
IALL:3105 (00L:105) Plant Taxonomy	4 s.h.
IALL:3109 (00L:109) Ecology and Systematics of Algae	4 s.h.
IALL:3115 (00L:115) Field Mycology	4 s.h.
IALL:3117 (00L:117) Ecology and Systematics of Diatoms	4 s.h.
IALL:3121 (00L:121) Plant Ecology	4 s.h.
IALL:3122 (00L:122) Prairie Ecology	4 s.h.
IALL:3126 (00L:126) Ornithology	4 s.h.
IALL:3160 (00L:160) Restoration Ecology	4 s.h.
IALL:3163 (00L:163) Conservation Biology	4 s.h.

Biosciences Track: Electives

Biosciences track students must complete at least 10 s.h. of elective course work, with at least 6 s.h. from the following lists. They may include an additional field study course to satisfy 4 s.h. of the elective requirement (see "Biosciences Track: Field Study" above).

BIOL:3244 (002:143) Animal Behavior	4 s.h.
BIOL:3343 (002:124) Animal Physiology	3 s.h.
BIOL:4273 (002:162) Population Genetics and Molecular Evolution	3 s.h.
BIOL:4899 (002:199) Introduction to Research	3 s.h.
BIOL:4999 (002:196) Honors Investigations	arr.

CHEM:3110 (004:111) Analytical Chemistry I	3 s.h.
CHEM:3120 (004:112) Analytical Chemistry II	3 s.h.
EES:3080 (012:108) Introduction to Oceanography	2 s.h.
EES:3210 (012:121) Principles of Paleontology	3 s.h.
GEOG:2310 (044:101) Climatology	3 s.h.
GEOG:3310 (044:123) Landscape Ecology	3 s.h.
GEOG:3320 (044:126) Wetlands: Function, Geography, and Management	3 s.h.
STAT:6513 (22S:148) Intermediate Statistical Methods	4 s.h.

May include one of these policy courses:

ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:2950 (044:088) Environmental Conservation	3 s.h.
GEOG:3340 (044:179) Ecosystem Services: Human Dependence on Natural Systems	3 s.h.
GEOG:3350 (044:116) Urban Ecology	3 s.h.
GEOG:4750 (044:125) Environmental Impact Analysis	4 s.h.

CHEMICAL SCIENCES (YELLOW) TRACK

The environmental chemical sciences track provides the essential skills for entry-level positions that require a basic understanding of chemical principles and a working knowledge of basic chemical concepts as applied in the environment. The track's aim is to produce scientists who are capable of tackling environmental problems in which chemical and molecular processes play an important role. The track also provides a strong foundation for graduate or professional training in environmental chemistry.

Students must complete at least 35 s.h. of environmental chemical sciences track course work.

Chemical Sciences Track: General Sciences

One of these sequences:

PHYS:1511 (029:011)-PHYS:1512 (029:012) College Physics I-II	8 s.h.
PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II	8 s.h.

Chemical Sciences Track: Foundation

This sequence:

CHEM:3110 (004:111) & CHEM:3120 (004:112) Analytical Chemistry I-II	6 s.h.
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One of these sequences:

CHEM:2210 (004:121) & CHEM:2220 (004:122) Organic Chemistry I-II	6 s.h.
CHEM:2230 (004:123) & CHEM:2240 (004:124) Organic Chemistry I for Majors - Organic Chemistry II for Majors	6 s.h.

One of these:

CHEM:4431 (004:131) Physical Chemistry I	3 s.h.
CHEM:4432 (004:132) Physical Chemistry II	3 s.h.

Chemical Sciences Track: Lab and Field Study

Both of these:

CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.
CHEM:3430 (004:143) Analytical Measurements	3 s.h.

Chemical Sciences Track: Electives

Chemical sciences track students must complete at least 6 s.h. of elective courses chosen from the following lists. Students may petition the chemistry department's environmental sciences advisor to use appropriate Department of Chemistry courses numbered 3000 and above as electives.

ENVS:3110 (159:111) Chemical Evolution of the Oceans	3 s.h.
BIOC:3110 (099:110) Biochemistry	3 s.h.
CEE:4153 (053:153) Environmental Chemistry Laboratory	3 s.h.
CEE:5152 (053:152) Environmental Chemistry I	3 s.h.
CHEM:3250 (004:125) Inorganic Chemistry	2 s.h.
CHEM:3999 (004:162) Undergraduate Research	1-3 s.h.
CHEM:4873 (004:173) Atmospheric and Environmental Chemistry	3 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4520 (012:152) Isotope Geochemistry	3 s.h.
GEOG:2310 (044:101) Climatology	3 s.h.

May include one of these:

CHEM:4431 (004:131) Physical Chemistry I (if not taken as a foundation course)	3 s.h.
CHEM:4432 (004:132) Physical Chemistry II (if not taken as a foundation course)	3 s.h.

May include one of these policy courses:

ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:2930 (044:111) Water Resources	3 s.h.
GEOG:2950 (044:088) Environmental Conservation	3 s.h.
GEOG:4750 (044:125) Environmental Impact Analysis	4 s.h.

GEOSCIENCES (BROWN) TRACK

The environmental geosciences track provides the essential skills for entry-level positions that require a basic understanding of geologic principles and a working knowledge of basic geologic concepts applied in the environmental industry. The track's aim is to produce scientists who are capable of tackling environmental problems in which earth materials and surficial geologic processes are of primary importance. The track also lays a strong foundation for graduate study in environmental geology, engineering geology, and natural hazards assessment.

Students must complete at least 31 s.h. of environmental geosciences track course work.

Geosciences Track: General Sciences

PHYS:1400 (029:008) Basic Physics	4 s.h.
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Students are strongly encouraged to take additional course work in physics.

Geosciences Track: Foundation

All of these:

EES:2410 (012:041) Mineralogy	4 s.h.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3360 (012:136) Soil Genesis and Geomorphology	3 s.h.
EES:3840 (012:132) Structural Geology	4 s.h.
EES:4790 (012:179) Engineering Geology	3 s.h.

Geosciences Track: Field Study

One of these:

CEE:4103 (053:103) Water Quality	3 s.h.
EES:4680 (012:168) Field Methods in Hydrologic Science	3 s.h.
EES:4831 (012:112) Geologic Field Methods	3 s.h.
GEOG:4010 (044:180) Field Methods in Physical Geography	3 s.h.
IALL:3142 (00L:142) Watershed Hydrology and Surficial Processes	4 s.h.

Geosciences Track: Electives

Geosciences track students must complete at least 6 s.h. of elective courses chosen from the following lists.

ENVS:3110 (159:111) Chemical Evolution of the Oceans	3 s.h.
CEE:2150 (053:050) Natural Environmental Systems	3 s.h.
CEE:4158 (053:158) Solid and Hazardous Wastes	3 s.h.
EES:1400 (012:140) Natural Disasters	3 s.h.
EES:3080 (012:108) Introduction to Oceanography	2 s.h.
EES:3140 (012:114) Energy and the Environment	3 s.h.
EES:3190 (012:119) Directed Study	arr.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3380 (012:138) Fluvial Geomorphology	3 s.h.
EES:3390 (012:139) Integrated Watershed Analysis	3 s.h.
EES:3500 (012:150) Igneous and Metamorphic Petrology	4 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4520 (012:152) Isotope Geochemistry	3 s.h.
EES:4630 (012:166) Hydrogeology	3 s.h.
EES:4720 (012:172) Glacial and Pleistocene Geology	3 s.h.
EES:4800 (012:180) Survey of Geophysical Methods	3 s.h.
EES:4870 (012:178) Applied Geostatistics	3 s.h.
EES:5820 (012:191) Tectonics	3 s.h.
GEOG:2310 (044:101) Climatology	3 s.h.

May include one of these policy courses:

ENVS:2115 (159:015) History and Science of Oil	3 s.h.
ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:2950 (044:088) Environmental Conservation	3 s.h.
GEOG:3760 (044:175) Hazards and Society	3 s.h.
GEOG:4750 (044:125) Environmental Impact Analysis	4 s.h.

HYDROSCIENCES (BLUE) TRACK

The environmental hydrosciences track provides the essential skills for entry-level positions that require a basic understanding of geologic principles and a working knowledge of hydrogeology and hydrogeochemistry. The track's aim is to produce scientists who are capable of tackling environmental problems that emphasize hydrogeologic systems and for which substantial knowledge of hydrogeology and water chemistry are essential. The track also lays a strong foundation for graduate education in hydrogeology, hydrology, geochemistry, and aqueous chemistry.

Students must complete at least 34 s.h. of environmental hydrosciences track course work.

Hydrosciences Track: General Sciences

PHYS:1511 (029:011)-PHYS:1512 (029:012) College Physics I-II	8 s.h.
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Hydrosciences Track: Foundation

Both of these:

EES:4630 (012:166) Hydrogeology	3 s.h.
EES:4790 (012:179) Engineering Geology	3 s.h.

One of these:

EES:3380 (012:138) Fluvial Geomorphology	3 s.h.
EES:3390 (012:139) Integrated Watershed Analysis	3 s.h.

One of these:

CEE:5152 (053:152) Environmental Chemistry I	3 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.

Hydrosciences Track: Field Study

One of these:

EES:4680 (012:168) Field Methods in Hydrologic Science	3 s.h.
IALL:3142 (00L:142) Watershed Hydrology and Surficial Processes	4 s.h.

Hydrosciences Track: Electives

Hydrosciences track students must complete at least 11 s.h. of elective courses chosen from the following lists.

ENVS:3110 (159:111) Chemical Evolution of the Oceans	3 s.h.
CEE:2150 (053:050) Natural Environmental Systems	3 s.h.
CEE:3371 (053:071) Principles of Hydraulics and Hydrology	3 s.h.

CEE:4103 (053:103) Water Quality	3 s.h.
CEE:4153 (053:153) Environmental Chemistry Laboratory	3 s.h.
CEE:4378 (053:178) Hydrometeorology	3 s.h.
CEE:5152 (053:152) Environmental Chemistry I	3 s.h.
CEE:5154 (053:154) Environmental Microbiology	3 s.h.
EES:3080 (012:108) Introduction to Oceanography	2 s.h.
EES:3190 (012:119) Directed Study	arr.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:4660 (012:184) Groundwater Modeling	3 s.h.
EES:4800 (012:180) Survey of Geophysical Methods	3 s.h.
EES:4870 (012:178) Applied Geostatistics	3 s.h.
GEOG:2310 (044:101) Climatology	3 s.h.
GEOG:3320 (044:126) Wetlands: Function, Geography, and Management	3 s.h.

May include one of these policy courses:

ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:2930 (044:111) Water Resources	3 s.h.
GEOG:2950 (044:088) Environmental Conservation	3 s.h.
GEOG:3340 (044:179) Ecosystem Services: Human Dependence on Natural Systems	3 s.h.
GEOG:4750 (044:125) Environmental Impact Analysis	4 s.h.

Bachelor of Arts

The Bachelor of Arts with a major in environmental sciences requires a minimum of 120 s.h., including a minimum of 60 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323); some courses required for the major in environmental sciences may be used to satisfy General Education Program requirements.

Bachelor of Arts students majoring in environmental sciences complete requirements in four areas: the science and mathematics foundation, the environmental sciences foundation, environmental sciences field study, and environmental sciences track courses.

The science and mathematics foundation develops fundamental skills and comprehension in biology, chemistry, geology, mathematics, and statistics. The environmental sciences foundation includes an introductory course in environmental science and additional courses that focus on the geomorphic and environmental processes that shape the Earth's surface, the ecological factors that influence the distribution and abundance of organisms, and a choice of one course that deals with remote sensing techniques or with the use of geographic information technologies. The environmental sciences field study gives students hands-on experience with methods of analysis and interpretation of natural systems/organisms.

Each of the program's four tracks focuses on areas of specialization within environmental sciences:

biosciences (green) track—biological systems and ecological approaches;

chemical sciences (yellow) track—environmental systems and chemistry;

geosciences (brown) track—earth materials and surficial geologic processes; and

hydrosociences (blue) track—hydrogeology and hydrogeologic systems, and water chemistry.

Students select one course from each of three of the four tracks in order to develop breadth of understanding and skill in these areas.

The environmental sciences major for the Bachelor of Arts requires the following course work.

SCIENCE AND MATHEMATICS FOUNDATION

Students must complete at least 31 s.h. of course work for the sciences and mathematics foundation, as follows.

All of these:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.
EES:1050 (012:005) Introduction to Geology	4 s.h.

First semester math and calculus—one of these:

MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.

Second semester math and calculus—one of these:

MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1860 (22M:026) Calculus II	4 s.h.

One semester of statistics—one of these:

CHEM:2021 (004:021) Basic Measurements	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4200 (22S:105) Statistical Methods and Computing	3 s.h.

ENVIRONMENTAL SCIENCES FOUNDATION

Students must complete at least 17-19 s.h. of course work for the environmental sciences foundation, as follows.

All of these:

ENVS:1080 (159:008) Introduction to Environmental Science	4 s.h.
ENVS:2673 (159:134) Ecology	3 s.h.
ENVS:3000 (159:100) Environmental Sciences Seminar (taken twice; section 1 for 0 s.h. and section 2 for 1 s.h.)	1 s.h.
ENVS:3020 (159:102) Earth Surface Processes	3 s.h.

One of these:

ENVS:3100 (159:110) Introduction to Applied Remote Sensing	4 s.h.
GEOG:1050 (044:005) Foundations of GIS	3 s.h.
GEOG:3500 (044:105) Introduction to Environmental Remote Sensing	3 s.h.

One of these:

ENVS:2115 (159:015) History and Science of Oil	3 s.h.
ANTH:4130 (113:139) Religion and Environmental Ethics	3 s.h.
ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.
GEOG:2950 (044:088) Environmental Conservation	3 s.h.
GEOG:3350 (044:116) Urban Ecology	3 s.h.
GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy	3 s.h.
GEOG:3910 (044:194) Geographic Perspectives on Development	3 s.h.
GEOG:4750 (044:125) Environmental Impact Analysis	4 s.h.
GEOG:4770 (044:177) Environmental Justice	3 s.h.

ENVIRONMENTAL SCIENCES FIELD STUDY

Students must complete at least one field study course (at least 3 s.h.) from the following list.

ENVS:3095 (159:195) Field Ecology	4 s.h.
CEE:4103 (053:103) Water Quality	3 s.h.
EES:4680 (012:168) Field Methods in Hydrologic Science	3 s.h.
EES:4831 (012:112) Geologic Field Methods	3 s.h.
GEOG:4010 (044:180) Field Methods in Physical Geography	2-4 s.h.
IALL:3103 (00L:103) Aquatic Ecology	4 s.h.
IALL:3105 (00L:105) Plant Taxonomy	4 s.h.
IALL:3117 (00L:117) Ecology and Systematics of Diatoms	4 s.h.
IALL:3126 (00L:126) Ornithology	4 s.h.
IALL:3142 (00L:142) Watershed Hydrology and Surficial Processes	4 s.h.
IALL:3163 (00L:163) Conservation Biology	4 s.h.

ENVIRONMENTAL SCIENCES TRACK COURSES

Students must complete 9-12 s.h. (three courses), choosing one course from each of three of the following four lists of environmental sciences track courses.

Biosciences (Green) Track

BIOL:2346 (002:108) Vertebrate Zoology	4 s.h.
EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:3220 (012:122) Evolution of the Vertebrates	3 s.h.
EES:4700 (012:170) Evolution of Ecosystems	3 s.h.
EES:4710 (012:171) Evolution of Plants	3 s.h.
GEOG:2374 (044:103) Biogeography	3 s.h.
IALL:3105 (00L:105) Plant Taxonomy	4 s.h.

IALL:3117 (00L:117) Ecology and Systematics of Diatoms	4 s.h.
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Chemical Sciences (Yellow) Track

BIOC:3110 (099:110) Biochemistry	3 s.h.
CEE:5152 (053:152) Environmental Chemistry I	3 s.h.
CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
CHEM:3110 (004:111) Analytical Chemistry I	3 s.h.
CHEM:4431 (004:131) Physical Chemistry I	3 s.h.

Geosciences (Brown) Track

ENVS:2115 (159:015) History and Science of Oil	3 s.h.
ENVS:3110 (159:111) Chemical Evolution of the Oceans	3 s.h.
EES:1400 (012:140) Natural Disasters	3 s.h.
EES:2410 (012:041) Mineralogy	4 s.h.
EES:3140 (012:114) Energy and the Environment	3 s.h.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3360 (012:136) Soil Genesis and Geomorphology	3 s.h.
EES:3380 (012:138) Fluvial Geomorphology	3 s.h.
EES:3390 (012:139) Integrated Watershed Analysis	3 s.h.
EES:3840 (012:132) Structural Geology	4 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4520 (012:152) Isotope Geochemistry	3 s.h.
EES:4720 (012:172) Glacial and Pleistocene Geology	3 s.h.
EES:4790 (012:179) Engineering Geology	3 s.h.
EES:4800 (012:180) Survey of Geophysical Methods	3 s.h.

Hydrosciences (Blue) Track

CEE:2150 (053:050) Natural Environmental Systems	3-4 s.h.
CEE:3371 (053:071) Principles of Hydraulics and Hydrology	3 s.h.
CEE:5152 (053:152) Environmental Chemistry I	3 s.h.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3390 (012:139) Integrated Watershed Analysis	3 s.h.
EES:4490 (012:149) Elements of Geochemistry	3 s.h.
EES:4630 (012:166) Hydrogeology	3 s.h.
EES:4790 (012:179) Engineering Geology	3 s.h.
GEOG:3320 (044:126) Wetlands: Function, Geography, and Management	3 s.h.

B.A. or B.S. with Teacher Licensure

Environmental sciences majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student

teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students with a strong interest in science teaching may complete a major offered by the Science Education Program. Students choose one of five emphases—biology, chemistry, earth science, physics, or all-science—and earn a Bachelor of Science degree. They may apply for admission to the Teacher Education Program. See Science Education (p. 809) in the Catalog.

Joint B.A./M.A.T. with Science Education Subprogram

B.A. students majoring in environmental sciences who are interested in pursuing a graduate degree in teaching may apply to the joint Bachelor of Arts/Master of Arts in Teaching program offered by the College of Liberal Arts and Sciences and the College of Education. Designed for undergraduates majoring in biology, chemistry, environmental sciences, or physics, the joint program enables students to earn a B.A. and an M.A.T. in five years by beginning to earn graduate credit during their fourth year of undergraduate study and by counting up to 18 s.h. of qualifying credit toward both degrees. For more information, see "Joint B.A./M.A.T. with Science Education Subprogram" in the Teaching and Learning (p. 814) (College of Education) section of the Catalog. Interested students should consult an advisor.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available for the environmental sciences major. Students work with their advisors on individual graduation plans.

Honors in the Major

Students majoring in environmental sciences have the opportunity to graduate with honors in the major. Honors study in environmental sciences provides students with opportunities to engage in independent research under the guidance of a faculty sponsor chosen from affiliated faculty of the Environmental Sciences Program; the program draws faculty members from the Departments of Anthropology, Biology, Chemistry, Civil and Environmental Engineering, Earth and Environmental Sciences, and Geographical and Sustainability Sciences. Honors students learn how to write the results of their research in the format of a scientific paper, and they have the experience of formally presenting their research as either a short seminar or a poster.

Environmental sciences honors students must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

To graduate with honors in environmental sciences, students must fulfill the following requirements:

- complete a B.S. or B.A. with a major in environmental sciences with a g.p.a. of at least 3.33 in all work for the major;

- submit a research proposal to the honors director within two months of the beginning of the semester in which the research is initiated;

- complete a minimum of 6 s.h. of honors research taken over two semesters in BIOL:4999 (002:196) Honors Investigations, CHEM:3999 (004:162) Undergraduate Research, EES:3190 (012:119) Directed Study, or GEOG:3992 (044:195) Undergraduate Research, depending on the departmental affiliation of the faculty sponsor;

- prepare a thesis presenting the research in the format of a scientific paper with abstract, introduction, methods, results, discussion, and conclusions; the thesis must include a title page and an abstract formatted according to the specifications of the Honors Program and must be submitted to the honors director at least one week before the Honors Program deadline for submission; and

- present either a short seminar or a poster about the research at a professional meeting and/or at The University of Iowa.

Beginning in their sophomore or junior year, students should identify potential faculty sponsors by conducting a web-based survey of the research interests of the program's affiliated faculty. The student should contact potential sponsors to determine who would be willing to sponsor an honors student and what research projects the student might undertake. Students who choose a sponsor whose faculty appointment is not in the College of Liberal Arts and Sciences must choose a cosponsor who does have a faculty appointment in CLAS.

After the student has identified a sponsor and the two have agreed on a project, the sponsor guides the student in the preparation of a research proposal that identifies the background, goals, methods, and significance of the research project. The proposal serves as the foundation of the honors thesis, which the student prepares under the sponsor's supervision upon completion of the research. Once the thesis is nearing completion or is completed, the student presents a short seminar or a poster detailing the purpose of the research.

For examples of honors projects in environmental sciences, see Undergraduate Program/Honors Projects on the Environmental Sciences Program web site.

Minor

The minor in Environmental Sciences requires a minimum of 16 s.h. in University of Iowa environmental sciences courses. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. The following courses are required.

ENVS:1080 (159:008)/EES:1080 (012:008) Introduction to Environmental Science (with lab)	4 s.h.
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One environmental sciences foundation course, chosen from these:

ENVS:2673 (159:134)/BIOL:2673 (002:134) Ecology	3 s.h.
ENVS:3020 (159:102)/EES:3020 (012:102) Earth Surface Processes	3 s.h.

ENVS:3100 (159:110)/EES:3100 (012:110) Introduction to Applied Remote Sensing	4 s.h.
GEOG:1050 (044:005) Foundations of GIS	3 s.h.
GEOG:3500 (044:105) Introduction to Environmental Remote Sensing	3 s.h.

And:

Courses in one of the four environmental sciences tracks, listed under "Bachelor of Science"/"Tracks" early in this Catalog section	8-9 s.h.
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Track courses must include one track foundation course (3-4 s.h.) and one track field study course (2-4 s.h.). The tracks are environmental biosciences, environmental chemical sciences, environmental geosciences, and environmental hydrosociences.

Facilities

Depending on their choice of track and/or courses, students majoring in environmental sciences may have the opportunity to take courses at Iowa Lakeside Laboratory, a field station located on West Lake Okoboji, in northwestern Iowa. Run cooperatively by The University of Iowa, Iowa State University, and the University of Northern Iowa, the laboratory offers courses at the undergraduate and graduate levels and provides excellent conditions for summer study in several disciplines. See Iowa Lakeside Laboratory (p. 1267) (University College) in the Catalog or visit the Lakeside Laboratory web site.

Courses

Lower-Level Undergraduate

ENVS:1080 (159:008) Introduction to Environmental Science 3-4 s.h.

Biological and physical character of the Earth; interaction of humans with the environment, including impacts on ecosystems, climate, natural processes, resources; alternative options, including sustainability, waste management, energy, land reform. GE: Natural Sciences without Lab; Natural Sciences with Lab. Same as EES:1080 (012:008).

ENVS:1090 (159:009) Introduction to Environmental Sciences Laboratory 1 s.h.

Laboratory component of EES:1080 (012:008). Requirements: completion of 3 s.h. in EES:1080 (012:008) or ENVS:1080 (159:008); or 3 s.h. of transfer equivalent. GE: Natural Sciences Lab only. Same as EES:1090 (012:009).

ENVS:2115 (159:015) History and Science of Oil 3 s.h.

History, politics, and science of oil and oil industry. Same as EES:2115 (012:015), HIST:2115 (016:085), GEOG:2115 (044:016).

ENVS:2673 (159:134) Ecology 3-4 s.h.

Adaptations of organisms to their physical and biological environments; organism-environment interactions; population biology; interactions between species; ecology of communities, ecosystems; human impact on ecosystems. Prerequisites: BIOL:1411 (002:031), BIOL:1412 (002:032), and MATH:1460 (22M:016) or MATH:1550 (22M:031) or MATH:1850 (22M:025). Recommendations: a basic statistics course. Same as BIOL:2673 (002:134).

Upper-Level Undergraduate and Graduate

ENVS:3000 (159:100) Environmental Sciences Seminar 0-1 s.h.

Role of sciences in environmental issues and problems; progression from observation to evaluation to design of better questions and experiments. Requirements: environmental sciences major.

ENVS:3020 (159:102) Earth Surface Processes 3 s.h.

Basic geomorphic and environmental processes that shape the earth's surface; emphasis on erosion, transport, deposition by land mass movement (creep, landslides, earth flow), fluid agents (wind, water, ice); methods used to study these processes. Prerequisites: EES:1050 (012:005) or EES:1080 (012:008) or ENVS:1080 (159:008) or GEOG:1020 (044:003). Same as GEOG:3020 (044:102), EES:3020 (012:102).

ENVS:3095 (159:195) Field Ecology 4 s.h.

Analysis and interpretation of patterns and underlying physical and biotic basis for regional and local distributions of plants and animals of eastern Iowa; field observation, sampling, and laboratory analysis; conduction of several field research projects requiring collection, statistical analysis, and interpretation of data in short reports; field-oriented course. Prerequisites: BIOL:1411 (002:031). Recommendations: advanced undergraduate standing or graduate standing in ecology, environmental sciences, or geoscience.

ENVS:3100 (159:110) Introduction to Applied Remote Sensing 4 s.h.

Remote sensing of the earth's surface from aircraft, satellites; aerial photograph interpretation; remote sensing systems, methods, data analysis using electromagnetic spectrum and digital processing techniques, including visible, infrared, microwave radiation; remote sensing applied to geologic and environmental problems. Prerequisites: EES:1030 (012:003) or EES:1050 (012:005) or EES:1080 (012:008). Same as EES:3100 (012:110).

ENVS:3110 (159:111) Chemical Evolution of the Oceans 3 s.h.

Investigation of various physico-chemical states oceans have assumed over the past four billion years of Earth history; use of isotope geochemistry as a proxy for ancient ocean conditions; focus on integrated Earth system science, paleoceanographic and paleoclimate modeling, role of chemical stratigraphy in deciphering past climate states of ocean-atmosphere system; relationship between chemical changes in ocean/atmosphere and biological systems of the Earth. Same as EES:3110 (012:111).

ENVS:4700 (159:170) Evolution of Ecosystems 3 s.h.

Evolutionary history of terrestrial and marine ecosystems; ecological processes from population to ecosystem levels; community assembly, trophic levels, networks, biodiversity dynamics; practical aspects of paleoecological data collection, statistical analysis, modeling. Requirements: two courses in geoscience, biology, environmental sciences, anthropology, or geography. Same as EES:4700 (012:170).

Ethics and Public Policy

Codirectors

- Richard Fumerton, Diane Jeske

Affiliated faculty

- Celesta Albonetti (Sociology), Richard Fumerton (Philosophy), Diane Jeske (Philosophy), John Solow (Economics), Wenfang Tang (Political Science)

Undergraduate major: ethics and public policy (B.A.)

Web site: <http://clas.uiowa.edu/ethics/>

Ethics and public policy is an interdisciplinary major that presents perspectives on intersecting issues that connect the study of philosophy, economics, law, political science, and sociology. All of these disciplines involve a focus on practical questions concerning how individuals ought to behave and how they ought to regulate the behavior of others.

For example, law exists in order to regulate human behavior, enforce human ideals, and resolve human conflict; most people agree that what society should do depends in part on the actual or potential consequences of its actions; and some of the most important consequences of actions and policies are economic. So it is folly to try to reason clearly about how to rectify injustice without thinking long and hard about the economic impact of one's plans. But law and social policy affect more than economics; they have a role in constructing the very fabric of society and the nature of the political state in which we want to live.

The major in ethics and public policy provides an ideal background for law school. The study of reasoning, an important component of the major, is useful in preparing for the LSAT, GMAT, and MCAT. The major also prepares students to bring a sophisticated, cross-disciplinary perspective to diverse fields such as government, urban and regional planning, social work, and business.

Students choose one field of specialization for the major and may find it easy to pursue a second major in another of the major's specialization fields, thus broadening their prospects for choosing graduate schools or beginning professional careers.

The Departments of Economics, Philosophy, Political Science, and Sociology collaborate to present the major in ethics and public policy; the major is administered by the Department of Philosophy.

Undergraduate Program of Study

- Major in ethics and public policy (Bachelor of Arts)

Bachelor of Arts

The Bachelor of Arts in ethics and public policy requires a minimum of 120 s.h., including at least 37 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program.

The curriculum includes foundation courses and the work for one field of specialization.

The major in ethics and public policy requires the following course work.

Foundation Courses

Foundation courses introduce students to each of the disciplines that participate in the major: philosophy, economics, political science, and sociology. These courses provide students with the basic reasoning skills they will need for advanced study. The foundation courses also help students make an informed selection of specialization field.

All students are required to take PHIL:1636 (026:036) Principles of Reasoning: Argument and Debate or PHIL:2603 (026:103) Introduction to Symbolic Logic in order to gain facility with abstract, formal reasoning.

Some courses may be listed in both a foundation area and a specialization field; students may use a course to fulfill only one requirement for the major.

Philosophy Foundation

Reasoning—one of these:

PHIL:1636 (026:036) Principles of Reasoning: Argument and Debate	3 s.h.
PHIL:2603 (026:103) Introduction to Symbolic Logic	3 s.h.

Value theory—one of these:

PHIL:1034 (026:034) Philosophy and the Just Society	3 s.h.
PHIL:2401 (026:001) Matters of Life and Death	3 s.h.
PHIL:2402 (026:102) Introduction to Ethics	3 s.h.
PHIL:3432 (026:132) Introduction to Political Philosophy	3 s.h.
PHIL:3435 (026:135) Philosophy of Law	3 s.h.
PHIL:3436 (026:136) The Nature of Evil	3 s.h.

Economics Foundation

This course:

ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
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One of these:

ECON:3650 (06E:119) Policy Analysis	3 s.h.
ECON:3800 (06E:172) Law and Economics	3 s.h.

Political Science Foundation

Foundation—one of these:

POLI:1001 (030:020) Introduction to Politics	3 s.h.
POLI:1100 (030:001) Introduction to American Politics	3 s.h.
POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
POLI:3000 (030:100) Understanding Political Research	3 s.h.

Policy course—one of these:

POLI:1501 (030:061) Introduction to American Foreign Policy	3 s.h.
POLI:3111 (030:126) American Public Policy	3 s.h.

Sociology Foundation

Theory—one of these:

SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
SOC:1020 (034:002) Social Problems	3-4 s.h.
Law and sociology—one of these:	
SOC:2810 (034:066) Social Inequality	3 s.h.
SOC:3425 (034:146) Deviance and Control	3 s.h.
SOC:3450 (034:186) Criminal Legal System	3 s.h.
SOC:4420 (034:149) Sociology of Criminal Punishment	3 s.h.
SOC:4460 (034:182) Sociology of Law	3 s.h.

FIELDS OF SPECIALIZATION

Students select one of the following fields of specialization: philosophy, economics, political science, or sociology. They must complete four courses in their field, selected from the appropriate list below. Three of the four courses must be numbered 3000 or above.

Some courses may be listed in both a foundation area and a specialization field; students may use a course to fulfill only one requirement for the major.

Philosophy

PHIL:2402 (026:102) Introduction to Ethics	3 s.h.
PHIL:3139 (026:139) Introduction to Public International Law and Human Rights	3 s.h.
PHIL:3342 (026:140) Philosophical Controversies: Multiculturalism and Toleration	3 s.h.
PHIL:3430 (026:130) Philosophy of Human Rights	3 s.h.
PHIL:3432 (026:132) Introduction to Political Philosophy	3 s.h.
PHIL:3435 (026:135) Philosophy of Law	3 s.h.
PHIL:3436 (026:136) The Nature of Evil	3 s.h.
PHIL:3604 (026:104) Introduction to Philosophy of Science	3 s.h.
PHIL:3633 (026:133) Philosophy of History	3 s.h.
PHIL:4480 (026:180) Analytic Ethics	3 s.h.
PHIL:4481 (026:181) Issues in Philosophy of Law	3 s.h.
PHIL:4482 (026:182) History of Ethics	3 s.h.
PHIL:4485 (026:185) Political Philosophy	3 s.h.
PHIL:4696 (026:196) Philosophy of the Human Sciences	3 s.h.

Economics

ECON:3100 (06E:104) Microeconomic Theory	3 s.h.
ECON:3345 (06E:125) Global Economics and Business	3 s.h.
ECON:3620 (06E:129) Economic Growth and Development	3 s.h.
ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
ECON:3640 (06E:135) Regional and Urban Economics	3 s.h.
ECON:3650 (06E:119) Policy Analysis	3 s.h.
ECON:3760 (06E:113) Health Economics	3 s.h.
ECON:3790 (06E:171) Antitrust Economics	3 s.h.
ECON:3800 (06E:172) Law and Economics	3 s.h.
ECON:4160 (06E:176) Public Sector Economics	3 s.h.

Political Science

POLI:3101 (030:116) American Constitutional Law and Politics	3 s.h.
POLI:3102 (030:152) The U.S. Congress	3 s.h.
POLI:3104 (030:108) Immigration Politics	3 s.h.
POLI:3105 (030:112) Minority Representation in American Politics	3 s.h.
POLI:3111 (030:126) American Public Policy	3 s.h.
POLI:3114 (030:107) Women and Politics in the United States	3 s.h.
POLI:3116 (030:115) The Presidency	3 s.h.
POLI:3118 (030:125) Interest Groups	3 s.h.
POLI:3120 (030:158) The Criminal Justice System	3 s.h.
POLI:3121 (030:153) The Judicial Process	3 s.h.
POLI:3400 (030:137) Introduction to Political Economy	3 s.h.
POLI:3401 (030:142) European Union	3 s.h.
POLI:3404 (030:150) Public Policy Around the World	3 s.h.
POLI:3406 (030:156) Ethnic and Religious Conflict in the Muslim World	3 s.h.
POLI:3410 (030:146) Russian Foreign Policy	3 s.h.
POLI:3501 (030:161) International Organization and World Order	3 s.h.
POLI:3503 (030:168) Politics of Terrorism	3 s.h.
POLI:3504 (030:177) Globalization	3 s.h.
POLI:3505 (030:178) Causes, Consequences, and Management of Civil War	3 s.h.
POLI:3506 (030:130) Consequences of War	3 s.h.
POLI:3507 (030:160) Women and Politics in Global Perspective	3 s.h.
POLI:3508 (030:164) Race in World Politics	3 s.h.
POLI:3509 (030:155) International Courts: The Intersection of Law and Politics	3 s.h.
POLI:3510 (030:173) State Failure in the Developing World	3 s.h.
POLI:3511 (030:195) International Law	3 s.h.
POLI:3512 (030:165) International Conflict	3 s.h.
POLI:3513 (030:197) Politics of International Human Rights Law	3 s.h.
POLI:3516 (030:170) The Politics of International Economics	3 s.h.
POLI:3517 (030:131) Global Justice	3 s.h.

Sociology

SOC:1410 (034:040) Introduction to Criminology	3 s.h.
SOC:1420 (034:042) Law and Society	3 s.h.
SOC:1810 (034:036) Poverty, Inequality, and Public Policy	3 s.h.
SOC:2325 (034:025) Women, Crime, and Justice	3 s.h.
SOC:2810 (034:066) Social Inequality	3 s.h.
SOC:3415 (034:045) Global Criminology	3 s.h.
SOC:3420 (034:141) Juvenile Delinquency	3 s.h.
SOC:3425 (034:146) Deviance and Control	3 s.h.
SOC:3450 (034:186) Criminal Legal System	3 s.h.
SOC:3520 (034:150) Political Sociology	3 s.h.

SOC:3650 (034:178) Education and Schooling: Sociological Approaches	3 s.h.
SOC:3840 (034:175) Community and Urban Sociology	3 s.h.
SOC:3850 (034:158) Economy and Society	3 s.h.
SOC:4400 (034:148) Internship in Criminal Justice and Corrections	3 s.h.
SOC:4420 (034:149) Sociology of Criminal Punishment	3 s.h.
SOC:4440 (034:144) Sociology of White-Collar Crime	3 s.h.
SOC:4450 (034:184) Juvenile Justice: A Sociolegal Perspective	3 s.h.
SOC:4460 (034:182) Sociology of Law	3 s.h.
SOC:4540 (034:126) Social Movements in the U.S.	3 s.h.

in philosophy should consider preparing for the thesis by taking PHIL:4048 (026:148) Readings in Philosophy; students who write in economics should consider taking ECON:3999 (06E:194) Honors Seminar; students who write in political science should take POLI:4000 (030:180) Honors Seminar on the Study of Politics; and students who write in sociology should consider taking SOC:4997 (034:100) Honors Seminar. Contact the coordinator of the Ethics and Public Policy Program for more information.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Student-Designed Field

In rare circumstances, a student may be given permission to design his or her own specialization field. The student specifies four courses numbered 3000 or above that are interconnected and that suggest a coherent interest. The student-designed field may not duplicate any of the established specialization fields for the major. It also may not include a course that satisfies another requirement for the major.

Students interested in designing their own specialization field should speak with an advisor as early as possible. They must obtain approval from their advisor and from the steering committee of the major in ethics and public policy as soon as possible after they declare the major and before they complete the designated course work.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major.)

Before the third semester begins: at least one course in the major

Before the fifth semester begins: at least three courses in the major

Before the seventh semester begins: at least seven courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in ethics and public policy have the opportunity to graduate with honors in the major. Honors students must maintain a g.p.a. of at least 3.50 in work for the major and a cumulative University of Iowa g.p.a. of at least 3.50. In order to graduate with honors in the major, they must complete all work for the major and write an acceptable honors thesis on a significant topic related to the major. Students who write their honors thesis

French and Italian

Director, Division of World Languages, Literatures, and Cultures

- Russell Ganim

Chair, Department of French and Italian

- Cinzia Blum

General Education language coordinators

- Deborah Contrada (Italian), Roxanna Curto (French), Emilie Destruel-Johnson (French), Dénes Gazsi (Arabic)

Professors

- Cinzia Blum, Wendelin Guentner, Geoffrey R. Hope, Michel Laronde, Roland Racevskis

Associate professors

- Deborah L. Contrada, Anny Dominique Curtius, Rosemarie Scullion (French and Italian/Gender, Women's, and Sexuality Studies)

Assistant professors

- Roxanna Curto, Emilie Destruel-Johnson, Dénes Gazsi, Yasmine Ramadan

Lecturers

- Blandina Giblin, Jack Johnson, Katja Liimatta, Irene Lottini, Claudia Sartini-Rideout, Arne Seim

Professors emeriti

- Jacques A. Bourgeacq, Florindo Cerreta, Simone Delaty, John T. Nothnagle

Undergraduate majors: French (B.A.); Italian (B.A.)

Undergraduate minors: Arabic; French; Italian

Graduate degrees: M.A. in French and Francophone world studies; Ph.D. in French and Francophone world studies

Web site: <http://clas.uiowa.edu/dwllc/french-italian>

The Department of French and Italian introduces students to the cultures of France, the Francophone world, Italy, and parts of the Middle East, providing an understanding of those countries' historical and contemporary importance. It also facilitates development of proficiency in the French, Italian, Arabic, and Swahili languages and fosters critical appreciation of French, Francophone, Italian, and Arabic literatures and cultures.

Undergraduate students in all majors may satisfy the World Languages requirement of the General Education Program (p. 323) with courses in Arabic, French, Italian, or Swahili; see "Language for General Education" below. The department offers other General Education courses, and entering students may take the department's First-Year Seminars, one on France, the other on Italy.

The Department of French and Italian is one of the academic units in the Division of World Languages, Literatures, and Cultures (p. 235).

Undergraduate Programs of Study

- Major in French (Bachelor of Arts)
- Major in Italian (Bachelor of Arts)
- Minor in Arabic
- Minor in French
- Minor in Italian

Students majoring in French or Italian may combine their studies with courses in education to prepare for jobs in high school teaching. They may go on to graduate study in areas such as French, Italian, comparative literature, and other interdisciplinary areas as preparation for college-level teaching. Or they may combine other skills and studies with their major in French or Italian to prepare for challenging career opportunities in international government, business, finance, travel, communications, and other fields where the knowledge of more than one language is essential.

Bachelor of Arts: French

The Bachelor of Arts with a major in French requires a minimum of 120 s.h., including 31-35 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Students majoring in French complete a set of four foundation courses (10 s.h.) plus the requirements for one of four tracks (21-25 s.h.): the French and Arabic track; the language track; the literature and culture track; or the teaching track.

The major in French requires the following course work.

FOUNDATION COURSES

FREN:3020 (009:106) Oral Expression in French II	2 s.h.
FREN:3060 (009:111) Introduction to Reading and Writing in Literature	3 s.h.
FREN:3300 (009:112) French Grammar	3 s.h.
FREN:4020 (009:136) Oral Expression in French III	2 s.h.

Students must maintain a g.p.a. of at least 2.00 in all course work for the major, including all University of Iowa course work. Majors must maintain portfolios documenting their progress toward attaining the objectives of the French major.

A maximum of one course taught in English may be counted toward the major; courses taught in English with an additional semester hour in French are exempt from this rule. Students should consult with their advisors before registering.

Transfer credit may be accepted, and students are encouraged to participate in study abroad, but the last two courses in the major ordinarily must be completed at The University of Iowa. Transfer credit is evaluated on an individual basis by the faculty in charge of study abroad.

Students choose an emphasis in one of the following four tracks when they declare the major (or later, but before their fourth year).

French and Arabic Track

The French and Arabic track is designed for students interested in combining study of the French and Arabic languages with history, politics, and religions of Middle Eastern cultures and with a major in another area, such as comparative literature, political science, geography, or history.

Requirements for the French and Arabic track include the following seven or eight courses (25 s.h.) in addition to the 10 s.h. of foundation course work in French.

Three courses in French language, or literature and culture, taught in French, with at least one numbered above 4000	9 s.h.
Two or three courses in Arabic language beyond first year	10 s.h.
Two courses on Middle Eastern cultures (prefix FREN), taught in French or English, or approved courses from other departments	6 s.h.

Language Track

The language track is designed for students with an interest in language and translation, as well as literature and culture. Students work in specific areas such as international business, comparative stylistics, and translation.

Requirements for the language track include the following seven courses (21 s.h.) in addition to the 10 s.h. of foundation course work in French.

FREN:3410 (009:115) Business French	3 s.h.
FREN:4890 (009:197) Techniques of Translation	3 s.h.
Five courses in French language, or literature and culture	

All language track students take FREN:3410 (009:115) and FREN:4890 (009:197). Of the remaining five courses, only one may be taught in English under the French department (prefix FREN). This restriction does not apply to courses taught in English with an additional semester hour in French. Students must complete at least two courses numbered above 4000, including the required course FREN:4890 (009:197).

Courses in French stylistics and textual analysis, another language, economics, political science, and/or business are recommended as adjunct electives.

Literature and Culture Track

The literature and culture track is designed for students who are interested in combining study of French and Francophone literatures and cultures with a major in another area, such as cinema, communication studies, comparative literature, history, international studies, political science, or journalism.

Requirements for the literature and culture track include the following seven courses (21 s.h.) in addition to the 10 s.h. of foundation course work in French.

Five courses in literature and culture	
Two courses in language, or literature and culture	

Only one of these courses may be taught in English under the French department (prefix FREN). This restriction does not apply to courses taught in English with an additional

semester hour in French. At least two courses must be numbered above 4000.

Teaching Track

The teaching track is designed for students who intend to earn licensure to teach in elementary and/or secondary schools. Students must successfully complete the requirements for the major in French with the teaching track and must complete the College of Education's Teacher Education Program (TEP), which requires several education courses and student teaching (see "B.A. with Teacher Licensure" below).

Requirements for the French major's teaching track include the following seven courses (21 s.h.) in addition to the 10 s.h. of foundation course work in French.

Four courses in literature and culture	
Three courses from these areas: language, literature and culture, or pedagogy	

Only one of these courses may be taught in English under the French department (prefix FREN). This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 4000.

Bachelor of Arts: Italian

The Bachelor of Arts with a major in Italian requires a minimum of 120 s.h., including 31 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Students may count a maximum of 9 s.h. (three courses) of approved upper-level transfer or study abroad credit toward the major in Italian, but they must take either ITAL:3305 (018:111) Advanced Italian or ITAL:3306 (018:112) Advanced Italian II at The University of Iowa.

The major in Italian requires the following course work.

ITAL:2203 (018:011) Intermediate Italian	4 s.h.
ITAL:2204 (018:012) Intermediate Italian II	4 s.h.
ITAL:3305 (018:111) Advanced Italian	4 s.h.
ITAL:3306 (018:112) Advanced Italian II	4 s.h.
ITAL:4633 (018:119) Medieval Italian Literature	3 s.h.
ITAL:4634 (018:120) Medieval and Renaissance Italian Literature	3 s.h.
ITAL:4667 (018:105) Modern Italian Fiction	3 s.h.
ITAL:4668 (018:106) Modern Italian Poetry and Drama	3 s.h.
An additional course taught in Italian, numbered above ITAL:3002 (018:103)	3 s.h.

B.A. with Teacher Licensure

French or Italian majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements of their major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

French majors who want to earn teacher licensure should choose the French teaching track. See "Teaching Track" under "Bachelor of Arts: French" above.

Italian majors who want to earn teacher licensure should include an additional 2 s.h. in their work for the major, in either ITAL:2013 (018:013) Everyday Italian I or ITAL:2014 (018:014) Everyday Italian II.

Students who plan to use their work toward a minor in either French or Italian as academic background for earning teacher licensure should contact the Office of Education Services about requirements.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

B.A.: French

Before the third semester begins: competence in first-year French

Before the fifth semester begins: second-year French [FREN:2002 (009:012) Intermediate French II]

Before the seventh semester begins: FREN:3020 (009:106) Oral Expression in French II, two semesters of third-year French, FREN:3060 (009:111) Introduction to Reading and Writing in Literature, FREN:3300 (009:112) French Grammar, one or two other courses in the major, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: FREN:4020 (009:136) Oral Expression in French III and three more courses in the major; for the French language track, FREN:3410 (009:115) Business French and FREN:4890 (009:197) Techniques of Translation

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A.: Italian

Before the third semester begins: competence in first-year Italian

Before the fifth semester begins: competence in second-year Italian [ITAL:2204 (018:012) Intermediate Italian II]

Before the seventh semester begins: four courses in the major numbered above ITAL:3002 (018:103) and at least 90 s.h. earned toward the degree

Before the eighth semester begins: a total of at least five courses in the major numbered above ITAL:3002 (018:103)

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in French or Italian have the opportunity to graduate with honors in the major. Departmental honors

students must have a g.p.a. of at least 3.50 for work done in the department.

To graduate with honors in the major, departmental honors students must register for FREN:4995 (009:198) Honors Research and Thesis (French majors) or ITAL:4998 (018:198) Honors Research and Thesis (Italian majors) and one honors-designated course numbered above 4000 (French) or 3002 (Italian). They must complete an honors thesis or the equivalent (e.g., translation, comparative stylistics, cultural studies, or research) in French or Italian and must present their work to a faculty committee.

Honors students in French or Italian must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor: Arabic

The minor in Arabic requires a minimum of 15 s.h. earned in Arabic language courses considered intermediate or advanced for the minor, including 12 s.h. taken at The University of Iowa (prefix ARAB). Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. All courses for the minor must be taught in Arabic. Credit from the University of Iowa Regents Summer Program in Fez, Morocco, earned in courses with prefix ARAB counts as University of Iowa credit for the minor.

Minor: French

The minor in French requires a minimum of 15 s.h., including 12 s.h. earned in courses considered advanced for the minor; 9 s.h. of the 12 s.h. in advanced courses must be taken at The University of Iowa in courses numbered 3000 or above (prefix FREN). Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. All courses for the minor must be taught in French. Credit from the University Studies Abroad Consortium (USAC) program in Pau, France, and the Study in Montpellier program in France counts as University of Iowa credit for the minor; 6 s.h. earned in other study abroad programs may be counted toward the minor.

Minor: Italian

The minor in Italian requires a minimum of 15 s.h., including 12 s.h. earned in Italian courses (prefix ITAL) numbered above 3002 taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. All courses for the minor must be taught in Italian. Students who wish to count ITAL:3550 (018:132) Images of Modern Italy toward the minor must enroll in the 4 s.h. section, which includes discussion in Italian.

Language for General Education

The Department of French and Italian provides course sequences in four languages—Arabic, French, Italian, and Swahili—that students in all majors may use to fulfill the World Languages requirement of the College of Liberal Arts and Sciences General Education Program (p. 323). It also

offers a variety of language courses that nonmajors may take to satisfy their own educational goals and interests.

ARABIC

The department is the administrative home for Arabic language and culture courses. It offers elementary, intermediate, and advanced Arabic as well as conversational Arabic, for which intermediate Arabic is prerequisite. See "Courses" toward the end of this Catalog section. Students without background in Arabic should begin with ARAB:1001 (195:101) Elementary Modern Standard Arabic I.

Students who wish to fulfill the General Education Program's World Languages requirement with Arabic should complete the following course sequence.

ARAB:1001 (195:101) Elementary Modern Standard Arabic I	5 s.h.
ARAB:1002 (195:102) Elementary Modern Standard Arabic II	5 s.h.
ARAB:2001 (195:111) Intermediate Modern Standard Arabic I	5 s.h.
ARAB:2002 (195:112) Intermediate Modern Standard Arabic II	5 s.h.

FRENCH

Students who have a background in French should take the online World Languages Placement Test, which helps determine the level at which a student should begin French language study at The University of Iowa. Students without background in French should begin with FREN:1001 (009:001) Elementary French I.

Students who wish to fulfill the General Education Program's World Languages requirement with French should complete the following sequence.

FREN:1001 (009:001) Elementary French I	5 s.h.
FREN:1002 (009:002) Elementary French II	5 s.h.
FREN:2001 (009:011) Intermediate French I	4 s.h.
FREN:2002 (009:012) Intermediate French II	4 s.h.

Those with previous knowledge of French may be able to fulfill the World Languages requirement with this sequence.

FREN:1010 (009:010) First-Year French Review	5 s.h.
FREN:2001 (009:011) Intermediate French I	4 s.h.
FREN:2002 (009:012) Intermediate French II	4 s.h.

ITALIAN

Students who have a background in Italian should consult with the department before classes begin to determine the level at which they should begin Italian language study at The University of Iowa. Students without background in Italian should begin with ITAL:1101 (018:001) Elementary Italian.

Students who wish to fulfill the General Education Program's World Languages requirement with Italian should complete the following course sequence.

ITAL:1101 (018:001) Elementary Italian	5 s.h.
ITAL:1102 (018:002) Elementary Italian II	5 s.h.
ITAL:2203 (018:011) Intermediate Italian	4 s.h.
ITAL:2204 (018:012) Intermediate Italian II	4 s.h.

Those with strong language-learning abilities or background in another Romance language may be able to substitute ITAL:3002 (018:103) Intensive Elementary Italian for ITAL:1101 (018:001) Elementary Italian and ITAL:1102 (018:002) Elementary Italian II and fulfill the World Languages requirement with this sequence.

ITAL:3002 (018:103) Intensive Elementary Italian	4, 6 s.h.
ITAL:2203 (018:011) Intermediate Italian	4 s.h.
ITAL:2204 (018:012) Intermediate Italian II	4 s.h.

SWAHILI

The department is the administrative home for Swahili courses. Students may fulfill the General Education Program's World Languages requirement by taking the following four-semester sequence.

SWAH:3001 (211:125) Elementary Swahili I	4 s.h.
SWAH:3002 (211:126) Elementary Swahili II	4 s.h.
SWAH:3003 (211:127) Intermediate Swahili I	4 s.h.
SWAH:3004 (211:128) Intermediate Swahili II	4 s.h.

Study Abroad

The department participates in several study abroad programs. Some of them are the University Study Abroad Consortium (USAC) French Studies in Pau; University of Minnesota/Paul Valery University Study Abroad in Montpellier; and the Committee on Institutional Cooperation (CIC) Summer French Program in Quebec at the Université de Laval. For information about these and other programs abroad, contact International Programs Study Abroad and use its Programs by Language search; or see Study Abroad (p. 1288) (University College) in the Catalog.

Graduate Programs of Study

- Master of Arts in French and Francophone world studies (with or without thesis)
- Doctor of Philosophy in French and Francophone world studies

The Master of Arts is offered with an optional French education emphasis.

Faculty expertise enables the department to offer courses in the traditionally recognized historical periods of French literature, various literary genres, and critical theories as well as the Francophone literatures of Canada, North and sub-Saharan Africa, the Caribbean, and the Indian Ocean. The department has particular strengths in interdisciplinary studies, notably in the areas of comparative arts, film studies, history, and second language acquisition.

For more detailed information on graduate degrees in French and Francophone world studies, contact the Department of French and Italian or visit its web site. The department also publishes the Guide for Graduate Students and Assistants.

Master of Arts

The Master of Arts program in French and Francophone world studies requires a minimum of 30 s.h. of graduate credit and is offered with or without thesis.

Thesis students may apply up to 6 s.h. of thesis credit toward the 30 s.h. required for the degree. They must take a written and oral examination on their areas of study and must defend their thesis at the time of the comprehensive examination. The thesis prospectus must be accepted one year before the student defends the thesis.

Nonthesis students must pass a written and oral examination. With permission of the director of graduate studies and the department chair, nonthesis students may earn up to 6 s.h. of the required 30 s.h. outside the department or transfer up to 6 s.h. of course work completed at another institution.

All M.A. students must complete the following course work.

FREN:5001 (009:208) Introduction to Graduate Study	2 s.h.
FREN:5020 (009:210) Comparative Stylistics	3 s.h.
FREN:5030 (009:234) Principles of Teaching and Learning Foreign Languages	3 s.h.

At least four graduate-level literature or culture courses numbered 5000 and above

M.A. with French Education Emphasis

The Master of Arts program with French education emphasis requires a minimum of 38 s.h. of graduate credit in French. The program is intended primarily for prospective secondary school and junior college teachers. Candidates must pass a final written and oral examination.

All French education emphasis students must complete the following course work.

FREN:5001 (009:208) Introduction to Graduate Study	2 s.h.
FREN:5020 (009:210) Comparative Stylistics	3 s.h.
FREN:5030 (009:234) Principles of Teaching and Learning Foreign Languages	3 s.h.
Courses in French literature numbered 5000 and above (minimum requirement)	9 s.h.

Doctor of Philosophy

The Doctor of Philosophy program in French and Francophone world studies requires a minimum of 72 s.h. of graduate credit, including credit earned for the M.A. The program is designed to prepare students for research, teaching, and professional service normally required of college and university faculty members.

The Ph.D. takes at least three years of graduate study, including at least one year spent in residence at The University of Iowa. Students must pass a comprehensive examination and make a successful oral defense of their dissertation.

Requirements for the Ph.D. include the following.

FREN:5001 (009:208) Introduction to Graduate Study	2 s.h.
FREN:6140 (009:260) Critical Theory and Practice	3 s.h.
FREN:7000 (009:277) Thesis (6 s.h. minimum)	6 s.h.
Three graduate courses in a related field, such as another in literature, history, or philosophy (8 s.h. minimum)	8 s.h.

Ph.D. students must possess fifth-semester or equivalent proficiency in a foreign language other than French.

Students working toward the Ph.D. are required to spend at least one year teaching as graduate assistants in the department.

Admission

Applicants to the M.A. program in French and Francophone world studies must have completed the equivalent of the University of Iowa undergraduate major in French. An M.A. in French is prerequisite to admission to the Ph.D. program in French and Francophone world studies. However, successful completion of an M.A. in French does not necessarily qualify a student for doctoral study.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants for fall semester whose application materials are received in the department by January 15 have the best chance to be admitted and receive financial aid. They must submit academic transcripts, letters of recommendation from three persons familiar with their past academic work, Graduate Record Examination (GRE) General Test results, a statement of purpose in taking graduate work, and one or more samples of original writing, one of which should be in French, that show their ability to pursue graduate work in French (an honors thesis, term paper, seminar paper, or other course papers).

Financial Support

Teaching assistantships are offered through the department, and University fellowships and scholarships are available through the Graduate College. Contact the Department of French and Italian for details.

Teaching assistants in the department must take FREN:5030 (009:234) Principles of Teaching and Learning Foreign Languages.

Exchange assistantship agreements with the University of Pau and the University of Poitiers provide one year of residence at these Universities in France for graduate students.

Courses

The department offers courses in French, Italian, Arabic, and Swahili. For a detailed description of courses offered each semester, contact the Department of French and Italian. French courses are conducted in French, and Italian courses are conducted in Italian, unless otherwise indicated. Students may not receive credit for a course that is prerequisite to, or whose equivalent is prerequisite to, a higher-level course they have already completed.

French courses numbered 4000-4999 are intended primarily for advanced undergraduates; graduate students should consult with their advisors before registering for these courses.

Undergraduates may count a maximum of one course taught in English toward requirements for the major in French. This restriction does not apply to courses taught in English with an additional semester hour in

French. Students should consult with their advisors before registering.

Students who have had significant experience with French through living or studying abroad should consult with the department before enrolling in any French course.

French, Lower-Level Undergraduate

FREN:1000 (009:029) First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Requirements: first- or second-semester standing.

FREN:1001 (009:001) Elementary French I 4-5 s.h.

Introduction to reading, writing, listening, and speaking; for students who have no knowledge of French. GE: World Languages First Level Proficiency.

FREN:1002 (009:002) Elementary French II 4-5 s.h.

Continuation of FREN:1001 (009:001); introduction to reading, writing, listening, and speaking. Prerequisites: FREN:1001 (009:001). GE: World Languages Second Level Proficiency.

FREN:1005 (009:005) Texts and Contexts: French-Speaking World 3 s.h.

Development of skills in reading, understanding, and critically engaging with literary texts, and of research skills for informed inquiry; sense of oneself as a situated reader; range of texts reflecting diversity of French and Francophone writers. Taught in English. GE: Interpretation of Literature.

FREN:1007 (009:007) Nature/Ecology French Philosophy and Fiction 3 s.h.

Representations of the natural world in literary works from 16th to 20th centuries and in film; readings in English translation. Taught in English. GE: Interpretation of Literature.

FREN:1010 (009:010) First-Year French Review 4-5 s.h.

FREN:1001 (009:001) and FREN:1002 (009:002) combined in one intensive course. GE: World Languages Second Level Proficiency.

FREN:1040 (009:040) French for Travelers 2 s.h.

Basic language skills for tourists; for students with no previous French.

FREN:1510 (009:030) Cultural Misunderstandings: France and U.S.A. 3 s.h.

Key moments in the history of relations between the United States and France, from similarities underlying democratic principles to recent divergent worldviews. Taught in English. GE: International and Global Issues.

FREN:2001 (009:011) Intermediate French I 4 s.h.

Prerequisites: FREN:1002 (009:002) or FREN:1010 (009:010). GE: World Languages Second Level Proficiency.

FREN:2002 (009:012) Intermediate French II 4 s.h.

Continuation of FREN:2001 (009:011). Prerequisites: FREN:2001 (009:011). GE: World Languages Fourth Level Proficiency.

FREN:2007 (009:013) French Phonetics 3 s.h.

Introduction to French phonetics; sounds of French in isolation and in context to improve pronunciation; audio exercises that emphasize sounds (nasal vowels, [u]-[y] contrast) and prosodic features (intonation, syllabification, liaison); written materials in French. Prerequisites: FREN:1001 (009:001), and FREN:1002 (009:002) or FREN:1010 (009:010).

FREN:2020 (009:026) Oral Expression in French I 2 s.h.

Prerequisites: FREN:1002 (009:002) or FREN:1010 (009:010).

French, Upper-Level Undergraduate and Graduate

FREN:3000 (009:105) Third-Year French 3 s.h.

Development of reading skills in French; composition and review of basic grammar structures. Prerequisites: FREN:2002 (009:012).

FREN:3020 (009:106) Oral Expression in French II 2 s.h.

Second in a three-course sequence. Corequisites: FREN:2002 (009:012), if not taken as a prerequisite.

FREN:3030 (009:130) Paris and the Art of Urban Life 3 s.h.

City of Paris examined in varied historical, artistic, cultural contexts; interdisciplinary. Same as ARTH:3020 (01H:157).

FREN:3060 (009:111) Introduction to Reading and Writing in Literature 3 s.h.

Development of analytical, organizational skills for interpretation of literature; readings in prose, poetry, drama, criticism; emphasis on reading and essay writing. Prerequisites: FREN:2002 (009:012).

FREN:3110 (009:113) French Civilization 3 s.h.

Institutions and events from the beginning of French civilization to the Renaissance. Prerequisites: FREN:3060 (009:111). GE: Historical Perspectives.

FREN:3120 (009:114) French Civilization 3 s.h.

From Renaissance to Revolution. Prerequisites: FREN:3060 (009:111). GE: Historical Perspectives.

FREN:3130 (009:120) French-Speaking Cultures 3 s.h.

Features of cultures in which French is spoken; North Africa, Sub-Saharan Africa, the Indian Ocean, Indochina, the Caribbean, Canada, Europe; cinema, music, literature, the arts, the media. Prerequisites: FREN:3060 (009:111).

FREN:3160 (009:127) Study Abroad: Culture 3 s.h.

Geography, history, architecture, painting, music of France; readings, slides, video and audio cassettes, visits to sites of cultural significance. Prerequisites: FREN:2002 (009:012).

FREN:3215 (009:117) Studies in Medieval and Early Modern France 3 s.h.

Introduction to the study of Medieval and Early Modern France (Middle Ages to the Revolution of 1789); focus on aspects of history, literature, politics, and culture of the period; emphasis on interdisciplinary investigation of diverse cultural forms. Prerequisites: FREN:3060 (009:111).

FREN:3225 (009:119) Studies in Modern France 3 s.h.

Introduction to the study of Modern France (1815-present); history, literature, politics, and culture of the period; emphasis on interdisciplinary investigation of diverse cultural forms. Prerequisites: FREN:3060 (009:111).

FREN:3250 (009:118) Topics in French Studies I 3 s.h.

Prerequisites: FREN:3060 (009:111).

FREN:3300 (009:112) French Grammar 3 s.h.

Study of word forms, sentence patterns for more accurate use of French. Prerequisites: FREN:2002 (009:012).

FREN:3360 (009:124) Study Abroad: Language 3 s.h.

Written and spoken French; listening, speaking, reading, writing in cultural contexts. Prerequisites: FREN:2002 (009:012).

FREN:3410 (009:115) Business French 3 s.h.

Language of economics and business; practice in business correspondence and communication, active use of business vocabulary. Offered fall semesters. Prerequisites: FREN:3300 (009:112).

FREN:3510 (009:147) French Cinema 3-4 s.h.

Taught in English. GE: Literary, Visual, and Performing Arts. Same as CINE:3605 (048:105).

FREN:3540 (009:148) Gender and Sexuality in French Cinema 3 s.h.

Cultural, historical, semiotic approach to studying construction of gender identity and sexual codes in French cinema from 1920s to present. Taught in English. Prerequisites: FREN:3060 (009:111) or CINE:1601 (048:001) or CINE:1602 (048:002) or GWSS:1001 (131:010). Same as GWSS:3540 (131:167), CINE:3647 (048:167).

FREN:4015 (009:166) Francophone Cinema 3-4 s.h.

Introduction to the cinema of French-speaking countries outside of France; history, production, distribution; issues of colonialism, postcolonial identities, gender, social realism, diasporas, popular culture. Taught in French. Prerequisites: FREN:3060 (009:111).

FREN:4020 (009:136) Oral Expression in French III 2 s.h.

Last in a three-course sequence. Prerequisites: FREN:3020 (009:106).

FREN:4026 (009:183) French Women Writers 3-4 s.h.

Survey of 20th-century French women writers with emphasis on Simone de Beauvoir; broad range of literary works by writers including de Beauvoir, Colette, Marguerite Yourcenar, Nathalie Sarraute, Marguerite Duras, Sarah Kofman, Annie Ernaux, Christiane Racheport; French feminist theorists who followed in de Beauvoir's footsteps, including Helene Cixous, Julia Kristeva, Luce Irigaray. Prerequisites: FREN:3060 (009:111) or GWSS:1001 (131:010). Same as GWSS:4026 (131:193).

FREN:4030 (009:187) Aspects of Poetry 3 s.h.

Prerequisites: FREN:3060 (009:111) and FREN:3300 (009:112).

FREN:4080 (009:168) Post-Colonial Literature in France 3 s.h.

Literatures and cultures of Arabo-French (Beur) and Afro-French immigrations. Prerequisites: FREN:3060 (009:111) and FREN:3300 (009:112). Same as CL:4368 (218:168).

FREN:4090 (009:164) Quebecois Literature 3 s.h.

Introduction to Francophone literature and culture of Canada; 19th- and 20th-century novels and other cultural practices (e.g., theater, chansons, films). Prerequisites: FREN:3060 (009:111) and FREN:3300 (009:112).

FREN:4110 (009:163) Francophone Literature of the African Diaspora 3 s.h.

Literatures and cultures of Francophone West Africa, the Caribbean, and the Indian Ocean analyzed through fiction, essays, films, visual arts. Prerequisites: FREN:3060 (009:111) and FREN:3300 (009:112).

FREN:4310 (009:175) Atelier d'écriture en Français/Creative Writing in French 1 s.h.

Development of intellectual and affective techniques necessary for writing creatively; exploration of cognitive and psychological barriers to producing literature in a language other than one's own; brief portraits, journals, dialogues.

FREN:4466 (009:145) France and Algeria from Pirates to Terrorism 3 s.h.

Long, complex history of relationship between France and Algeria since 18th century; early modern conflicts over Barbary piracy, French invasion, and colonization of Algeria in 19th century; brutal Algerian War of Independence, postcolonial migration, and ongoing war of memory over shared Franco-Algerian history of colonization and decolonization. Taught in English. Same as HIST:4466 (16E:145).

FREN:4520 (009:172) Versailles Under the Sun King 3-4 s.h.

Survey of culture and literature related to the court of King Louis XIV at Versailles, France. Prerequisites: FREN:3060 (009:111).

FREN:4750 (009:178) Topics in French Studies II 3 s.h.

French and/or Francophone literature or culture. Prerequisites: FREN:3060 (009:111) and FREN:3300 (009:112).

- FREN:4890 (009:197) Techniques of Translation** 3 s.h.
Prerequisites: FREN:3300 (009:112). Same as TRNS:4497 (218:197).
- FREN:4911 (009:184) French for Reading/ Research** 2 s.h.
- FREN:4912 (009:185) French for Reading/ Research** 2 s.h.
- FREN:4990 (009:196) Independent Study** arr.
Prerequisites: FREN:3060 (009:111) and FREN:3300 (009:112).
- FREN:4995 (009:198) Honors Research and Thesis** 3 s.h.
Prerequisites: FREN:3060 (009:111) and FREN:3300 (009:112).
- ## French, Graduate
- FREN:5001 (009:208) Introduction to Graduate Study** 2 s.h.
Expectations, resources, and opportunities of graduate study; introduction to course work, development of preprofessional competencies. Same as SPAN:5001 (035:208).
- FREN:5020 (009:210) Comparative Stylistics** 3 s.h.
Translation from English to French, including literary texts. Same as CL:5510 (218:211).
- FREN:5030 (009:234) Principles of Teaching and Learning Foreign Languages** 3 s.h.
Same as GRMN:5030 (013:221), ASIA:5030 (039:234), SLAV:5030 (041:234).
- FREN:6010 (009:215) The Renaissance in France** 3 s.h.
- FREN:6020 (009:227) Studies in the Seventeenth Century** 3 s.h.
- FREN:6050 (009:212) Realism and Naturalism** 3 s.h.
Representative novels of Realist and Naturalist movements, in historical, literary, and theoretical context.
- FREN:6080 (009:224) Modern French Novel** 3 s.h.
- FREN:6090 (009:223) French History in/and Cinema** 3 s.h.
French cinema's role in constructing 20th-century discourse on national and cultural identity and in shaping modern France's historical imagination.
- FREN:6120 (009:225) Literature of Immigration in France** 3 s.h.
Contemporary literature written by non-European immigrants in France; issues of identity, institutional power, exclusion, displacement; rhetorical strategies used in these decentered texts to open a discursive/subversive space in canonical literary discourse.
- FREN:6130 (009:240) Studies in Francophone Literatures** 3 s.h.
Historical, anthropological, comparative approach to Francophone literatures and cultures; Afro/Indo-Caribbean religions in literatures, theoretical and critical discourses, women's literature and cinema.
- FREN:6140 (009:260) Critical Theory and Practice** 3 s.h.
- FREN:6142 (009:262) Crossing Borders Seminar** 2-3 s.h.
Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), CINE:6635 (048:247), COMM:6635 (036:247).
- FREN:6750 (009:220) Topics in French Studies** 3 s.h.
- FREN:6901 (009:237) Second Language Acquisition Research and Theory I** 3 s.h.
Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as ASIA:6901 (039:200), SLA:6901 (164:201), SPAN:6901 (035:201), JPNS:6901 (39J:201).
- FREN:6920 (009:238) Multimedia and Second Language Acquisition** 3 s.h.
Foreign language multimedia in context of current second language acquisition theories and research; readings on interactivity, interface design, feedback, learner control; acquisition of vocabulary, grammar, and culture. Requirements: foreign language teaching methodology course. Same as SLA:6920 (164:211), GRMN:6920 (013:253), SPAN:6920 (035:212).
- FREN:6950 (009:236) Topics in Second Language Acquisition: Speaking** 3 s.h.
Theory, pedagogy, research, and assessment in second language speaking. Same as SLA:6950 (164:221), SPAN:6950 (035:228).
- FREN:7000 (009:277) Thesis** arr.
- FREN:7105 (009:350) Seminar: Comparative Topics** arr.
Comparative topics in literature, theory, media, cultural studies Same as CL:7105 (218:355).
- FREN:7990 (009:279) Independent Study** arr.
- ## Italian, Lower-Level Undergraduate
- ITAL:1000 (018:029) First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Requirements: first- or second-semester standing.

ITAL:1030 (018:030) Italian for Travelers 2 s.h.
Basic language skills for tourists; for students with no previous Italian.

ITAL:1050 (018:003) Italy Live 3 s.h.
Introduction to Italian language and culture designed for students whose first contact with the language is in Italy; offered through Consortium of Universities for International Studies study abroad program (CUIS/CIMBA) in Paderno del Grappa, Italy.

ITAL:1101 (018:001) Elementary Italian 5 s.h.
For students who have no knowledge of Italian. Offered fall semesters. GE: World Languages First Level Proficiency.

ITAL:1102 (018:002) Elementary Italian II 5 s.h.
Offered spring semesters. Prerequisites: ITAL:1101 (018:001). GE: World Languages Second Level Proficiency.

ITAL:1540 (018:040) Topics in Italian 2 s.h.
Topics in Italian language, culture, and literature; may include Italian cinema, studies of specific Italian cities, thematic approaches to Italian studies.

ITAL:2013 (018:013) Everyday Italian I 2 s.h.
Offered fall semesters. Prerequisites: ITAL:1102 (018:002) or ITAL:3002 (018:103).

ITAL:2014 (018:014) Everyday Italian II 2 s.h.
Offered spring semesters. Prerequisites: ITAL:1102 (018:002) or ITAL:3002 (018:103).

ITAL:2203 (018:011) Intermediate Italian 4 s.h.
Offered fall semesters. Prerequisites: ITAL:1102 (018:002). GE: World Languages Second Level Proficiency.

ITAL:2204 (018:012) Intermediate Italian II 4 s.h.
Offered spring semesters. Prerequisites: ITAL:2203 (018:011). GE: World Languages Fourth Level Proficiency.

ITAL:2990 (018:053) Independent Study arr.

Italian, Upper-Level Undergraduate and Graduate

ITAL:3002 (018:103) Intensive Elementary Italian 4,6 s.h.
Offered spring semesters. Requirements: two years of another foreign language. GE: World Languages Second Level Proficiency.

ITAL:3305 (018:111) Advanced Italian 3-4 s.h.
Offered fall semesters. Prerequisites: ITAL:2204 (018:012).

ITAL:3306 (018:112) Advanced Italian II 3-4 s.h.
Offered spring semesters. Prerequisites: ITAL:3305 (018:111).

ITAL:3550 (018:132) Images of Modern Italy 3-4 s.h.

Survey of Italy's history since Unification; diverse aspects of modern Italian culture and society through visual and textual materials. Requirements: ITAL:2204 (018:012) for students earning 4 s.h. GE: Historical Perspectives; Values, Society, and Diversity.

ITAL:4350 (018:114) Studies in Italian Language 3 s.h.
Prerequisites: ITAL:3306 (018:112).

ITAL:4633 (018:119) Medieval Italian Literature 3 s.h.
Prerequisites: ITAL:2204 (018:012).

ITAL:4634 (018:120) Medieval and Renaissance Italian Literature 3 s.h.
Prerequisites: ITAL:2204 (018:012).

ITAL:4667 (018:105) Modern Italian Fiction 3 s.h.
Prerequisites: ITAL:2204 (018:012).

ITAL:4668 (018:106) Modern Italian Poetry and Drama 3 s.h.
Continuation of ITAL:4667 (018:105), but may be taken as independent unit. Prerequisites: ITAL:2204 (018:012).

ITAL:4990 (018:153) Independent Study arr.

ITAL:4998 (018:198) Honors Research and Thesis 3 s.h.

Arabic, Lower-Level Undergraduate

ARAB:1001 (195:101) Elementary Modern Standard Arabic I 5 s.h.
Speaking, listening, reading, and writing skills. GE: World Languages First Level Proficiency.

ARAB:1002 (195:102) Elementary Modern Standard Arabic II 5 s.h.
Continuation of ARAB:1001 (195:101). Prerequisites: ARAB:1001 (195:101). GE: World Languages Second Level Proficiency.

ARAB:1020 (195:115) Study Abroad: Language (Elementary) 5 s.h.
Modern Standard Arabic (MSA); speaking, reading, listening and writing skills. Requirements: non-native speaker of Arabic; heritage speaker of Arabic should contact the course supervisor for appropriate placement.

ARAB:1050 (195:050) Topics in Middle East/Muslim World Studies I 3 s.h.
Contemporary cultural questions and debates in the Muslim and Arabic-speaking world. Taught in English.

ARAB:2001 (195:111) Intermediate Modern Standard Arabic I 5 s.h.
Communication in speaking and writing; cultural topics. Prerequisites: ARAB:1002 (195:102). GE: World Languages Second Level Proficiency.

ARAB:2002 (195:112) Intermediate Modern Standard Arabic II 5 s.h.

Continuation of ARAB:2001 (195:111). Prerequisites: ARAB:2001 (195:111). GE: World Languages Fourth Level Proficiency.

ARAB:2020 (195:123) Study Abroad: Language (Intermediate) 6 s.h.

Modern Standard Arabic (MSA); speaking, reading, listening and writing. Requirements: non-native speaker of Arabic; heritage speaker of Arabic should contact the course supervisor for appropriate placement. Recommendations: one year of Arabic study.

ARAB:2025 (195:126) Study Abroad: Culture and Society 1 s.h.

Introduction to Moroccan culture and society through direct observation and interaction; intensive orientation, cultural exchange activities, learning excursions outside Fez, homestay with a Moroccan family.

ARAB:2030 (195:120) Formal Spoken Arabic 2 s.h.

Conversational practice with a native speaker; for students who have completed fourth-semester Arabic. Prerequisites: ARAB:1002 (195:102) or ARAB:2002 (195:112). Requirements: non-native or non-heritage speaker of Arabic.

ARAB:2050 (195:125) Topics in Middle East/Muslim World Studies II 3 s.h.

Contemporary cultural questions and debates in the Muslim and Arabic-speaking world. Taught in English.

Arabic, Upper-Level Undergraduate and Graduate

ARAB:3011 (195:130) Advanced Modern Standard Arabic I 3 s.h.

Advanced Arabic grammar and syntax, composition writing, formal conversation (similar to conversations on Arabic mass media); classical Arabic texts, other materials written for persons whose first or official language is Arabic. Prerequisites: ARAB:2002 (195:112).

ARAB:3012 (195:131) Advanced Modern Standard Arabic II 3 s.h.

Continuation of ARAB:3011 (195:130); advanced Arabic grammar and syntax, composition writing, formal conversation (similar to conversations on Arabic mass media); classical Arabic texts, other materials written for persons whose first or official language is Arabic. Prerequisites: ARAB:3011 (195:130).

ARAB:3020 (195:133) Study Abroad: Language (Advanced) 6 s.h.

Modern Standard Arabic (MSA); speaking, reading, listening, and writing. Requirements: non-native speaker of Arabic; heritage speaker of Arabic should contact the course supervisor for appropriate placement. Recommendations: two or more years of Arabic language.

ARAB:3050 (195:122) Arab Culture Through Dialects 3 s.h.

Communication in dialectal Arabic, Arabic dialectology, cultural topics, music and film in dialectal Arabic. Prerequisites: ARAB:1001 (195:101). Requirements: non-native or non-heritage speaker of Arabic.

ARAB:4512 (195:172) Topics in Global and Transnational Culture 3-4 s.h.

In-depth look at a theme in cultural expression arising from interactions between countries and regions; focus on contemporary or historical issues; use of materials ranging from literature and the visual arts to music, mass media, and more; general processes through which cultures are formed in mutual and uneven relationships; research project. Recommendations: completion of an international and global issues GE course. Same as WLLC:4512 (218:172), GRMN:4512 (013:172).

ARAB:4990 (195:153) Independent Study arr.

Material not covered in regularly offered courses; independent study guided by an instructor.

Swahili, Upper-Level Undergraduate and Graduate

SWAH:3001 (211:125) Elementary Swahili I 4 s.h.
GE: World Languages First Level Proficiency.

SWAH:3002 (211:126) Elementary Swahili II 4 s.h.

Prerequisites: SWAH:3001 (211:125). GE: World Languages Second Level Proficiency.

SWAH:3003 (211:127) Intermediate Swahili I 4 s.h.

GE: World Languages Second Level Proficiency.

SWAH:3004 (211:128) Intermediate Swahili II 4 s.h.

GE: World Languages Fourth Level Proficiency.

SWAH:3006 (211:130) Conversational Swahili 3 s.h.

Extensive practice in production and comprehension of spoken Swahili. Corequisites: SWAH:3002 (211:126) or SWAH:3004 (211:128).

SWAH:4000 (211:124) Identity, Trade, and Diaspora 3 s.h.

Identity of Swahili people on East African coast; trade networks and diaspora in Arabia and Persian Gulf over the centuries; Swahili civilization marked by urbanity, literacy, Islam, and cosmopolitanism; how scholars' views have changed (scholars originally could not reconcile their conception of Africa, the Dark Continent, with characteristics of this sophisticated culture). Same as HIST:4728 (16W:128).

Fundraising and Philanthropy Communication

Interim director

- Julie Andsager

Coordinator

- Ann Haugland

Undergraduate certificate: fundraising and philanthropy communication

Web site: <http://clas.uiowa.edu/sjmc/philanthropy-certificate>

The Certificate in Fundraising and Philanthropy Communication is administered by the School of Journalism and Mass Communication (p. 447).

Undergraduate Program of Study

- Certificate in Fundraising and Philanthropy Communication

The certificate program prepares students for careers in the growing field of development, institutional advancement, fundraising, donor relations, and public relations for nonprofit organizations.

Certificate

The Certificate in Fundraising and Philanthropy Communication requires a minimum of 18 s.h. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

All certificate students complete core courses (9-10 s.h.), which provide an overview of communication, writing, and management in nonprofit organizations. Students also choose electives (9 s.h.) from a range of courses that match their particular interests, selecting from social service, politics, the arts, environmental issues, and skills useful in fundraising. An optional internship offers practical experience working with development professionals in a nonprofit organization.

Students majoring in journalism and mass communication may count toward the certificate a maximum of 7 s.h. of journalism credit (prefix JMC) that they earn for the major. The certificate cannot be used to satisfy the major's concentration area requirement. Students minoring in mass communication may count toward the certificate a maximum of 7 s.h. of journalism credit (prefix JMC) that they earn for the minor. Students in other majors should consult with their advisors to learn whether they may count certificate course work toward their majors.

When certificate students register for fundraising and philanthropy communication courses (prefix FPC) that are cross-listed with journalism and mass communication (prefix JMC), they should register for the FPC course number.

The Certificate in Fundraising and Philanthropy Communication requires the following course work.

CORE COURSES

Students earn 9-10 s.h. in courses chosen from these:

FPC:2200 (217:096) Communication and Public Relations	3 s.h.
FPC:3185 (217:169) Fundraising and Philanthropy Communication	3 s.h.
FPC:3633 (217:133) Philanthropy Communication in a Digital World	4 s.h.

May include one of these:

MGMT:3500 (06J:147) Nonprofit Organizational Effectiveness I	3 s.h.
MGMT:3600 (06J:148) Nonprofit Organizational Effectiveness II	3 s.h.

ELECTIVES AND OPTIONAL INTERNSHIP

Students complete a minimum of 9 s.h. in approved elective courses chosen from those listed below. Credit earned for the optional internship counts as elective credit.

The certificate program coordinator may add special topics courses that fulfill certificate requirements to this list. The coordinator also may consider other courses for approval if they fit the program's guidelines and purpose.

The certificate's core courses provide a general background in fundraising and philanthropy communication. Students should choose electives that focus on their interests in a specific type of nonprofit work—advocacy, the arts, community service, environmental and global issues, or other areas. Students should speak with the certificate program coordinator when selecting electives.

Some of these courses have prerequisites, which students must complete before they register for the course. Some require special permission.

Advocacy

POLI:1600 (030:070) Introduction to Political Communication	3 s.h.
POLI:3111 (030:126) American Public Policy	3 s.h.
POLI:3118 (030:125) Interest Groups	3 s.h.
POLI:3119 (030:129) Policy Matters: Perspective on Contemporary Problems	3 s.h.
POLI:3204 (030:171) Public Opinion	3 s.h.

Arts and Culture

ARTH:1080 (01H:007) Writing About the Visual Arts	3 s.h.
ARTH:3080 (01H:180) Marketing, Promoting, Politicking Contemporary Public Art	3 s.h.
ARTS:3400 (01P:185) Grant Writing in the Arts	3 s.h.
DPA:3510 (188:109) Introduction to Arts Management	3 s.h.
DPA:3520 (188:111) New Ventures in the Arts	3 s.h.
MUSM:3001 (024:102) Introduction to Museum Studies	3 s.h.

Environment, Sustainability, and Global Issues

ENGR:4013 (057:013) Introduction to Sustainability	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.

GEOG:1090 (044:010) Globalization and Geographic Diversity	3 s.h.
HHP:4340 (027:135) Global Health and Global Food	3 s.h.

Growth and Management of Nonprofit Organizations

COMM:1130 (036:030) The Art of Persuading Others	3 s.h.
COMM:1819 (036:019) Organizational Leadership	2-3 s.h.
ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.

Social Work and Community Development

SOC:2810 (034:066) Social Inequality	3 s.h.
SOC:4540 (034:126) Social Movements in the U.S.	3 s.h.
SSW:1800 (042:085) Basic Aspects of Aging	3 s.h.
SSW:2222 (042:022) Introduction to Social Work	4 s.h.
SSW:3847 (042:147) Discrimination, Oppression, and Diversity	3 s.h.

Internship

FPC:2100 (217:099) Internship in Fundraising and Philanthropy Communication	1-3 s.h.
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Courses

Lower-Level Undergraduate

FPC:2100 (217:099) Internship in Fundraising and Philanthropy Communication	1-3 s.h.
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Faculty-supervised professional work experience in fundraising and philanthropy communication.

FPC:2200 (217:096) Communication and Public Relations	3 s.h.
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Theory and practice of public relations; cultural, social, and organizational roles of public relations, opportunities, problems, and solutions.

Upper-Level Undergraduate and Graduate

FPC:3185 (217:169) Fundraising and Philanthropy Communication	3 s.h.
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Practical experience planning and writing fundraising materials; how yearly fundraising helps approximately 1.5 million nonprofit organizations receive more than \$3 billion from individuals, foundations, and corporations to help people in need, advocate for causes, support research/arts/culture, and enhance opportunities for public and/or their members. Same as JMC:3100 (019:157).

FPC:3633 (217:133) Philanthropy Communication in a Digital World	4 s.h.
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World of philanthropy and nonprofit work that changes rapidly with and in response to developments in digital communications; campaigns and fundraisers driven by free agents on social networking sites as an example of how philanthropists and nonprofit workers operate in digital environment; overview of trends in areas of philanthropy and nonprofit work; practical skills to help communicate, create, and disseminate messages using multiple digital tools and social media; analysis of communication/media strategies; media production. Same as JMC:3633 (019:133).

Gender, Women's, and Sexuality Studies

Interim chair

- Rachel Williams

Professors

- Susan Birrell (Gender, Women's, and Sexuality Studies/American Studies), Meenakshi G. Durham (Gender, Women's, and Sexuality Studies/Journalism and Mass Communication), Karen Heimer (Sociology/Gender, Women's, and Sexuality Studies), Elizabeth Heineman (History/Gender, Women's, and Sexuality Studies), Ellen Lewin (Gender, Women's, and Sexuality Studies/Anthropology), Teresa Mangum, Leslie Schwalm (History/Gender, Women's, and Sexuality Studies/African American Studies)

Associate professors

- Meena Khandelwal (Anthropology/Gender, Women's, and Sexuality Studies), Rosemarie Scullion (French and Italian/Gender, Women's, and Sexuality Studies), Janette Taylor (Nursing/Gender, Women's, and Sexuality Studies), Miriam Thaggert (Gender, Women's, and Sexuality Studies/African American Studies/English), Isaac West (Gender, Women's, and Sexuality Studies/Communication Studies), Rachel Williams (Art and Art History/Gender, Women's, and Sexuality Studies)

Assistant professor

- Aniruddha Dutta

Lecturers

- Mary Ann Rasmussen (Gender, Women's, and Sexuality Studies/English)

Professor emeritus

- Margery Wolf

Associate professor emeritus

- Sue Lafky

Undergraduate major: gender, women's, and sexuality studies (B.A.)

Undergraduate minor: gender, women's, and sexuality studies

Graduate certificate: gender, women's, and sexuality studies

Web site: <http://clas.uiowa.edu/gwss/>

Gender, women's, and sexuality studies (GWSS) is an interdisciplinary field that promotes social justice and full citizenship by asking when and how gender intersects with sexuality, class, race, ethnicity, nationality, globalization, and physical ability in ways that can exclude and oppress but that also can enrich cultures and expand opportunities. GWSS trains students to investigate how gender and sexuality shape challenges people face in areas such as the environment, culture and the media, education, health, violence, and the economy. Critical thinking and analysis and development of expertise in writing, research, and presentation provide the program's graduates with the professional skills they will need to pursue careers or graduate study in a wide variety of fields or academic disciplines.

Undergraduate Programs of Study

- Major in gender, women's, and sexuality studies (Bachelor of Arts)
- Minor in gender, women's, and sexuality studies

Bachelor of Arts

The Bachelor of Arts with a major in gender, women's, and sexuality studies (GWSS) requires a minimum of 120 s.h., including at least 36 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in gender, women's, and sexuality studies emphasizes breadth, depth, and interdisciplinary study. Students acquire knowledge of the field's history, gender and sexuality issues outside the United States and Western Europe, major feminist ideas and debates, and other areas of scholarly concern. They apply this knowledge to an individual research project during their senior year.

Students may declare the major at any time. They are advised by the Academic Advising Center until they have earned 24 s.h. of credit. Transfer credit is evaluated case by case; a maximum of 12 s.h. of transfer credit may be counted toward the degree. Students earning more than one major may count a maximum of three courses completed for the other major toward the GWSS major.

Work for the major consists of the undergraduate core, distribution requirements, and electives. The undergraduate core includes a practicum and culminates in a research seminar.

The major in gender, women's, and sexuality studies requires the following course work.

UNDERGRADUATE CORE

The undergraduate core consists of four courses (minimum of 12 s.h.). Two introductory courses, GWSS:1001 (131:010) Introduction to Gender, Women's, and Sexuality Studies and GWSS:1002 (131:055) Diversity and Power in the U.S., orient students to the major conceptual areas that constitute GWSS as an interdisciplinary field: GWSS:1001 (131:010) introduces the study of cultural and social beliefs about sex, gender, race, class, and sexuality; GWSS:1002 (131:055) examines issues of race, class, and gender in the United States and the consequences of inequity for communities and individuals.

Gender, Women's, and Sexuality Studies Practicum [GWSS:3005 (131:105)] allows students to explore the intersection of race, sexuality, class, and gender, focusing on social justice issues, through a practicum experience in collaboration with community partners. Students earn 3-4 s.h. for the practicum, depending on the semester in which they take it.

Students take GWSS:4090 (131:199) Senior Research Seminar during their last semester; members of the University of Iowa Honors Program may take GWSS:4095 (131:198) Honors Senior Thesis instead. In these courses, students design and develop individual creative or scholarly projects that synthesize and extend work they

already have completed for the major. Students earn 3 s.h. for the research seminar or honors thesis.

The undergraduate core includes the following course work.

All of these:

GWSS:1001 (131:010) Introduction to Gender, Women's, and Sexuality Studies	3 s.h.
GWSS:1002 (131:055) Diversity and Power in the U.S.	3 s.h.
GWSS:3005 (131:105) Gender, Women's, and Sexuality Studies Practicum	3-4 s.h.

One of these:

GWSS:4090 (131:199) Senior Research Seminar	3 s.h.
GWSS:4095 (131:198) Honors Senior Thesis (open only to honors students)	3 s.h.

DISTRIBUTION REQUIREMENTS

The distribution requirements (total of at least 12 s.h.) are chosen from the following lists. They include one GWSS theory course, one transnational theory course, one GWSS course with comparative/non-U.S. focus, and one GWSS or other course with a race/ethnicity focus. Students may request permission from the director of undergraduate studies to use courses not on these lists; ideally, these courses should be offered by GWSS (prefix GWSS). At least half of the material in comparative/non-U.S. topics courses must have a non-U.S. context.

Theory—one of these:

GWSS:2095 (131:095) Queer Rhetorics	3 s.h.
GWSS:3200 (131:151) Feminist Theory	3 s.h.

Transnational theory—one of these:

GWSS:2150 (131:149) Transnational Feminism	3 s.h.
GWSS:3010 (131:110) Transnational Sexualities in a Globalizing World	3 s.h.

Comparative/non-U.S. focus—one of these:

GWSS:2052 (131:060) Women in Islam and the Middle East	3 s.h.
GWSS:2108 (131:107) Gendering India	3 s.h.
GWSS:3121 (131:127) Love and Kinship in South Asia	3 s.h.
GWSS:3131 (131:131) Gender and Sexuality in East Asia	3 s.h.
GWSS:3157 (131:157) Gender, Sexuality, and Human Rights	3 s.h.
GWSS:3185 (131:185) Global Women's Cinema	3 s.h.
GWSS:3360 (131:162) Latin American Women Writers	3 s.h.
GWSS:4026 (131:193) French Women Writers	3 s.h.
GWSS:4725 (131:125) Women and Gender in African History	3 s.h.

Race/ethnicity—one of these:

GWSS:2172 (131:072) The History of African American Women from Slavery to Freedom	3 s.h.
GWSS:4560 (131:159) Native American Women and Religious Change	3 s.h.

AFAM:3710 (129:150) African American Women Writers	3 s.h.
AFAM:3925 (129:122) African Americans and the Media	3 s.h.
AFAM:4500 (129:183) Black Feminist Tradition and Culture	3 s.h.
HIST:4216 (16A:112) Mexican American History	3 s.h.
HIST:4217 (16A:113) Latina/o Immigration	3 s.h.
HIST:4275 (16A:147) History of Slavery in the U.S.A.	3-4 s.h.
SPST:2079 (028:079) Race and Ethnicity in Sport	3 s.h.
THTR:3415 (049:185) Cultural Diversity and Identity	3 s.h.
Any African American studies course (prefix AFAM) numbered 3000 or above	
Any American Indian and native studies course (prefix AINS) numbered 3000 or above	

ELECTIVES

Students choose elective courses from the list below, in consultation with their advisor. They must complete at least four electives (minimum of 12 s.h.), earning at least 6 s.h. in courses numbered 3000 or above. With the instructor's permission, honors students may count a graduate-level course numbered 5000 or above toward the electives requirement.

In choosing electives, students are encouraged to pursue a course of study that emphasizes both breadth and depth. Students should choose three or four courses in a focus area in which they would like to gain deeper knowledge. The area may be within a specific discipline, such as literature, anthropology, or history. This is especially useful for students pursuing double majors, since they may count toward the GWSS major a maximum of three courses they complete for the other major.

The focus area need not be limited to a traditional discipline. Students may seek more specialized education in fields such as sexuality studies or international issues. Breadth also is important; advisors direct students who have taken several courses in one focus area to take additional electives in another focus area.

Students may request permission to use upper-level courses not listed below. At least half of the course's content and requirements must focus on gender and/or sexuality. For information on requesting permission to use a course not listed here, contact the GWSS undergraduate advisor.

At least four of these (minimum of 12 s.h.), with at least 6 s.h. in courses numbered 3000 or above.

GWSS:1000 (131:029) First-Year Seminar	1 s.h.
GWSS:1060 (131:061)/AMST:1060 (045:060) Sex and Popular Culture in the Postwar U.S.	3 s.h.
GWSS:1310 (131:018)/SOC:1310 (034:018) Gender and Society	3-4 s.h.
GWSS:2000 (131:090) Desire, Consent, and Sex in U.S. Culture(s): Replacing Coercion and Violence with Respect	3 s.h.
GWSS:2041 (131:041)/COMM:2041 (036:041) Gender Roles and Communication	3 s.h.

GWSS:2052 (131:060)/RELS:2852 (032:052) Women in Islam and the Middle East	3 s.h.
GWSS:2078 (131:078)/SPST:2078 (028:078) Women, Sport, and Culture	3 s.h.
GWSS:2080 (131:080) The Cultural Politics of HIV-AIDS	3 s.h.
GWSS:2193 (131:052)/ENGL:2193 (008:052) Literature, Culture, and Women	3 s.h.
GWSS:2325 (131:025) Women, Crime, and Justice	3 s.h.
GWSS:2651 (131:152)/CLSA:3650 (20E:150) Gender and Sexuality in the Ancient World	3 s.h.
GWSS:3050 (131:150) Topics in Gender, Women's, and Sexuality Studies	1, 3 s.h.
GWSS:3101 (131:112) Anthropology of Sexuality	3 s.h.
GWSS:3118 (131:144)/ANTH:3118 (113:140) Politics of Reproduction	3 s.h.
GWSS:3120 (131:188)/ENGL:3120 (008:188) Prose by Women Writers	3 s.h.
GWSS:3121 (131:127)/ANTH:3121 (113:127) Love and Kinship in South Asia	3 s.h.
GWSS:3141 (131:143)/ANTH:3141 (113:182) Women, Health, and Healing	3 s.h.
GWSS:3154 (131:158)/HIST:3254 (16A:154) Sexuality in the United States	3 s.h.
GWSS:3175 (131:194)/ENGL:3175 (008:194) Introduction to Feminist Criticism	3 s.h.
GWSS:3185 (131:185)/CINE:3185 (048:185) Global Women's Cinema	3 s.h.
GWSS:3266 (131:186) Women and Nonfiction	3 s.h.
GWSS:3300 (131:142)/ANTH:3300 (113:105) Mothers and Motherhood	3 s.h.
GWSS:3360 (131:162)/SPAN:3360 (035:144) Latin American Women Writers	3 s.h.
GWSS:3450 (131:132) Writing About Girls	3 s.h.
GWSS:3540 (131:167)/FREN:3540 (009:148)/ CINE:3647 (048:167) Gender and Sexuality in French Cinema	3 s.h.
GWSS:3809 (131:109)/CLSA:3809 (20E:109) Women in Antiquity	3 s.h.
GWSS:4140 (131:133)/ANTH:4140 (113:133)/ CBH:5140 (172:133) The Anthropology of Women's Health	3 s.h.
GWSS:4280 (131:171)/HIST:4280 (16A:171) Women and Power in U.S. History Through the Civil War	3 s.h.
GWSS:4560 (131:159)/RELS:4920 (032:158)/ AINS:4560 (149:158) Native American Women and Religious Change	3 s.h.
RELS:2771 (032:071)/GWSS:2771 (131:071) Sexual Ethics	3 s.h.
RELS:3711 (032:111) Religion and Women	3 s.h.
SOC:4820 (034:135)/GWSS:4820 (131:136) Sociology of Sexuality	3 s.h.
THTR:3420 (049:188)/GWSS:3420 (131:187) Sex and Gender in Performance	3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: GWSS:1001 (131:010) Introduction to Gender, Women's, and Sexuality Studies

Before the fifth semester begins: GWSS:1002 (131:055) Diversity and Power in the U.S. and two GWSS electives

Before the seventh semester begins: one GWSS distribution course (theory or comparative/non-U.S. focus) and at least 90 s.h. earned toward the degree

Before the eighth semester begins: GWSS:3005 (131:105) Gender, Women's, and Sexuality Studies Practicum, one more GWSS distribution course (theory or comparative/non-U.S. focus), and at least one more GWSS elective

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in gender, women's, and sexuality studies have the opportunity to graduate with honors in the major. Departmental honors students must maintain a University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.50 in the major. To graduate with honors in the major, students must write an honors thesis, which requires two semesters of work during the senior year: fall (thesis research) and spring (thesis writing).

Students who intend to graduate with honors in the major should notify the GWSS director of undergraduate study by the end of their junior year. Before their senior year, they must find a faculty member to serve as their honors thesis supervisor; the department recommends that students consider faculty members from whom they have taken courses.

Students have three options for conducting the fall semester honors research: enroll in GWSS:3990 (131:179) Independent Readings and Research in Gender, Women's, and Sexuality Studies for 3 s.h.; or create an honors contract for a GWSS course numbered 3000 or above taught by the student's honors thesis supervisor and fulfill the requirements of the contract; or complete a graduate readings course or seminar. Each option involves working closely with the student's honors thesis supervisor.

Students write the honors thesis during spring semester of the senior year, enrolling in GWSS:4095 (131:198) Honors Senior Thesis. They share their research and writing with their classmates and receive aid in writing their thesis from the instructor of GWSS:4090 (131:199) Senior Research Seminar.

A student earning more than one major may be able to graduate with honors in both majors. GWSS faculty members work with the student and the other major's honors advisor to plan a single thesis that satisfies the honors requirements of both majors. GWSS students writing a thesis for double honors must complete their GWSS thesis work during their senior year, according to

the usual timeline: research completed in fall semester, thesis writing completed in spring semester.

In addition to honors in the major, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in gender, women's, and sexuality studies requires a minimum of 15 s.h. in course work associated with the department, including 12 s.h. in courses considered advanced for the minor taken at The University of Iowa. For the minor, courses numbered 3000 or above and GWSS:1002 (131:055) Diversity and Power in the U.S. are considered advanced. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may count a maximum of 3 s.h. of work for their major toward the GWSS minor.

The minor must include GWSS:1001 (131:010) Introduction to Gender, Women's, and Sexuality Studies. The department strongly advises students to include an approved theory course in the minor.

Graduate Program of Study

- Certificate in Gender, Women's, and Sexuality Studies

The certificate program is open to University of Iowa graduate students working toward a degree; interested students should contact the GWSS director of graduate studies.

Certificate

The Certificate in Gender, Women's, and Sexuality Studies requires 16 s.h., including a two-course core, several elective courses, and a capstone course (1 s.h.), for which students attend a GWSS conference and present their own research there. Students receive certificate advising from the GWSS director of graduate studies.

The certificate requires the following course work. Students may not use one course to satisfy more than one certificate requirement.

CERTIFICATE CORE

GWSS:5000 (131:200) Foundations for Feminist Inquiry I	3 s.h.
One approved course on theory of gender, women, or sexuality	3 s.h.

Electives

Cross-referenced GWSS elective courses numbered 5000 or above	9 s.h.
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One of the electives must have a transnational or international focus and one must focus on diversity in the United States. Students may count up to 6 s.h. of elective credit earned in GWSS courses that are cross-referenced with their major department. Courses that are not cross-referenced may be counted with permission of the director of graduate studies.

CAPSTONE

Students must present their own research at a GWSS conference, earning credit for the presentation by registering for the following course.

GWSS:7400 (131:400) Graduate Research Conference Presentation	1 s.h.
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Courses

Lower-Level Undergraduate

GWSS:1000 (131:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Requirements: first- or second-semester standing.

GWSS:1001 (131:010) Introduction to Gender, Women's, and Sexuality Studies 3 s.h.

Introduction to feminist interdisciplinary study of women's lives, with emphasis on race, class, sexual orientation; work, family, culture, political and social change. GE: Values, Society, and Diversity.

GWSS:1002 (131:055) Diversity and Power in the U.S. 3 s.h.

How the intersection of gender, race, class affects individual experience, national ideology, social institutions; interdisciplinary perspective. GE: Values, Society, and Diversity.

GWSS:1005 (131:049) Topics in Gender, Women's, and Sexuality Studies 3 s.h.

GWSS:1046 (131:046) People and the Environment: Technology, Culture, and Social Justice 3 s.h.

How resources, commodities, people, and ideas cross borders; examination of globalization through issues of technology, social justice, environment; perspectives from anthropology, gender studies, geography, energy science, and development. GE: International and Global Issues. Same as ANTH:1046 (113:046), GEOG:1046 (044:046).

GWSS:1060 (131:061) Sex and Popular Culture in the Postwar U.S. 3 s.h.

Critical and historical introduction to representation of human sexuality in American popular culture from World War II to the present. GE: Values, Society, and Diversity. Same as AMST:1060 (045:060), ENGL:1410 (008:003).

GWSS:1070 (131:070) Asian American Women Writers 3 s.h.

Introduction to major Asian American women writers of 20th and 21st centuries; construction of gender within Asian American communities and diverse experiences of Asians in America; novels, short stories, memoirs, films, and historical and critical texts. GE: Values, Society, and Diversity.

GWSS:1074 (131:074) Inequality in American Sport 3 s.h.

Cultural meanings of sport in contemporary U.S. culture; American dream as promoted, challenged in sport; sport experiences, inclusion, and exclusion as affected by gender and sexuality, race and ethnicity, social class, age, physical ability/disability, and nationalism. GE: Values, Society, and Diversity. Same as SPST:1074 (028:074), AMST:1074 (045:074).

GWSS:1310 (131:018) Gender and Society 3-4 s.h.
Role and status of women in society; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes in social life cycle of women, implications for social institutions and processes; focus on contemporary United States. GE: Values, Society, and Diversity. Same as SOC:1310 (034:018).

GWSS:2000 (131:090) Desire, Consent, and Sex in U.S. Culture(s): Replacing Coercion and Violence with Respect 3 s.h.

Exploration of desire, sex, consent, and sexual violence in practical and theoretical dimensions; recent demands by students to change the way sexual violence is addressed; theory and sources from popular media; lectures by scholars, activists, and professionals; sexual violence, rape culture, and sexuality-based oppression confronted with academic/therapeutic/political knowledge; real world strategies to help better understand and combat sexual violence, theories. Prerequisites: RHET:1030 (010:003). Same as RHET:2031 (010:091).

GWSS:2041 (131:041) Gender Roles and Communication 3 s.h.

Interactive relationships between gender and communication in contemporary U.S. society; multiple ways families, schools, and media perpetuate, negotiate, and contest gender roles; how we are part of those processes by looking at how we enact socially-created gender differences in public and private settings. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as COMM:2041 (036:041).

GWSS:2045 (131:045) Working for Social Justice 1 s.h.

Identification and pursuit of careers in a wide range of fields where people advocate for and engage issues of social justice; writing self-assessments, résumés, sample employment application letters, statements of purpose; development of e-portfolios that highlight areas of student research and expertise; mock interview practice; Pomerantz Career Center resources; interviewing professionals in careers focused on social justice and feminist issues; local internship and volunteer possibilities; national and international educational and career opportunities for making a difference in the world.

GWSS:2052 (131:060) Women in Islam and the Middle East 3 s.h.

Women in the Islamic community and in non-Muslim Middle Eastern cultures; early rise of Islam to modern times; references to women in the Qur'an and Sunnah, stories from Islamic history; women and gender issues. GE: International and Global Issues; Values, Society, and Diversity. Same as RELS:2852 (032:052).

GWSS:2075 (131:065) Gender, Sexuality, and Media 3 s.h.

Mediated representations of gender and sexuality (television, film, and internet) to understand how these complex and complicated codes influence meaning of sex, sexuality, and gender; contemporary and historical examples used to engage texts that illuminate cultural conceptions of femininity, masculinity, heterosexuality, and homosexuality; cases that confuse and trouble the stability of these categories. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as COMM:2075 (036:075).

GWSS:2078 (131:078) Women, Sport, and Culture 3 s.h.

Feminist analysis of girls' and women's sports experiences, including reproduction of gender through sport, recent changes in women's intercollegiate athletics, media representations of women's sport, feminist critiques, alternatives to sport. Same as SPST:2078 (028:078).

GWSS:2080 (131:080) The Cultural Politics of HIV-AIDS 3 s.h.

Complex historical shifts in cultural perceptions about HIV-AIDS in the U.S. and transnationally; controversies around HIV-AIDS and their links with questions of gender and sexuality; how HIV-AIDS subsequently became the basis of a transnational industry comprising nongovernmental organizations, donors, and activists across the global north and south, starting from 1980s in the U.S. when HIV-AIDS first emerged into public sphere as a gay disease; link between HIV-AIDS and ideologies of development or progress, neocolonialism, and emergence of lesbian, gay, bisexual, transgender, intersex, and questioning (LGBTIQ) movements in many parts of world. Recommendations: background in gender studies, and completion of Rhetoric or at least one social sciences course.

GWSS:2095 (131:095) Queer Rhetorics 3 s.h.

Overview of queer theory and its application to different communicative situations including television, film, and everyday life; development of critical thinking skills in relation to cultural constructions of gender, sexuality, race, and other identity categories. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as COMM:2095 (036:095).

GWSS:2102 (131:108) Anthropology of Marriage and Family 3 s.h.

Classic anthropological theories of kinship and marriage, including topics such as cousin marriage and incest; recent work on new reproductive technologies and transnational marriage. Same as ANTH:2102 (113:108).

GWSS:2108 (131:107) Gendering India 3 s.h.

Aspects of Indian culture, including nation, family, sexuality, work, and religion, through the lens of gender; Hindu India, differences in region, caste, and class. Same as ANTH:2108 (113:107).

GWSS:2150 (131:149) Transnational Feminism 3 s.h.

Introduction to feminist perspectives from U.S. and non-U.S. contexts; how geopolitics shapes understanding of familiar feminist issues (e.g., reproduction, cultural practices, sexualities, poverty); emphasis on global south regions. Same as ANTH:2150 (113:115).

GWSS:2172 (131:072) The History of African American Women from Slavery to Freedom 3 s.h.

Survey of African American women's history from its beginnings through emancipation and Reconstruction; expansion of slavery in the South and its gendered implications, ways black women influenced antebellum slave culture, female modes of resistance, abolition of slavery in the North, and ways Northern emancipation shaped black women's experiences in the region; development of a free black community and black women's roles in these new social configurations; African American female body under slavery; impact of war and revolution on African American women's lives; black women's experiences during Reconstruction.

GWSS:2193 (131:052) Literature, Culture, and Women 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:2193 (008:052).

GWSS:2325 (131:025) Women, Crime, and Justice 3 s.h.

Overview of women's experiences with crime and criminal justice system, with reference to experiences of men for purposes of comparison; role of race, ethnicity, and poverty in women's experiences; causes of crime, inequalities in police-citizen interactions, imprisonment, and other aspects of criminal justice system experience. Same as SOC:2325 (034:025).

GWSS:2651 (131:152) Gender and Sexuality in the Ancient World 3 s.h.

Survey of gender and sexuality issues in the social, political, and religious life of ancient Greece and Rome; evidence from literature, the visual arts, archaeology. Requirements: completion of rhetoric requirement and sophomore standing. GE: Values, Society, and Diversity. Same as CLSA:3650 (20E:150).

GWSS:2750 (131:075) Fertility and Reproduction 3 s.h.

Exploration of when, why, how, and with whom Americans bear children, comparison to other developed and developing countries in the world; infertility and its treatments; ethics of surrogacy; voluntary childlessness; rapid rise of nonmarital childbearing in the U.S. and other countries; politics of childbirth; declining populations; rapid aging of rich where women have basically stopped having children. Same as SOC:2750 (034:075).

GWSS:2771 (131:071) Sexual Ethics 3 s.h.

Introduction to religion and ethics; diverse secular, Jewish, and Christian perspectives on human sexuality and sexual activity; religious views underlying divergent attitudes toward same-gender sexuality and abortion. Same as RELS:2771 (032:071).

Upper-Level Undergraduate and Graduate

GWSS:3005 (131:105) Gender, Women's, and Sexuality Studies Practicum 3-4 s.h.

Experience in volunteer work for organizations that provide services for women. Prerequisites: GWSS:1001 (131:010).

GWSS:3010 (131:110) Transnational Sexualities in a Globalizing World 3 s.h.

How ideas about normative and nonnormative sexuality, gender/sexual identities, and related social movements travel across geographical, political, and cultural boundaries; potentials and limits of using conceptual frameworks (i.e., sexuality, gender, LGBT, queer) across the west and global south; how sexuality always intersects with race, class, nationhood, and transnational systems of power; power structures that shape gender/sexuality through a transnational approach; connection of inequalities within the United States with those across the world.

GWSS:3020 (131:120) Lesbian, Gay, Bisexual, and Transgender Identities 3 s.h.

Historical and contemporary experiences of sexual minorities; identity, community, culture, art, politics, representation, diversity, assimilation.

GWSS:3050 (131:150) Topics in Gender, Women's, and Sexuality Studies 1,3 s.h.

Representative topics: American Indian/First Nations Women; population and the environment; feminism and the family; women, health, and healing; women of color.

GWSS:3101 (131:112) Anthropology of Sexuality 3 s.h.

Practice, definition, and regulation of sex in different cultures and times; use of anthropological tools, including cross-cultural comparison and social constructionist analysis; how social and historical forces shape sex; how a range of topics relate to sexuality, including science, love, work, globalization, ethnicity, health, aging, pornography, and deviance; focus on ways that dynamics (i.e., class, race, gender norms) shape people's culturally- and historically-specific ways of having and thinking about sex. Same as ANTH:3101 (113:112).

GWSS:3118 (131:144) Politics of Reproduction 3 s.h.

Debates over women's reproductive experience, including its medicalization. Same as ANTH:3118 (113:140).

GWSS:3119 (131:154) Anthropology of Sexual Minorities 3 s.h.

Ethnographic studies of sexual minorities and anthropological approaches to lesbian, gay, bisexual, and transgendered persons and communities; behavior, identity, performativity, kinship, globalization, the HIV/AIDS pandemic. Requirements: junior, senior, or graduate standing. Same as ANTH:3119 (113:154).

GWSS:3120 (131:188) Prose by Women Writers 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:3120 (008:188).

GWSS:3121 (131:127) Love and Kinship in South Asia 3 s.h.

Anthropological understandings of love in India and the region of South Asia more broadly; emphasis on contemporary society; filial and motherly love, arranged marriage and romantic love, devotional and artistic expressions, love between siblings. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010) or GWSS:1001 (131:010) or GWSS:1002 (131:055). Same as ANTH:3121 (113:127).

GWSS:3131 (131:131) Gender and Sexuality in East Asia 3 s.h.

Conceptions of sex, gender, and sexuality in the religions of China, Korea, and Japan; asceticism and celibacy; sexual alchemy; the difference between male and female bodies and souls; intersexed persons; female saints and immortals; transgressive sexuality; gender and sexuality in colonial Asia; East Asian religions and postcolonial feminism. Same as RELS:3431 (032:131).

GWSS:3138 (131:138) Writing to Change the World 3 s.h.

Writers who can frame questions, weigh competing perspectives, structure an argument, and write with clarity and respect for diverse audiences as powerful agents for change; writers who have inspired human rights movements; public forms of writing with local organizations whose missions are shaped by social attitudes to gender and sexuality; how language, imagery, popular culture, and history affect perceptions of gender and sexuality; conducting research and evaluation of evidence; best practices for communicating and collaborating; skills needed to be an effective advocate.

GWSS:3140 (131:141) Feminist Anthropology 3 s.h.

Development and evolution of feminist critiques in cultural anthropology; readings from early studies by women ethnographers, classic writings that sought to give women cross-cultural visibility, recent experimental texts. Same as ANTH:3140 (113:141).

GWSS:3141 (131:143) Women, Health, and Healing 3 s.h.

Women's experience as recipients and providers of health care; intersection of race, class, cultural variation, and women's health; reproductive and nonreproductive health concerns. Same as ANTH:3141 (113:182).

GWSS:3154 (131:158) Sexuality in the United States 3 s.h.

Same as HIST:3254 (16A:154).

GWSS:3157 (131:157) Gender, Sexuality, and Human Rights 3 s.h.

History of gender and sexuality as components in international human rights activism and law; current debates, representative topics. Same as HIST:3157 (016:157).

GWSS:3173 (131:156) Gender, Sexuality, and Literature 3 s.h.

Representations of gender, class, and sexuality in British, American, or postcolonial literature. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3173 (008:174).

GWSS:3175 (131:194) Introduction to Feminist Criticism 3 s.h.

Introduction to feminist interpretation of literature, feminist literature, feminist theories, and uses of literature in forming feminist politics. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3175 (008:194).

GWSS:3177 (131:177) Women and Their Bodies in Health and Illness 3 s.h.

Basic facts about structure and functioning of female body; particular attention to adjustments the body makes during normal physiological events (menstruation, sexuality, reproduction, menopause) and during illness processes; women's mental and physical health issues in relation to women's lives and roles in society; relationship of women as consumers, practitioners, and activists to health system; achievements and limitations of women's health movements; anti-oppression, intersectionalities, and cross-cultural perspectives.

GWSS:3185 (131:185) Global Women's Cinema 3 s.h.

Introduction to contemporary women's cinema and feminist filmmaking from around the world; emphasis on post-1968 period and cinema produced outside the United States. Same as WLLC:3185 (218:185), CINE:3185 (048:185).

GWSS:3200 (131:151) Feminist Theory 3 s.h.

Historical and contemporary feminist analyses of women's position in culture and society; variety of theoretical approaches, political perspectives; contemporary issues, controversies. Prerequisites: GWSS:1001 (131:010).

GWSS:3266 (131:186) Women and Nonfiction 3 s.h.

Issues of representation and self-representation by and about women through the study of documentary film and personal essay; focus on paired texts in literature and cinema for analysis and critical reflection; development along historical and transnational lines of inquiry to explore literary and cinematic depictions of racial and cultural identity; motherhood, friendship, and the family; women during wartime, violence against women, domestic and industrial women's work. Requirements: junior or senior standing.

GWSS:3300 (131:142) Mothers and Motherhood 3 s.h.

Treatment of motherhood; role of motherhood and devaluation of social status. Same as ANTH:3300 (113:105).

GWSS:3360 (131:162) Latin American Women Writers 3 s.h.

Focus on 20th century; how Latin American women subjects view themselves through literature; textual practice specific to women; psychoanalytic approaches, contemporary feminist criticism. Requirements: at least one course taught in Spanish at the 2000 level or above. Same as SPAN:3360 (035:144).

GWSS:3400 (131:195) GWSS Advocacy and Engagement Colloquium 1-3 s.h.

How to capitalize on volunteer experience; how experience can lead to careers in health care, law, advocacy, social work, social justice, education; issues related to domestic violence, community education, sexual assault, health care for women, youth, and LGBTQ populations; field journal. Recommendations: active volunteer work at feminist-centered organizations in Iowa, completion of 40-hour training, plan to serve organization for up to ten or more hours each month, and attendance at regularly scheduled volunteer meetings.

GWSS:3415 (131:183) Cultural Diversity and Identity 3 s.h.

Nature of personal and cultural identity within a pluralistic society; race, ethnicity, national identity, class, sexuality, and gender as categories of cultural difference. Same as THTR:3415 (049:185).

GWSS:3420 (131:187) Sex and Gender in Performance 3 s.h.

Relationship between sex and gender in the performing body across a range of public venues, including stage, film, athletic events, and social spaces; articles, texts, plays, films, television, and videos; attendance at live performances of theatre, sports, and other events scheduled in the University and local community; discussion format. Same as THTR:3420 (049:188).

GWSS:3421 (131:114) Performing Autobiography 3 s.h.

Write and perform original pieces stemming from personal experiences and interests; readings and videos; genre of contemporary autobiographical performance as established artists have developed it; improvisational performance and writing exercises to foster deeper reflection on personal experiences; final staging of students' original work. Same as THTR:3421 (049:114).

GWSS:3450 (131:132) Writing About Girls 3 s.h.

Examination of a wide range of critical and creative works by contemporary women writers on girlhood; common use of the word "girls" to describe adult women; representations of girls in film and television; role of media in sexualization of girls; impact of gender, race, and class in girls' lives; nature of girls' relationships with one another; ways in which girlhood traumas can continue into adult life; contemporary issues of body image and sexuality (e.g., pressures to be thin, disparagement of sexually active girl as "slut"); poverty, hunger, and homelessness; resistance and rebellion.

GWSS:3540 (131:167) Gender and Sexuality in French Cinema 3 s.h.

Cultural, historical, semiotic approach to studying construction of gender identity and sexual codes in French cinema from 1920s to present. Taught in English. Prerequisites: FREN:3060 (009:111) or CINE:1601 (048:001) or CINE:1602 (048:002) or GWSS:1001 (131:010). Same as FREN:3540 (009:148), CINE:3647 (048:167).

GWSS:3710 (131:137) African American Women Writers 3 s.h.

Introduction to major African American women authors of the 19th, 20th, and 21st centuries; major debates of black feminist literary scholarship; analyze African American literary representations by reading novels, poetry, short stories, plays, relevant historical and critical texts. GE: Values, Society, and Diversity. Same as AFAM:3710 (129:150).

GWSS:3809 (131:109) Women in Antiquity 3 s.h.

Attitudes toward women and the role of women in ancient Greek and Roman society; ancient authors, male and female, and modern critics. Same as CLSA:3809 (20E:109).

GWSS:3990 (131:179) Independent Readings and Research in Gender, Women's, and Sexuality Studies arr.

Topic not covered in regular curriculum. Requirements: GWSS:1001 (131:010).

GWSS:4000 (131:191) Sex/Text:: Engendering the Essay 3 s.h.

Analyze and discuss significant essays that have engaged and articulated sexuality and gender in contemporary societies, in the U.S. as well as other cultures; students write and workshop on these topics: bodies are battlegrounds, gender is convoluted, sex is serious; gender and sexuality are emotionally charged, politically volatile, and socially complex issues. Recommendations: major or minor in writing-intensive disciplines, or previous writing classes.

GWSS:4026 (131:193) French Women Writers 3-4 s.h.

Survey of 20th-century French women writers with emphasis on Simone de Beauvoir; broad range of literary works by writers including de Beauvoir, Colette, Marguerite Yourcenar, Nathalie Sarraute, Marguerite Duras, Sarah Kofman, Annie Ernaux, Christiane Rochefort; French feminist theorists who followed in de Beauvoir's footsteps, including Helene Cixous, Julia Kristeva, Luce Irigaray. Prerequisites: FREN:3060 (009:111) or GWSS:1001 (131:010). Same as FREN:4026 (009:183).

GWSS:4090 (131:199) Senior Research Seminar 3 s.h.

Design and development of individual creative or scholarly projects in the field of gender, women's and sexuality studies; emphasis on strengthening students' research and writing skills; synthesizing and extending work already completed in the major. Prerequisites: GWSS:1001 (131:010). Requirements: two women's studies courses numbered above GWSS:1001 (131:010).

GWSS:4095 (131:198) Honors Senior Thesis arr.

Supervised research, writing. Requirements: honors standing and completion of course work for minor in women's studies.

GWSS:4140 (131:133) The Anthropology of Women's Health 3 s.h.

How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology, public health. Prerequisites: ANTH:1101 (113:003). Same as ANTH:4140 (113:133), CBH:5140 (172:133).

GWSS:4169 (131:176) Feminist Rhetorics 3 s.h.

Exploration of multiple, varied, and complex histories of U.S. feminisms from rhetorical perspectives; focus on primary documents, the letters, speeches, essays, and manifesto/as that shaped women's movements and inspire social change from late 18th century to present; social, political, and personal issues that feminists sought to address and transform, communicative and rhetorical methods utilized, and implications of these efforts for women's lives and broader U.S. American culture. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as COMM:4169 (036:169).

GWSS:4180 (131:180) Women's Lives in Alternative Texts 3 s.h.

Work of contemporary comics creators; how they craft memoir-based texts that explore intersections of aging, sexuality, race, gender, and relationships. Same as INTM:4780 (01J:180).

GWSS:4230 (131:170) Philosophy of the Body 3 s.h.

Philosophical treatment of the body; perspectives from classical, modern, and contemporary texts from Western philosophy, and texts from feminist theory, critical race theory, cultural studies, and disability studies. Prerequisites: GWSS:1001 (131:010).

GWSS:4280 (131:171) Women and Power in U.S. History Through the Civil War 3 s.h.

American history through women's eyes; emphasis on interaction of biology, economics, politics, ideology; how traditional historical generalizations change when women's experience is considered; legal history, women's education. Same as HIST:4280 (16A:171).

GWSS:4282 (131:178) Women and Power in U.S. History Since the Civil War 3 s.h.

Major events and themes in U.S. women's history from late 19th century to present; how women's experiences have differed from men's; exploration of distinct, but interconnected histories of different groups of women; changing ideals of femininity; women's experience of industrialization, immigration, depression, war, and sexual revolution; women's activism for social reform, women's rights, labor, civil rights, peace, and the New Right. Same as HIST:4282 (16A:178).

GWSS:4283 (131:173) U.S. Women's History as the History of Human Rights 3-4 s.h.

History of human rights in the United States traced through the perspective of women; aspects of women's experience (social, political, intellectual) related to fundamental human rights—right to a nationality, right to life, liberty and personal security, right to freedom of movement, right to take part in the government of their country, right to own property; these and other rights specified by the United Nations in the Universal Declaration of Human Rights, 1948; different history of men and women enjoying these rights; how human rights have been constructed and experienced in the United States from the era of colonial settlement to present. Same as HIST:4283 (16A:173), AMST:4283 (045:173), HRTS:4283 (216:173).

GWSS:4427 (131:181) Society and Gender in Europe 1200-1789 3 s.h.

Social and gender ideologies as inscribed in patterns of authority (household, church, state); ranges of human endeavor (intellectual, psychological, biological); community organization (social, economic, legal, sexual); their influence on concept of community. GE: Historical Perspectives. Same as HIST:4427 (16E:125).

GWSS:4461 (131:161) Gender and Violence 3 s.h.

Extent and nature of gendered violence, interpretation of patterns using feminist theory and perspectives on masculinities and heterosexism; examination of interpersonal violence, including criminal violence committed by women and men, violence against women and men (victimization), spousal/intimate partner abuse, youth gangs, bullying in schools, sexual violence, femicide, and genocide. Same as SOC:4461 (034:143).

GWSS:4560 (131:159) Native American Women and Religious Change 3 s.h.

Native women's diverse experiences and their roles in native societies, examined through contact experiences between native and nonnative peoples; changes in women's roles in context of interactions between native people, missionaries, European colonists, and Americans; approaches to re-imagining women's early contact roles presented in cultural narratives, archaeology, history, ethnography, and missionary records. Same as AINS:4560 (149:158), RELS:4920 (032:158).

GWSS:4725 (131:125) Women and Gender in African History 3 s.h.

Importance of female agency in African history; African women's history in historiographical framework of women's history, challenges historians face in exploring African women's past; varied sources (e.g., novels, films, court records) from sub-Saharan Africa, urban and rural settings; current literature on African women, African women's experiences in a comparative context. Same as HIST:4725 (16W:125).

GWSS:4820 (131:136) Sociology of Sexuality 3 s.h.

Sociological perspectives on sexuality, including theoretical and conceptual developments, empirical regularities, and social implications; sexual expression in the United States. Prerequisites: SOC:1010 (034:001) or SOC:1020 (034:002). Same as SOC:4820 (034:135).

Graduate

GWSS:5000 (131:200) Foundations for Feminist Inquiry I 3 s.h.

Theory, critique, methodology, practice.

GWSS:5120 (131:222) Reading Transnational Feminist Theory 3 s.h.

Issues in transnational feminist scholarship, including colonialism, globalization, the nation-state, religion, cultural traditions, and human rights, in global and U.S. domestic contexts; interdisciplinary readings with focus on anthropology, other social sciences. Same as ANTH:5120 (113:222).

GWSS:6015 (131:243) Feminist Cultural Studies 3 s.h.

Same as ENGL:6015 (008:243), RHET:6015 (010:243), COMM:6215 (036:222).

GWSS:6050 (131:250) Topics in Gender, Women's, and Sexuality Studies 3 s.h.

Special topics in women's studies.

GWSS:6125 (131:245) Seminar: Feminist Ethnography 3 s.h.

Feminist critiques of traditional ethnographies; informed by contemporary feminisms. Same as ANTH:6125 (113:221).

GWSS:6225 (131:258) Feminist Critical Theory 3 s.h.

Questions of difference, the body, agency, identity politics, gender performativity, power as both productive and oppressive; perspectives from texts in poststructuralist and feminist philosophy.

GWSS:6238 (131:238) Gender and Education in Historical Perspective 3 s.h.

Gender in context of history of education in the United States; coeducation in common schools, academies, and high schools; women's arrival and experiences as college students; masculinity in higher education; single-sex versus coeducation; emphasis on conflicting historical interpretations. Same as EPLS:6238 (07B:238).

GWSS:6256 (131:257) Gender and Mass Communication 3 s.h.

Approaches to the study of gender and communication; topics vary. Same as JMC:6256 (019:256).

GWSS:6310 (131:290) Anthropology of Science, Technology, and Gender 3 s.h.

Science and technology done in particular social and structural contexts; theoretical approaches for understanding cultures of science and social uses of technology; focus on gender-related aspects of real world cases. Recommendations: graduate standing in any discipline with interest in understanding cultural context of scientific practice. Same as ANTH:6310 (113:290).

GWSS:6415 (131:273) Seminar: Language, Gender, and Sexuality 3 s.h.

Role of language and discourse in cultural constructions of gender identities and relations, including domination and subordination; theoretical perspective and methodological approaches that have shaped thought on the language/gender nexus. Same as ANTH:6415 (113:273), LING:6415 (103:221).

GWSS:6660 (131:332) Critical Ethnography 3 s.h.

How power relations constitute the work of ethnographic research; ethnography as a rhetorical form—how ethnographic inscription renders self, other, culture, and the world intelligible in ways that reinscribe and/or challenge dominant social relations; axes of power such as race, class, gender, sexuality, and nation within postcolonial, feminist, and antiracist approaches to ethnographic/autoethnographic theory and praxis; negotiating researcher privilege and epistemic violence; crisis of representation. Same as COMM:6660 (036:378).

GWSS:6710 (131:254) Seminar: Women in Sport 3 s.h.

Women's sport involvement in historical and/or contemporary contexts; focus on social class, religion, race, ethnicity, sexuality, medical opinion, economic considerations, political events, and educational philosophies that have influenced women's participation. Same as SPST:6078 (028:278), AMST:6078 (045:278).

GWSS:6990 (131:279) Independent Study arr.

GWSS:7020 (131:204) Feminist Research Seminar arr.

Feminist research methodologies; how to conduct original research, write a research proposal and research paper, and read and criticize others' work. Same as HIST:7020 (016:277).

GWSS:7205 (131:206) Gender and Race in Nineteenth-Century U.S. arr.

Same as HIST:7205 (016:205), AFAM:7205 (129:205).

GWSS:7207 (131:207) French Theory and the Politics of Gender 3 s.h.

Introduction to structuralist, poststructuralist, and deconstructionist theory; influence of post-WWII French thought on the development of French and gender theory.

GWSS:7214 (131:287) Readings: African American Women's History arr.

Same as HIST:7214 (016:287), AFAM:7214 (129:287).

GWSS:7220 (131:225) Readings: History of Sexuality arr.

History of sexuality within the family, its move into the marketplace; social customs and taboos, methods of birth control and abortion, religion, medical and psychological writings, state policies. Same as HIST:7220 (016:225).

GWSS:7275 (131:270) Readings in the History of Women and Gender in the U.S.A. arr.

Same as HIST:7275 (016:270).

GWSS:7289 (131:285) Readings: Gender in Latin American History arr.

Same as HIST:7589 (016:285).

GWSS:7400 (131:400) Graduate Research Conference Presentation 1 s.h.

Presentation of conference paper based on current research activities; for students pursuing the Certificate in Gender, Women's, and Sexuality Studies. Requirements: gender, women's, and sexuality studies graduate certificate standing.

GWSS:7435 (131:233) Readings: Women, Men, and Gender in Modern Europe arr.

Same as HIST:7435 (016:233).

GWSS:7500 (131:425) Ph.D. Thesis arr.

General Education Program

Web site: <http://clas.uiowa.edu/students/general-education-program-requirements>

The College of Liberal Arts and Sciences General Education Program provides students with a broad foundation of knowledge and a focused practice of transferable skills necessary for a lifetime of learning.

General Education courses are particularly valuable for students making the transition into The University of Iowa. They help students understand the expectations of the College of Liberal Arts and Sciences while providing the tools needed for more advanced academic work in the major.

All students in the College of Liberal Arts and Sciences who wish to earn an undergraduate degree—Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), or Bachelor of Music (B.M.)—must complete the requirements of the CLAS General Education Program.

General Education Areas and Requirements

The General Education Program has 10 required areas, grouped into three categories. Students must fulfill the requirements in each General Education area.

Communication and literacy:

- Rhetoric: a minimum of 4 s.h.
- World Languages: required credit varies by language (see "World Languages" below)
- Interpretation of Literature: a minimum of 3 s.h.

Natural, quantitative, and social sciences:

- Natural Sciences: a minimum of 7 s.h.; must include one lab
- Quantitative or Formal Reasoning: a minimum of 3 s.h.
- Social Sciences: a minimum of 3 s.h.

Culture, society, and the arts:

- Historical Perspectives: a minimum of 3 s.h.
- International and Global Issues: a minimum of 3 s.h.
- Literary, Visual, and Performing Arts: a minimum of 3 s.h.
- Values, Society, and Diversity: a minimum of 3 s.h.

Students may count transfer credit and/or credit by exam toward some General Education Program requirements. See General Education Policies for details regarding use of transfer credit, credit by exam, and other policies for how General Education requirements may be fulfilled.

Communication and Literacy

Rhetoric

Rhetoric courses develop speaking, writing, listening, and critical reading skills and build competence in research, analysis, and argumentation.

All entering first-year students are required to complete RHET:1030 (010:003) Rhetoric (4-5 s.h.). Because rhetorical skills lay the foundation for further study at the University, most students register for RHET:1030 (010:003) during their first year at Iowa. Students in some majors,

such as English or journalism and mass communication, enroll in RHET:1030 (010:003) during their first semester.

Students who must enroll in English as a Second Language (ESL) courses as determined by their English proficiency evaluation must complete all ESL courses before they may register for RHET:1030 (010:003) Rhetoric.

Students who have transfer credit in composition, speech, and argumentation but have not been granted an A.A. degree must complete the equivalent of RHET:1030 (010:003) Rhetoric and often must take RHET:1040 (010:004) Writing and Reading or RHET:1060 (010:006) Speaking and Reading in addition to their transfer courses in composition and/or speech.

Each entering student's degree audit shows the course(s) he or she must complete in order to fulfill the Rhetoric requirement.

The following courses are approved for the Rhetoric area.

RHET:1030 (010:003) Rhetoric	4 s.h.
RHET:1040 (010:004) Writing and Reading	3 s.h.
RHET:1060 (010:006) Speaking and Reading	3 s.h.

TRANSFER OF CREDIT FOR RHETORIC

Transfer students who have been granted an Associate of Arts (A.A.) degree from an Iowa community college, Waldorf College in Iowa, or Black Hawk College in Illinois have satisfied the Rhetoric requirement.

Transfer credit for students without an A.A. degree is evaluated as follows:

transfer students who have completed composition I, composition II, and speech at another institution have satisfied the General Education Program's Rhetoric requirement of RHET:1030 (010:003) Rhetoric;

transfer students who have completed only composition I must complete RHET:1030 (010:003) Rhetoric at The University of Iowa;

transfer students who have completed composition I and speech must complete RHET:1040 (010:004) Writing and Reading at The University of Iowa;

transfer students who have completed only speech must complete RHET:1040 (010:004) Writing and Reading at The University of Iowa;

transfer students who have completed composition I and II or only composition II must complete RHET:1060 (010:006) Speaking and Reading at The University of Iowa;

for transfer students who have completed any other course at another institution that may be equivalent to RHET:1030 (010:003) Rhetoric, the University of Iowa Office of Admissions examines the content of the course and decides on equivalency based on the content of that course, conferring with the Department of Rhetoric on the correct equivalency, if necessary .

Interpretation of Literature

Courses in the Interpretation of Literature area focus on the major genres of literature (short and long fiction, nonfiction, poetry, and drama), improving students' abilities to read and analyze a variety of texts. Small group discussions in these courses challenge students to think

critically, to share insights, and to listen thoughtfully to the arguments of others.

All students must complete at least 3 s.h. of course work in the Interpretation of Literature area. The following courses are approved for the area.

ENGL:1200 (08G:001) The Interpretation of Literature	3 s.h.
FREN:1005 (009:005) Texts and Contexts: French-Speaking World	3 s.h.
FREN:1007 (009:007) Nature/Ecology French Philosophy and Fiction	3 s.h.
HONR:1885 (143:085) Reading the Ancient City	3 s.h.

World Languages

Courses in the World Languages area provide students with speaking, listening, reading, and writing skills in a second language as well as knowledge of the culture in which the language is spoken. To fulfill the World Languages requirement, students must:

- complete the fourth year of a world language in high school; or
- complete the last course in the designated course sequence of an approved world language at The University of Iowa or the equivalent course at another college or university or during study abroad; or
- pass an achievement test or evaluation that measures proficiency in a foreign language equivalent to that usually attained through four semesters of college-level language study.

For information about proficiency examinations and guidelines for taking them, see the World Languages web page. The page also provides information about how students whose first language is not English may fulfill the World Languages requirement.

Once students have completed the World Languages requirement, they may earn up to 8 s.h. of additional credit in language study; see the Furthering Language Incentive Program (FLIP) web page.

Students may use the following language course sequences to fulfill the World Languages requirement. To avoid duplication or regression, consult the appropriate language department before registering for courses.

AMERICAN SIGN LANGUAGE

Courses in American Sign Language (ASL) are offered by the American Sign Language (p. 40) Program. The following sequence fulfills the General Education Program's World Languages requirement.

ASL:1001 (158:011) American Sign Language I	4 s.h.
ASL:1002 (158:012) American Sign Language II	4 s.h.
ASL:2001 (158:013) American Sign Language III	4 s.h.
ASL:2002 (158:014) American Sign Language IV	4 s.h.

Students with previous knowledge of American Sign Language should consult the ASL program for placement.

ARABIC

Courses in Arabic are offered by the Department of French and Italian (p. 300). The following sequence fulfills the General Education Program's World Languages requirement.

ARAB:1001 (195:101) Elementary Modern Standard Arabic I	5 s.h.
ARAB:1002 (195:102) Elementary Modern Standard Arabic II	5 s.h.
ARAB:2001 (195:111) Intermediate Modern Standard Arabic I	5 s.h.
ARAB:2002 (195:112) Intermediate Modern Standard Arabic II	5 s.h.

Students with previous knowledge of Arabic should consult the department for appropriate placement.

CHINESE

Courses in Chinese are offered by the Department of Asian and Slavic Languages and Literatures (p. 102). For students without previous knowledge of Chinese, the department recommends the following sequence to fulfill the General Education Program's World Languages requirement.

CHIN:1111 (039:008) First-Year Chinese: First Semester	5 s.h.
CHIN:1112 (039:009) First-Year Chinese: Second Semester	5 s.h.
CHIN:2101 (039:105) Second-Year Chinese: First Semester	5 s.h.
CHIN:2102 (039:106) Second-Year Chinese: Second Semester	5 s.h.

Students may use varied combinations of Chinese language courses approved for General Education to fulfill the World Languages requirement. Heritage learners and students who have studied Chinese abroad may be able to fulfill the requirement by substituting CHIN:2103 (039:107) Accelerated Second-Year Chinese: First Semester and CHIN:2104 (039:114) Accelerated Second-Year Chinese: Second Semester for CHIN:2101 (039:105) and CHIN:2102 (039:106). Consult the department for more information.

CZECH

Courses in Czech are offered by the Department of Asian and Slavic Languages and Literatures (p. 102). The following sequence fulfills the General Education Program's World Languages requirement.

SLAV:1211 (041:141) Conversational Czech I	3 s.h.
SLAV:1212 (041:142) Conversational Czech II	3 s.h.
SLAV:2211 (041:143) Conversational Czech III	3 s.h.
SLAV:2212 (041:144) Conversational Czech IV	3 s.h.

Students with previous knowledge of Czech should consult the department for proper placement.

FRENCH

Courses in French are offered by the Department of French and Italian (p. 300). For students without previous knowledge of French, the department recommends the following sequence to fulfill the General Education Program's World Languages requirement.

FREN:1001 (009:001) Elementary French I	5 s.h.
FREN:1002 (009:002) Elementary French II	5 s.h.

FREN:2001 (009:011) Intermediate French I	4 s.h.
FREN:2002 (009:012) Intermediate French II	4 s.h.

Students may use varied combinations of French language courses approved for General Education to fulfill the World Languages requirement. Those with previous knowledge of French may be able to fulfill the requirement by substituting FREN:1010 (009:010) First-Year French Review for FREN:1001 (009:001) and FREN:1002 (009:002) in the sequence above. Some students may be evaluated as ready for FREN:2001 (009:011) or FREN:2002 (009:012). Consult the department for appropriate placement.

GERMAN

Courses in German are offered by the Department of German (p. 347). For students without previous knowledge of German, the department recommends the following sequence to fulfill the General Education Program's World Languages requirement.

GRMN:1001 (013:011) Elementary German I	4 s.h.
GRMN:1002 (013:012) Elementary German II	4 s.h.
GRMN:2001 (013:021) Intermediate German I	4 s.h.
GRMN:2002 (013:022) Intermediate German II	4 s.h.

Students may use varied combinations of German language courses approved for General Education to fulfill the World Languages requirement. Those with previous knowledge of German may be able to fulfill the requirement by substituting GRMN:1010 (013:014) First-Year German Review for GRMN:1001 (013:011) and GRMN:1002 (013:012) in the sequence above. Some students may be evaluated as ready for GRMN:2001 (013:021) or GRMN:2002 (013:022). Consult the department for appropriate placement.

The department also offers accelerated intensive courses, GRMN:1020 (013:013) Intensive Elementary German and GRMN:2020 (013:025) Intensive Intermediate German, which may be appropriate for students with strong language learning abilities or experience. The intensive courses may be combined with nonintensive courses to create other sequences that may be used to fulfill the General Education World Languages requirement. Consult the department to identify an appropriate course sequence.

GREEK

Courses in Greek are offered by the Department of Classics (p. 155). Students without previous knowledge of Greek should fulfill the General Education Program's World Languages requirement with the following sequence.

CLSG:1001 (20G:001) Classical and New Testament Greek I	3-5 s.h.
CLSG:1002 (20G:002) Classical and New Testament Greek II	3-5 s.h.
CLSG:2001 (20G:011) Second-Year Greek I	3 s.h.
CLSG:2002 (20G:012) Second-Year Greek II	3 s.h.

Students with previous knowledge of Greek should consult the department for appropriate placement.

HINDI

Courses in Hindi are offered by the Department of Asian and Slavic Languages and Literatures (p. 102). Students without previous knowledge of Hindi should fulfill the General Education Program's World Languages

requirement with the following sequence. Each of these courses is open to entering first-year students.

SOAS:2101 (039:123) First-Year Hindi-Urdu: First Semester	5 s.h.
SOAS:2102 (039:124) First-Year Hindi-Urdu: Second Semester	5 s.h.
SOAS:3101 (039:126) Second-Year Hindi-Urdu: First Semester	4 s.h.
SOAS:3102 (039:127) Second-Year Hindi-Urdu: Second Semester	4 s.h.

Students with previous knowledge of Hindi should consult the department for appropriate placement.

ITALIAN

Courses in Italian are offered by the Department of French and Italian (p. 300). Students without previous knowledge of Italian should fulfill the General Education Program's World Languages requirement with the following sequence.

ITAL:1101 (018:001) Elementary Italian	5 s.h.
ITAL:1102 (018:002) Elementary Italian II	5 s.h.
ITAL:2203 (018:011) Intermediate Italian	4 s.h.
ITAL:2204 (018:012) Intermediate Italian II	4 s.h.

Students with strong language learning abilities or a background in another Romance language may be able to complete the requirement by substituting ITAL:3002 (018:103) Intensive Elementary Italian for ITAL:1101 (018:001) and ITAL:1102 (018:002) in the sequence above. Consult the department for appropriate placement.

JAPANESE

Courses in Japanese are offered by the Department of Asian and Slavic Languages and Literatures (p. 102). For students without previous knowledge of Japanese, the department recommends the following sequence to fulfill the General Education Program's World Languages requirement.

JPNS:1101 (39J:010) First-Year Japanese: First Semester	5 s.h.
JPNS:1103 (39J:012) First-Year Japanese: Second Semester	5 s.h.
JPNS:3101 (39J:101) Second-Year Japanese: First Semester	4-5 s.h.
JPNS:3102 (39J:102) Second-Year Japanese: Second Semester	4-5 s.h.

Students may use varied combinations of Japanese language courses approved for General Education to fulfill the World Languages requirement. Those with previous knowledge of Japanese should consult the department for appropriate placement.

KOREAN

Courses in Korean are offered by the Department of Asian and Slavic Languages and Literatures (p. 102). For students without previous knowledge of Korean, the department recommends the following sequence to fulfill the General Education Program's World Languages requirement.

ASIA:1101 (039:040) First-Year Korean: First Semester	4 s.h.
ASIA:1102 (039:041) First-Year Korean: Second Semester	4 s.h.

ASIA:2101 (039:042) Second-Year Korean: First Semester	4 s.h.
ASIA:2102 (039:043) Second-Year Korean: Second Semester	4 s.h.

Students with previous knowledge of Korean should consult the department for appropriate placement.

LATIN

Courses in Latin are offered by the Department of Classics (p. 155). Students without previous knowledge of Latin should fulfill the General Education Program's World Languages requirement with the following sequence.

CLSL:1001 (20L:001) Elementary Latin I	3-5 s.h.
CLSL:1002 (20L:002) Elementary Latin II	3-5 s.h.
CLSL:2001 (20L:011) World of Cicero	3 s.h.
CLSL:2002 (20L:012) Golden Age of Roman Poetry	3 s.h.

Students with previous knowledge of Latin should consult the department for appropriate placement.

PORTUGUESE

Courses in Portuguese are offered by the Department of Spanish and Portuguese (p. 609). Only one sequence in Portuguese is approved to fulfill the General Education Program's World Languages requirement. Both courses in the sequence are open to entering first-year students.

PORT:3010 (038:100) Accelerated Elementary Portuguese	5 s.h.
PORT:3020 (038:101) Accelerated Intermediate Portuguese	5 s.h.

Students with previous knowledge of Portuguese should consult the department for appropriate placement.

RUSSIAN

Courses in Russian are offered by the Department of Asian and Slavic Languages and Literatures (p. 102). Students without previous knowledge of Russian should fulfill the General Education Program's World Languages requirement with the following sequence.

SLAV:1111 (041:001) First-Year Russian I	5 s.h.
SLAV:1112 (041:002) First-Year Russian II	5 s.h.
SLAV:2111 (041:003) Second-Year Russian I	4 s.h.
SLAV:2112 (041:004) Second-Year Russian II	4 s.h.

Students with previous knowledge of Russian should consult the department for appropriate placement.

SANSKRIT

Courses in Sanskrit are offered by the Department of Asian and Slavic Languages and Literatures (p. 102). Students without previous knowledge of Sanskrit should fulfill the General Education Program's World Languages requirement with the following sequence. Each of these courses is open to entering first-year students.

SOAS:2901 (039:110)/CLSA:2901 (20E:110) First-Year Sanskrit: First Semester	4 s.h.
SOAS:2902 (039:111)/CLSA:2902 (20E:111) First-Year Sanskrit: Second Semester	4 s.h.
SOAS:3901 (039:112)/CLSA:3901 (20E:121) Second-Year Sanskrit: First Semester	3 s.h.

SOAS:3902 (039:113)/CLSA:3902 (20E:122) Second-Year Sanskrit: Second Semester	3 s.h.
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Students with previous knowledge of Sanskrit should consult the department for appropriate placement.

SPANISH

Courses in Spanish are offered by the Department of Spanish and Portuguese (p. 609). For students without previous knowledge of Spanish, the department recommends the following sequence to fulfill the General Education Program's World Languages requirement.

SPAN:1001 (035:001) Elementary Spanish I	5 s.h.
SPAN:1002 (035:002) Elementary Spanish II	5 s.h.
SPAN:1501 (035:011) Intermediate Spanish I	5 s.h.
SPAN:1502 (035:012) Intermediate Spanish II	5 s.h.

Students may use varied combinations of Spanish language courses approved for General Education to fulfill the General Education World Languages requirement. Those with previous knowledge of Spanish may be able to fulfill the requirement by substituting SPAN:1003 (035:005) Elementary Spanish Review for SPAN:1001 (035:001) and SPAN:1002 (035:002) in the sequence above.

The accelerated course SPAN:1503 (035:013) Accelerated Intermediate Spanish, which combines SPAN:1501 (035:011) and SPAN:1502 (035:012), may be appropriate for some students.

Students with previous knowledge of Spanish should take the language placement test in Spanish to help determine proper placement.

SWAHILI

Courses in Swahili are offered by the Department of French and Italian (p. 300). The following sequence fulfills the General Education Program's World Languages requirement. Each of these courses is open to entering first-year students.

SWAH:3001 (211:125) Elementary Swahili I	4 s.h.
SWAH:3002 (211:126) Elementary Swahili II	4 s.h.
SWAH:3003 (211:127) Intermediate Swahili I	4 s.h.
SWAH:3004 (211:128) Intermediate Swahili II	4 s.h.

Students with previous knowledge of Swahili should consult the department for appropriate placement.

OTHER COURSE SEQUENCES

A student who successfully completes a four-semester world language sequence that has not been approved for General Education may have the sequence substituted for a proficiency test to fulfill the General Education requirement.

Students who complete a world language sequence this way should notify the department that offers the sequence; the department will contact Graduation Analysis, which will update the student's degree audit to show fulfillment of the World Languages requirement.

Natural, Quantitative, and Social Sciences

Natural Sciences

Courses in the Natural Sciences area explore the scope and major concepts of a scientific discipline. Students learn the attitudes and practices of scientific investigators: logic, precision, experimentation, tentativeness, and objectivity. In courses with a laboratory component, students gain experience in the methods of scientific inquiry.

All students must complete at least 7 s.h. of course work in the Natural Sciences area, including at least one natural science lab component. The following courses are approved for the area; courses with a lab component are noted "(lab)."

ANTH:1301 (113:013) Human Origins	3 s.h.
ASTR:1060 (029:040)/BIOL:1060 (002:050)/EES:1060 (012:045) Origins of Life in the Universe (Part 1)	3 s.h.
ASTR:1061 (029:041)/ANTH:1061 (113:041)/BIOL:1061 (002:051)/EES:1061 (012:046) Origins of Life in the Universe (Part 2) (lab)	4 s.h.
ASTR:1070 (029:050) Stars, Galaxies, and the Universe (with lab 4 s.h.; without lab 3 s.h.)	3-4 s.h.
ASTR:1079 (029:051) Introductory Astronomy Laboratory (lab)	1 s.h.
ASTR:1080 (029:052) Exploration of the Solar System (with lab 4 s.h.; without lab 3 s.h.)	3-4 s.h.
ASTR:1090 (029:053) Life in the Universe	3 s.h.
ASTR:1771 (029:061) General Astronomy I (lab)	4 s.h.
ASTR:1772 (029:062) General Astronomy II (lab)	4 s.h.
BIOL:1140 (002:021) Human Biology (lab)	4 s.h.
BIOL:1141 (002:002) Introductory Animal Biology (lab)	4 s.h.
BIOL:1251 (002:040) How the Brain Works (and Why it Doesn't)	3 s.h.
BIOL:1260 (002:095) Plants and Human Affairs	2-3 s.h.
BIOL:1261 (002:001) Introduction to Botany (lab)	4 s.h.
BIOL:1311 (002:081)/ANTH:1310 (113:081) Human Genetics in the Twenty-First Century	3 s.h.
BIOL:1370 (002:022) Understanding Evolution (formerly Ecology and Evolution)	3 s.h.
BIOL:1411 (002:031) Foundations of Biology (lab)	4 s.h.
BIOL:1412 (002:032) Diversity of Form and Function (lab)	4 s.h.
CHEM:1050 (004:005) Technology and Society	3 s.h.
CHEM:1060 (004:006) Technology and Society Laboratory (lab)	1 s.h.
CHEM:1070 (004:007) General Chemistry I	3 s.h.
CHEM:1080 (004:008) General Chemistry II	3 s.h.
CHEM:1100 (004:010) Chemistry in Industry and the Economy	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I (lab)	4 s.h.

CHEM:1120 (004:012) Principles of Chemistry II (lab)	4 s.h.
CHEM:1160 (004:016) Principles of Chemistry Lab (lab)	2 s.h.
CHEM:1180 (004:018) Chemical Science I	3 s.h.
CHEM:1190 (004:019) Chemical Science II	3 s.h.
CHEM:1200 (004:020) Chemical Science Laboratory (lab)	2 s.h.
EES:1030 (012:003)/CEE:1030 (053:003) Introduction to Earth Science (with lab 4 s.h.; without lab 3 s.h.)	3-4 s.h.
EES:1040 (012:004) Evolution and the History of Life (with lab 4 s.h.; without lab 3 s.h.)	3-4 s.h.
EES:1050 (012:005) Introduction to Geology (lab)	4 s.h.
EES:1070 (012:007) Age of Dinosaurs (lab)	4 s.h.
EES:1080 (012:008)/ENVS:1080 (159:008) Introduction to Environmental Science (with lab 4 s.h.; without lab 3 s.h.)	3-4 s.h.
EES:1090 (012:009)/ENVS:1090 (159:009) Introduction to Environmental Sciences Laboratory (lab)	1 s.h.
EES:1400 (012:140) Natural Disasters	3 s.h.
EES:3140 (012:114) Energy and the Environment	3 s.h.
GEOG:1020 (044:003) The Global Environment	3 s.h.
GEOG:1021 (044:004) The Global Environment Lab (lab)	1 s.h.
HHP:1100 (027:053) Human Anatomy	3 s.h.
HHP:1110 (027:054) Human Anatomy Laboratory (lab)	1 s.h.
HHP:1300 (027:050) Fundamentals of Human Physiology	3 s.h.
HHP:2310 (027:040) Nutrition and Health	3 s.h.
HONR:1640 (143:070) Honors Seminar in Natural Sciences	3 s.h.
PHYS:1100 (029:003) From Quarks to Quasars (with lab 4 s.h.; without lab 3 s.h.)	3-4 s.h.
PHYS:1200 (029:006) Physics of Everyday Experience	3 s.h.
PHYS:1300 (029:002) Nanoscience	3 s.h.
PHYS:1400 (029:008) Basic Physics (with lab 4 s.h.; without lab 3 s.h.)	3-4 s.h.
PHYS:1410 (029:044) Physics of Sound (with lab 4 s.h.; without lab 3 s.h.)	3-4 s.h.
PHYS:1511 (029:011) College Physics I (lab)	4 s.h.
PHYS:1512 (029:012) College Physics II (lab)	4 s.h.
PHYS:1611 (029:081) Introductory Physics I (lab)	4 s.h.
PHYS:1612 (029:082) Introductory Physics II (with lab 4 s.h.; without lab 3 s.h.)	3-4 s.h.
PHYS:1619 (029:084) Introductory Physics II Lab (lab)	1 s.h.
PHYS:1701 (029:027) Physics I (lab)	4 s.h.
PHYS:1702 (029:028) Physics II (lab)	4 s.h.

Quantitative or Formal Reasoning

Courses in the Quantitative or Formal Reasoning area help develop analytical skills through the practice of quantitative or formal symbolic reasoning. Courses focus on presentation and evaluation of evidence and

argument; understanding the use and misuse of data; and organization of information in quantitative or other formal symbolic systems, including those used in computer science, linguistics, mathematics, philosophy, and statistics.

All students must complete at least 3 s.h. of course work in the Quantitative or Formal Reasoning area. Students may fulfill this requirement of the General Education Program by completing a course that lists an approved course as a prerequisite. The following courses are approved for the area.

COMM:1117 (036:017) Theory and Practice of Argument	4 s.h.
CS:1020 (22C:001) Principles of Computing	3 s.h.
CS:1110 (22C:005) Introduction to Computer Science	3 s.h.
CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
HHP:3005 (027:109) Scientific Reasoning	3 s.h.
HONR:1650 (143:080) Honors Seminar in Quantitative and Formal Reasoning	3 s.h.
LEIS:1030 (169:030) Introduction to Critical Thinking	3 s.h.
LING:1050 (103:013) Language and Formal Reasoning	3 s.h.
MATH:1020 (22M:009) Elementary Functions	4 s.h.
MATH:1120 (22M:006) Logic of Arithmetic	4 s.h.
MATH:1130 (22M:012) Theory of Arithmetic	3 s.h.
MATH:1240 (22M:010) Finite Mathematics	4 s.h.
MATH:1340 (22M:013) Mathematics for Business	4 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.
MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.
PHIL:1636 (026:036) Principles of Reasoning: Argument and Debate	3 s.h.
POLI:1700 (030:072) Introduction to Political Analysis	3 s.h.
STAT:1010 (22S:002) Statistics and Society	3 s.h.
STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.

Social Sciences

Courses in the Social Sciences area focus on human behavior and the institutions and social systems that shape and are shaped by that behavior. Courses provide an overview of one or more social science disciplines, their theories, and their methods.

All students must complete at least 3 s.h. of course work in the Social Sciences area. The following courses are approved for the area.

AFAM:1030 (129:060) Introduction to African American Society	3 s.h.
ANTH:1101 (113:003)/IS:1101 (187:008) Cultural Anthropology	3 s.h.
ANTH:1401 (113:014) Language, Culture, and Communication	3 s.h.
ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.
ANTH:2136 (113:116) Urban Anthropology	3 s.h.
ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
ASP:1800 (153:085)/CSD:1800 (003:085)/LEIS:1800 (169:085)/NURS:1800 (096:085)/SSW:1800 (042:085) Basic Aspects of Aging	3 s.h.
COMM:1170 (036:070) Communication Theory in Everyday Life	3 s.h.
COMM:1174 (036:074) Media and Society	3 s.h.
CSD:3117 (003:117)/LING:3117 (103:172) Psychology of Language	3 s.h.
CSD:3118 (003:118)/LING:3118 (103:176) Language Acquisition	1-3 s.h.
ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
GEOG:1010 (044:001) Introduction to Human Geography	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:1090 (044:010) Globalization and Geographic Diversity	3 s.h.
GEOG:2110 (044:011) Population Geography	3 s.h.
GEOG:2404 (044:161) African Development	3 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.
HONR:1660 (143:060) Honors Seminar in Social Sciences	3 s.h.
JMC:1100 (019:090) Media Uses and Effects	3 s.h.
LEIS:1070 (169:070) Perspectives on Leisure and Play	3 s.h.
LING:1010 (103:011) Language and Society	3 s.h.
LING:1060 (103:055) Languages of the World	3 s.h.
MUSM:3001 (024:102)/ANTH:3001 (113:103)/EDTL:3001 (07S:112)/SIED:3001 (097:115) Introduction to Museum Studies	3 s.h.
POLI:1100 (030:001) Introduction to American Politics	3 s.h.
POLI:1200 (030:050) Introduction to Political Behavior	3 s.h.
POLI:1300 (030:030) Introduction to Political Thought and Action	3 s.h.
POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
POLI:1401 (030:041) Introduction to the Politics of Russia and Eurasia	3 s.h.
POLI:1403 (030:043) Introduction to Politics in the Muslim World	3 s.h.
POLI:1500 (030:060) Introduction to International Relations	3 s.h.
POLI:1501 (030:061) Introduction to American Foreign Policy	3 s.h.

POLI:1600 (030:070) Introduction to Political Communication	3 s.h.	HIST:1008 (016:023) Issues in European Politics and Society	3 s.h.
POLI:3412 (030:140) Government and Politics of Europe	3 s.h.	HIST:1010 (016:015) Issues in Human History: Gender in Historical Perspective	3 s.h.
POLI:3413 (030:141) Russian Politics	3 s.h.	HIST:1012 (016:014) Issues in Human History: Europe's Expansion Overseas	3 s.h.
POLI:3414 (030:143)/ASIA:3414 (039:178) Government and Politics of the Far East	3 s.h.	HIST:1014 (016:017) Issues: Twentieth-Century Crisis	3 s.h.
POLI:3415 (030:144) Latin American Politics	3 s.h.	HIST:1016 (016:011) Issues in Human History: The Vietnam War in Historical Perspective	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.	HIST:2401 (016:001) Western Civilization I	3-4 s.h.
PSY:2301 (031:013) Introduction to Clinical Psychology	3 s.h.	HIST:2402 (016:002) Western Civilization II	4 s.h.
PSY:2401 (031:014) Introduction to Developmental Science	3 s.h.	HIST:2403 (016:003) Western Civilization III	3-4 s.h.
PSY:2601 (031:016) Introduction to Cognitive Psychology	3 s.h.	HIST:2461 (016:045)/CLSA:2461 (20E:071)/RELS:2361 (032:061) Middle East and Mediterranean: Alexander to Suleiman	3 s.h.
SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.	HIST:2602 (016:005)/ASIA:2602 (039:055) Civilizations of Asia: China	3 s.h.
SOC:1020 (034:002) Social Problems	3-4 s.h.	HIST:2604 (016:006)/ASIA:2604 (039:056) Civilizations of Asia: Japan	3 s.h.
SOC:1410 (034:040) Introduction to Criminology	3 s.h.	HIST:2606 (016:007)/ASIA:2606 (039:057) Civilizations of Asia: South Asia	3-4 s.h.
SOC:3210 (034:020) Principles of Social Psychology	3 s.h.	HIST:2607 (016:004) Civilizations of Asia: Korea (effective spring 2015)	3-4 s.h.

Culture, Society, and the Arts

Historical Perspectives

Courses in the Historical Perspectives area help students comprehend the historical processes of change and continuity; develop the ability to generalize, explain, and interpret historical change; and understand the past in its own terms.

All students must complete at least 3 s.h. of course work in the Historical Perspectives area. The following courses are approved for the area.

ANTH:1201 (113:012) Introduction to Prehistory	3 s.h.	HIST:4407 (16E:107) The Hellenistic World and Rome	3 s.h.
ARTH:1010 (01H:001) Art and Visual Culture	3 s.h.	HIST:4411 (16E:113)/MDVL:4411 (162:113) Economic and Social History of Medieval Europe	3 s.h.
ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I	3 s.h.	HIST:4412 (16E:117)/MDVL:4412 (162:117) History of the Medieval Church	3 s.h.
ARTH:1060 (01H:006) From Mona Lisa to Modernism: Survey of Western Art II	3 s.h.	HIST:4427 (16E:125)/GWSS:4427 (131:181) Society and Gender in Europe 1200-1789	3 s.h.
ARTH:1070 (01H:016)/CHIN:1070 (039:016) Asian Art and Culture	3 s.h.	HIST:4493 (16E:178) Soviet Union 1917-1945	3 s.h.
ARTH:1090 (01H:009) Earthly Paradises: A Global History of Gardens	3 s.h.	HIST:4710 (16W:120)/AFAM:4310 (129:163) Pre-Colonial African History	3 s.h.
ARTH:2920 (01H:066) Introduction to American Art	3 s.h.	HONR:1610 (143:051) Honors Seminar in Historical Perspectives	3 s.h.
CLSA:1181 (20E:081)/GHS:1181 (152:081) Ancient Medicine	3 s.h.	ITAL:3550 (018:132) Images of Modern Italy	3-4 s.h.
CLSA:1830 (20E:030) Greek Civilization	3 s.h.	JMC:1200 (019:091) Media History and Culture	3 s.h.
CLSA:1840 (20E:031) Roman Civilization	3 s.h.	MUS:3301 (025:144) History of Music I	3 s.h.
FREN:3110 (009:113) French Civilization	3 s.h.	MUS:3302 (025:146) History of Music II	3 s.h.
FREN:3120 (009:114) French Civilization	3 s.h.	PHIL:1033 (026:033) The Meaning of Life	3 s.h.
HIST:1002 (016:020) Issues in Medieval Society	3 s.h.	PHIL:1034 (026:034) Philosophy and the Just Society	3 s.h.
HIST:1004 (016:012) Issues in Human History: Communities and Society in History	3 s.h.	RELS:1001 (032:001) The Judeo-Christian Tradition	3 s.h.
HIST:1006 (016:022) Issues: Nature and Society in Historical Perspective	3 s.h.	RELS:1225 (032:025)/HIST:1225 (016:035) Medieval Religion and Culture	3 s.h.
		RELS:1250 (032:026)/HIST:1250 (016:036) Modern Religion and Culture	3 s.h.
		SLAV:1531 (041:093) Slavic Folklore	3 s.h.
		SLAV:1532 (041:094) Religion and Culture of Slavs	3 s.h.
		THTR:1400 (049:002) Theatre and Society: Ancients and Moderns	3 s.h.
		THTR:1401 (049:003) Theatre and Society: Romantics and Rebels	3 s.h.

THTR:2410 (049:112) History of Theatre and Drama I	3 s.h.
THTR:2411 (049:113) History of Theatre and Drama II	3 s.h.

International and Global Issues

Courses in the International and Global Issues area focus predominantly on countries or issues outside the United States, encouraging students to understand contemporary issues from an international perspective. Students develop knowledge of one or more contemporary global or international issues, gain a greater awareness of varied international perspectives, and improve their skills of analysis and critical inquiry.

All students must complete at least 3 s.h. of course work in the International and Global Issues area. The following courses are approved for the area.

ANTH:1046 (113:046)/GEOG:1046 (044:046)/GWSS:1046 (131:046) People and the Environment: Technology, Culture, and Social Justice	3 s.h.
ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.
ANTH:2110 (113:131) Latin American Economy and Society	3 s.h.
ANTH:2136 (113:116) Urban Anthropology	3 s.h.
ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
ARTH:1040 (01H:002) Arts of Africa	3 s.h.
FREN:1510 (009:030) Cultural Misunderstandings: France and U.S.A.	3 s.h.
GEOG:1060 (044:060) Geography of Asia: From Japan to Pakistan	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:1090 (044:010) Globalization and Geographic Diversity	3 s.h.
GEOG:2404 (044:161) African Development	3 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.
GRMN:2720 (13E:120)/HIST:2920 (16E:090) Germany in the World	3 s.h.
GRMN:4315 (013:115) Contemporary German Civilization	3 s.h.
HIST:1016 (016:011) Issues in Human History: The Vietnam War in Historical Perspective	3 s.h.
HIST:2403 (016:003) Western Civilization III	3-4 s.h.
HIST:2602 (016:005)/ASIA:2602 (039:055) Civilizations of Asia: China	3 s.h.
HIST:2604 (016:006)/ASIA:2604 (039:056) Civilizations of Asia: Japan	3 s.h.
HIST:2606 (016:007)/ASIA:2606 (039:057) Civilizations of Asia: South Asia	3-4 s.h.
HIST:2607 (016:004) Civilizations of Asia: Korea (effective spring 2015)	3-4 s.h.
HIST:3255 (016:082) The World Since 1945	3 s.h.
HIST:4475 (16E:156)/GRMN:4475 (13E:126) Germany Since 1914: Weimar, Hitler, and After	4 s.h.
HIST:4655 (16W:198)/ASIA:4655 (039:196) China Since 1927	3 s.h.
HIST:4715 (16W:121)/AFAM:4715 (129:164) African History Since 1880	3 s.h.

HONR:1620 (143:052) Honors Seminar in International and Global Issues	3 s.h.
LING:1040 (103:045)/ANTH:1040 (113:045) Language Rights	3 s.h.
POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
POLI:1401 (030:041) Introduction to the Politics of Russia and Eurasia	3 s.h.
POLI:1403 (030:043) Introduction to Politics in the Muslim World	3 s.h.
POLI:1500 (030:060) Introduction to International Relations	3 s.h.
POLI:1501 (030:061) Introduction to American Foreign Policy	3 s.h.
POLI:3412 (030:140) Government and Politics of Europe	3 s.h.
POLI:3413 (030:141) Russian Politics	3 s.h.
POLI:3414 (030:143)/ASIA:3414 (039:178) Government and Politics of the Far East	3 s.h.
POLI:3415 (030:144) Latin American Politics	3 s.h.
RELS:1130 (032:030) Introduction to Islamic Civilization	3 s.h.
RELS:2852 (032:052)/GWSS:2052 (131:060) Women in Islam and the Middle East	3 s.h.
RELS:3855 (032:155) Human Rights and Islam	3 s.h.
SLAV:1132 (041:099) Russia Today	3 s.h.

Literary, Visual, and Performing Arts

Courses in the Literary, Visual, and Performing Arts area provide students with opportunities to appreciate the arts and to analyze them within their historical and theoretical contexts. They also help students develop the analytic, expressive, and imaginative abilities necessary for understanding, appreciating, and creating art.

All students must complete at least 3 s.h. of course work in the Literary, Visual, and Performing Arts area. The following courses are approved for the area.

ARTH:1010 (01H:001) Art and Visual Culture	3 s.h.
ARTH:1020 (01H:004) Masterpieces: Art in Historical and Cultural Perspectives	3 s.h.
ARTH:1040 (01H:002) Arts of Africa	3 s.h.
ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I	3 s.h.
ARTH:1060 (01H:006) From Mona Lisa to Modernism: Survey of Western Art II	3 s.h.
ARTH:1070 (01H:016)/CHIN:1070 (039:016) Asian Art and Culture	3 s.h.
ARTH:2920 (01H:066) Introduction to American Art	3 s.h.
ARTH:3130 (01H:104) American Indian Art	3 s.h.
ARTS:1010 (01B:001) Elements of Art	3 s.h.
ARTS:1030 (01B:040) Elements of Jewelry and Metal Arts	3 s.h.
ARTS:1050 (01B:080) Elements of Printmaking	3 s.h.
ARTS:1080 (01B:090) Elements of Sculpture	3 s.h.
CERM:2010 (01C:060) Exploring Forms in Clay I	3 s.h.
CINE:1602 (048:002) Introduction to Film Studies	3 s.h.

CINE:1610 (048:010) Contemporary Cinema	3 s.h.	MUS:1005 (025:086) Issues in Popular Music: Women Who Rock	3 s.h.
CINE:2621 (048:021) Introduction to European Film	3 s.h.	MUS:1009 (025:080) Jazz Cultures in America and Abroad	3 s.h.
CL:1240 (218:040) Major Texts of World Literature, Antiquity to 1700	3 s.h.	MUS:1012 (025:012) Creativity in Music	3 s.h.
CL:1241 (218:041) Major Texts of World Literature, 1700 to the Present	3 s.h.	MUS:1020 (025:059) Performance Instruction for Nonmajors	1 s.h.
CLSA:1010 (20E:014) Hero, God, Mortal: Literature of Greece	3 s.h.	MUS:1066 (025:066) Introduction to Film Music	3 s.h.
CLSA:1020 (20E:015) Rome: Soldiers, Slaves, and Emperors	3 s.h.	MUS:1301 (025:013) Concepts and Contexts of Western Music	3 s.h.
CLSA:1035 (20E:035) Greek Tragedy, Comedy, and the Invention of Democracy	3 s.h.	MUS:1302 (025:014) Great Musicians	3 s.h.
CLSA:1740 (20E:040) Writing Strategies: Word Origins and Word Choice	3 s.h.	MUS:3301 (025:144) History of Music I	3 s.h.
CLSA:3015 (20E:112) Classical Mythology	3 s.h.	MUS:3302 (025:146) History of Music II	3 s.h.
CNW:1620 (08N:020) Introduction to Creative Nonfiction	3 s.h.	MUS:3310 (025:103) World Music	3 s.h.
CW:1800 (08C:001) Creative Writing Studio Workshop	3 s.h.	MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
DANC:1010 (137:001) Beginning Tap	1-2 s.h.	MUS:3720 (025:141) History of Jazz	3 s.h.
DANC:1020 (137:002) Beginning Jazz	1-2 s.h.	PORT:1800 (038:020) Contemporary Brazilian Narrative	3 s.h.
DANC:1030 (137:003) Beginning Ballet	1-2 s.h.	SCLP:2810 (01N:015) Undergraduate Sculpture I	3 s.h.
DANC:1040 (137:004) Beginning Modern Dance	1-2 s.h.	SPAN:1700 (035:060) Latino/a Literature in the U.S.	3 s.h.
DANC:1110 (137:011) Continuing Tap	1-2 s.h.	SPAN:1800 (035:020) Contemporary Spanish American Narrative	3 s.h.
DANC:1120 (137:012) Continuing Jazz	2 s.h.	THTR:1010 (049:001) Art of the Theatre	3 s.h.
DANC:1130 (137:013) Continuing Ballet	1-2 s.h.	THTR:1140 (049:020) Basic Acting	3 s.h.
DANC:1140 (137:014) Continuing Modern Dance	1-2 s.h.	THTR:1400 (049:002) Theatre and Society: Ancients and Moderns	3 s.h.
DANC:2020 (137:022) Intermediate Jazz	1-2 s.h.	THTR:1401 (049:003) Theatre and Society: Romantics and Rebels	3 s.h.
DANC:2030 (137:023) Intermediate Ballet	1-2 s.h.	THTR:2301 (049:062) Playwriting I	3 s.h.
DANC:2040 (137:024) Intermediate Modern	1-2 s.h.	THTR:2410 (049:112) History of Theatre and Drama I	3 s.h.
DANC:2060 (137:080)/DPA:2060 (188:080) Dance and Society in Global Contexts	3 s.h.	THTR:2411 (049:113) History of Theatre and Drama II	3 s.h.
DANC:4880 (137:106) Dance Performance	0-1 s.h.		
DPA:1412 (188:052)/THTR:1412 (049:052)/ DANC:1412 (137:052) The Arts in Performance	3 s.h.		
ENGL:1320 (08G:004) Heroes and Villains	3 s.h.		
ENGL:1325 (08G:012) Comic and Tragic Literature	3 s.h.		
ENGL:1330 (08G:006) The Art of Storytelling	3 s.h.		
ENGL:1345 (08G:009) American Lives	3 s.h.		
ENGL:1350 (08G:011) Literature and Sexualities	3 s.h.		
ENGL:1355 (08G:005)/AINS:1355 (149:005) Literatures of Native American Peoples	3 s.h.		
FREN:3510 (009:147)/CINE:3605 (048:105) French Cinema	3 s.h.		
GRMN:2666 (13E:066) Pact with the Devil	3 s.h.		
GRMN:2775 (13E:075) Scandinavian Crime Fiction	3 s.h.		
GRMN:2780 (13E:080) King Arthur Through the Ages	3 s.h.		
GRMN:2785 (13E:085) The Fantastic and Supernatural in German Fiction and Film	3 s.h.		
HONR:1630 (143:053) Honors Seminar in Literary, Visual, and Performing Arts	3 s.h.		
MUS:1001 (025:082) Group Piano I: Non-Music Majors	1 s.h.		

Values, Society, and Diversity

Courses in the Values, Society, and Diversity area explore fundamental questions about the human experience from a variety of perspectives. Students consider topics in relation to their own values and actions. They gain a deeper appreciation of how cultural differences arise and of the importance of diversity.

All students must complete at least 3 s.h. of course work in the Values, Society, and Diversity area. The following courses are approved for the area.

AFAM:1010 (129:062) Foundations in African American Studies	3 s.h.
AFAM:1020 (129:061)/AMST:1030 (045:030) Introduction to African American Culture	3 s.h.
AFAM:1030 (129:060) Introduction to African American Society	3 s.h.
AFAM:3710 (129:150)/GWSS:3710 (131:137) African American Women Writers	3 s.h.
AFAM:3925 (129:122)/JMC:3165 (019:165) African Americans and the Media	3 s.h.
AINS:1049 (149:049)/AMST:1049 (045:049) Introduction to American Indian and Native Studies	3 s.h.

AMST:1010 (045:001) Understanding American Cultures	3 s.h.	HIST:4216 (16A:112) Mexican American History	3 s.h.
AMST:1154 (045:050) Food in America	3 s.h.	HONR:1670 (143:054) Honors Seminar in Values, Society, and Diversity	3 s.h.
ANTH:1101 (113:003)/IS:1101 (187:008) Cultural Anthropology	3 s.h.	ITAL:3550 (018:132) Images of Modern Italy	3-4 s.h.
ANTH:2165 (113:110)/AINS:2165 (149:110)/AMST:2165 (045:105) Native Peoples of North America	3 s.h.	JMC:1500 (019:050) Social Media Today	3 s.h.
ANTH:2175 (113:125)/JPNS:2175 (39J:125) Japanese Society and Culture	3 s.h.	JPNS:1506 (039:020) Asian Humanities: Japan	3 s.h.
ARTH:3130 (01H:104) American Indian Art	3 s.h.	LEIS:1040 (169:040) The Good Society	3 s.h.
CHIN:1504 (039:019) Asian Humanities: China	3 s.h.	LEIS:1045 (169:045) Health for Living	3 s.h.
CLSA:1875 (20E:075) Ancient Sports and Leisure	3 s.h.	LEIS:1050 (169:050) Making Choices: Interdisciplinary Perspectives	3 s.h.
CLSA:1883 (20E:083)/HONR:1883 (143:083) War	3 s.h.	LEIS:1072 (169:072) Leisure and the Liberal Arts	3 s.h.
CLSA:2482 (20E:082)/RELS:2182 (032:082) Ancient Mediterranean Religions	3 s.h.	LING:3100 (103:150) Language and Gender	3 s.h.
CLSA:3015 (20E:112) Classical Mythology	3 s.h.	MUS:1009 (025:080) Jazz Cultures in America and Abroad	3 s.h.
CLSA:3340 (20E:140) Magic in the Ancient World	3 s.h.	MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
CLSA:3416 (20E:115)/RELS:3716 (032:164) Greek Religion and Society	3 s.h.	MUS:3720 (025:141) History of Jazz	3 s.h.
CLSA:3650 (20E:150)/GWSS:2651 (131:152) Gender and Sexuality in the Ancient World	3 s.h.	PHIL:2061 (026:061) Introduction to Philosophy	3 s.h.
COMM:1174 (036:074) Media and Society	3 s.h.	PHIL:2402 (026:102) Introduction to Ethics	3 s.h.
DANC:1150 (137:057) Brazilian Culture and Carnival	3 s.h.	POLI:1300 (030:030) Introduction to Political Thought and Action	3 s.h.
DPA:1412 (188:052)/THTR:1412 (049:052)/DANC:1412 (137:052) The Arts in Performance	3 s.h.	RELS:1021 (032:021) Judaism: The Sacred and the Secular	3 s.h.
ENGL:1355 (08G:005)/AINS:1355 (149:005) Literatures of Native American Peoples	3 s.h.	RELS:1070 (032:011) Introduction to the Hebrew Bible/Old Testament	3 s.h.
ENGL:1410 (008:003)/AMST:1060 (045:060)/GWSS:1060 (131:061) Sex and Popular Culture in the Postwar U.S.	3 s.h.	RELS:1080 (032:012) Introduction to the New Testament	3 s.h.
ENGL:1420 (008:006) Technologies and Literatures of the Future	3 s.h.	RELS:1130 (032:030) Introduction to Islamic Civilization	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.	RELS:1350 (032:034)/AFAM:1250 (129:050) Introduction to African American Religions	3 s.h.
EPLS:5154 (07B:154) Education, Race, and Ethnicity	3 s.h.	RELS:1404 (032:004)/ASIA:1040 (039:064) Living Religions of the East	3 s.h.
GRMN:2618 (13E:118)/CL:2618 (218:148) The Third Reich and Literature	3 s.h.	RELS:1506 (032:006)/ASIA:1060 (039:006) Introduction to Buddhism	3 s.h.
GRMN:2780 (13E:080) King Arthur Through the Ages	3 s.h.	RELS:1702 (032:002) Religion in America Today	3 s.h.
GWSS:1001 (131:010) Introduction to Gender, Women's, and Sexuality Studies	3 s.h.	RELS:1810 (032:016) Religion and Liberation	3 s.h.
GWSS:1002 (131:055) Diversity and Power in the U.S.	3 s.h.	RELS:1903 (032:003) Quest for Human Destiny	3 s.h.
GWSS:1070 (131:070) Asian American Women Writers	3 s.h.	RELS:2351 (032:051) Religious Thinkers of the West	3 s.h.
HHP:2200 (027:039) Physical Activity and Health	3 s.h.	RELS:2700 (032:060)/AINS:2700 (149:060) Sacred World of Native Americans	3 s.h.
HIST:1040 (016:040) Perspectives: Diversity in American History	3 s.h.	RELS:2852 (032:052)/GWSS:2052 (131:060) Women in Islam and the Middle East	3 s.h.
HIST:2265 (16A:065)/AFAM:2265 (129:065) Introduction to African American History	3 s.h.	RELS:3711 (032:111) Religion and Women	3 s.h.
HIST:2609 (016:009) India Now! A Survey from Bollywood Films to Global Terror	3-4 s.h.	SLAV:1131 (041:098) Introduction to Russian Culture	3 s.h.
HIST:2708 (016:008) Civilizations of Africa	3 s.h.	SLAV:1132 (041:099) Russia Today	3 s.h.
		SLAV:1531 (041:093) Slavic Folklore	3 s.h.
		SLAV:1532 (041:094) Religion and Culture of Slavs	3 s.h.
		SLAV:3082 (041:082) Youth Subcultures After Socialism	3 s.h.
		SOAS:1502 (039:018)/RELS:1502 (032:008) Asian Humanities: India	3 s.h.

SOC:1310 (034:018)/GWSS:1310 (131:018) Gender and Society	3-4 s.h.
SOC:2810 (034:066) Social Inequality	3 s.h.
SOC:3710 (034:061) The American Family	3 s.h.
SOC:3830 (034:155) Race and Ethnicity	3 s.h.
SPAN:1700 (035:060) Latino/a Literature in the U.S.	3 s.h.
SPAN:1900 (035:090) Diversity and Cultures in Spain	3 s.h.
SPAN:3420 (035:143)/CL:3396 (218:196) Cuban American Literature and Culture	3 s.h.
SPST:1074 (028:074)/AMST:1074 (045:074)/ GWSS:1074 (131:074) Inequality in American Sport	3 s.h.
THTR:1411 (049:051) Comedy and Society	3 s.h.
THTR:2405 (049:080) Staging Americans: U.S. Cultures Through Theatre and Performance	arr.
WLLC:2550 (218:070) Mardi Gras and More: Cultures of Carnival	3-4 s.h.

Geographical and Sustainability Sciences

Chair

- David A. Bennett

Professors

- Marc P. Armstrong, David A. Bennett, George P. Malanson, R. Rajagopal

Associate professors

- Marc Linderman, Tyler Priest, Kathleen Stewart

Assistant professors

- Margaret Carrel, Heather Sander, James D. Tamerius, Eric Tate

Lecturer

- Claire E. Pavlik

Adjunct professor

- Ramanathan Sugumaran

Adjunct associate professor

- Peter J. Weyer

Adjunct assistant professors

- Marian Muste, Mary P. Skopec

Professors emeriti

- James B. Lindberg, Michael L. McNulty, David R. Reynolds, Gerard Rushton

Associate professor emeritus

- Rebecca S. Roberts

Undergraduate major: geography (B.A., B.S.)

Undergraduate minors: geographic information science; geography

Graduate degrees: M.A. in geography; Ph.D. in geography

Web site: <http://clas.uiowa.edu/geography/>

Geographical and sustainability sciences are concerned with place, environment, and the ongoing processes of change within and between social and physical systems. Geographical and sustainability sciences' importance to scholarly inquiry is rooted in the complexity of social and environmental problems. Three concepts at the core of the disciplines—space, place, and scale—provide theoretical constructs and methodological tools for sciences that investigate the complex character of social and environmental phenomena.

Geographical and sustainability scientists examine issues such as distribution and consumption of natural resources, air and water quality, climate changes and ecosystem dynamics, growth and development of urban areas, population dynamics, politics and practice of international development, and social justice. They view society and the environment as a physical/social/cultural system. They apply uniquely geographical and sustainability perspectives and tools, as well as knowledge from other social and scientific disciplines, to analyze the emergent properties of these systems.

Department of Geographical and Sustainability Sciences graduates find employment opportunities in government, nongovernmental organizations, and business. For example, many geographical and sustainability scientists are employed in resource management, urban and regional development, public health, and market area analysis. They analyze problems in the distribution and interactions among physical, ecological, social, and political systems.

Geographical and sustainability sciences students acquire skills in computer-based cartography and geographic information systems (GIS) software used to investigate and solve many environmental and social problems. Opportunities for graduates with GIS training are growing rapidly in both private and governmental organizations.

The geographical and sustainability sciences faculty has developed an undergraduate instructional program that serves students majoring or minoring in geography as well as students in other disciplines. Courses in geography are commonly required for students preparing to teach at the elementary and secondary school levels and for those who want to pursue careers in urban and regional planning. They also provide a background for many related professions, including law, health care, environmental or transportation engineering, and international business.

Geographical and sustainability sciences students use the University's Geographical Information Systems Instructional Lab (GISIL) for GIS instruction and research. The lab is located in the department; see "Facilities and Resources" later in this Catalog section.

The Department of Geographical and Sustainability Sciences participates in a number of University of Iowa interdisciplinary programs that have international, area studies, urban, or environmental components, including an interdisciplinary undergraduate major, which it administers; see *Environmental Policy and Planning* (p. 284) in the Catalog. It also participates in the University's internship program for students; see "Internships" later in this Catalog section.

Undergraduate Programs of Study

- Major in geography (Bachelor of Arts, Bachelor of Science)
- Minor in geographic information science
- Minor in geography

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts with a major in geography requires a minimum of 120 s.h., including at least 37-39 s.h. of work for the major. The Bachelor of Science with a major in geography requires a minimum of 120 s.h., including at least 43-46 s.h. of work for the major. Credit required for the major depends on the student's choice of track. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). Transfer students majoring in geography must earn a minimum of 15 s.h. for the major in residence at The University of Iowa.

Students majoring in geography may not earn the minor in geographic information science.

The major in geography (either B.A. or B.S.) is appropriate preparation for advanced training or careers in geographical and sustainability sciences. Students with strong interest in quantitative analysis and model building should pursue the Bachelor of Science and are encouraged to master an appropriate computer programming language.

Students choose one of three tracks in the major: environmental studies, geographic information science (GISci), or health and society. All students majoring in geography complete a common set of foundation courses in addition to the requirements for their choice of track. Bachelor of Science students take additional mathematics course work.

Consistent with the CLAS maximum semester hours rule, students may count a maximum of 56 s.h. earned in their major department toward graduation.

The major in geography requires the following work.

Common Requirements (B.A. and B.S.)

All geography majors must complete the following courses. Students may not use a course to fulfill more than one major requirement.

One of these:

GEOG:1010 (044:001) Introduction to Human Geography	3 s.h.
GEOG:1090 (044:010) Globalization and Geographic Diversity	3 s.h.

All of these:

GEOG:1020 (044:003) The Global Environment	3 s.h.
GEOG:1021 (044:004) The Global Environment Lab	1 s.h.
GEOG:1050 (044:005) Foundations of GIS	3 s.h.

One of these, in addition to any course required to fulfill a track requirement:

GEOG:1060 (044:060) Geography of Asia: From Japan to Pakistan	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:1090 (044:010) Globalization and Geographic Diversity (if not chosen above)	3 s.h.
GEOG:2110 (044:011) Population Geography	3 s.h.
GEOG:2130 (044:055) World Cities	3 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.
GEOG:2950 (044:088) Environmental Conservation	3 s.h.

One of these (not required for GISci track students):

GEOG:3340 (044:179) Ecosystem Services: Human Dependence on Natural Systems	3 s.h.
GEOG:3500 (044:105) Introduction to Environmental Remote Sensing	3 s.h.
GEOG:3520 (044:110) GIS for Environmental Studies	3 s.h.
GEOG:3540 (044:109) Introduction to Geographic Visualization	3 s.h.

GEOG:3560 (044:130) Spatial Analyses of Wind Energy	3 s.h.
GEOG:3570 (044:146) Light Detection and Ranging (LiDAR): Principles and Applications	3 s.h.
GEOG:4010 (044:180) Field Methods in Physical Geography	3 s.h.
GEOG:4020 (044:181) Field Methods: Mapping and Mobile Computing	3 s.h.
GEOG:4150 (044:137) Health and Environment: GIS Applications	3 s.h.
GEOG:4650 (044:142) Simulation in Environmental Geography	3 s.h.
GEOG:5129 (044:140) Information Systems for Resource Management	3 s.h.

One of these:

GEOG:4030 (044:150) Senior Project Seminar	3 s.h.
GEOG:4990 (044:151) Senior Thesis	3 s.h.
GEOG:4995 (044:199) Honors Thesis	arr.

Senior Project Seminar [GEOG:4030 (044:150)] is offered only in spring semesters. Students who choose GEOG:4990 (044:151) Senior Thesis or GEOG:4995 (044:199) Honors Thesis must make arrangements with a faculty advisor.

STATISTICS COURSES (B.A.)

Bachelor of Arts students must earn a minimum of 3 s.h. in statistics by completing one of the following courses or a statistics course equivalent to or numbered above one of these.

PSQF:4143 (07P:143)/STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.
STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

STATISTICS/MATHEMATICS COURSES (B.S.)

Bachelor of Science students must earn a minimum of 9 s.h. in statistics/mathematics by completing one of the following options or courses equivalent to or numbered above these.

Option 1

This sequence:

PSQF:4143 (07P:143)/STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.
PSQF:6243 (07P:243)/STAT:6513 (22S:148) Intermediate Statistical Methods	4 s.h.

Or this sequence:

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.

Or this sequence:

STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
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STAT:3200 (22S:152) Applied Linear Regression 3 s.h.

And one of these:

EES:4870 (012:178) Applied Geostatistics 3 s.h.
 MATH:1380 (22M:017) Calculus and Matrix Algebra for Business 4 s.h.
 MATH:1460 (22M:016) Calculus for the Biological Sciences 4 s.h.
 MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus 4 s.h.
 MATH:1850 (22M:025) Calculus I 4 s.h.

Option 2

One of these:

PSQF:4143 (07P:143)/STAT:4143 (22S:102) Introduction to Statistical Methods 3 s.h.
 STAT:2010 (22S:030) Statistical Methods and Computing 3 s.h.

And one of these sequences:

MATH:1440 (22M:015) & MATH:1460 (22M:016) Mathematics for the Biological Sciences - Calculus for the Biological Sciences 8 s.h.
 MATH:1550 (22M:031) & MATH:1560 (22M:032) Engineering Mathematics I: Single Variable Calculus - Engineering Mathematics II: Multivariable Calculus 8 s.h.
 MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II 8 s.h.

Tracks (B.A. and B.S.)

All geography majors must complete one of the three tracks described below: environmental studies, geographic information science (GISci), or health and society. Students should pay close attention to prerequisites for the upper-level courses in each track in order to develop a study plan that allows them to complete their major in a timely way.

Students in the environmental studies or health and society track who wish to gain additional experience in theory and application of GIS systems should take GIS-based courses offered by the Department of Geographical and Sustainability Sciences, as described for each track below.

Students may use GEOG:3001 (044:197) Special Topics to fulfill a track requirement if the course content is applicable.

ENVIRONMENTAL STUDIES TRACK

The environmental studies track requires a minimum of 15 s.h. It is designed for students interested in the interrelationships among social and natural processes that affect the environment. The track prepares students for careers or pursuit of personal interests in resource management, landscape ecology, water resources, environmental policy or law, global environmental change, sustainable development, or other complex environmental issues. Graduates may find employment in an environmental profession such as conservation, environmental planning and regulation; or environmental law, policy, and politics.

The environmental studies track offers training in field observation, remote sensing, geographical information systems, quantitative analysis/computing,

and cartographic representation. It also provides a sound foundation for graduate or professional-level studies in the natural or social aspects of the environment.

In addition to satisfying the common requirements for all geography majors, students in the environmental studies track complete a common track course (3 s.h.) and at least 12 s.h. of upper-level geographical and sustainability sciences courses.

Common course—all environmental studies track students take this:

GEOG:1070 (044:019) Contemporary Environmental Issues 3 s.h.

Students choose a total of four upper-level courses (at least 12 s.h.) from the following lists, in consultation with their advisors. Those who wish to gain additional experience in theory and application of GIS systems should take GEOG:3520 (044:110) GIS for Environmental Studies and GEOG:4520 (044:128) GIS for Environmental Studies: Applications, or they should earn 6 s.h. in other GIS-based geographical and sustainability sciences courses.

At least one of these:

GEOG:2310 (044:101) Climatology 3 s.h.
 GEOG:2374 (044:103) Biogeography 3 s.h.
 GEOG:2410 (044:104) Environment and Development 3 s.h.
 GEOG:2930 (044:111) Water Resources 3 s.h.
 GEOG:3500 (044:105) Introduction to Environmental Remote Sensing 3 s.h.
 GEOG:3520 (044:110) GIS for Environmental Studies 3 s.h.

At least one of these:

GEOG:3210 (044:174) Health, Work, and the Environment 3 s.h.
 GEOG:3310 (044:123) Landscape Ecology 3 s.h.
 GEOG:3320 (044:126) Wetlands: Function, Geography, and Management 3 s.h.
 GEOG:3340 (044:179) Ecosystem Services: Human Dependence on Natural Systems 3 s.h.
 GEOG:3350 (044:116) Urban Ecology 3 s.h.
 GEOG:3400 (044:117) Iowa Environmental Policy in Practice 3 s.h.
 GEOG:3560 (044:130) Spatial Analyses of Wind Energy 3 s.h.
 GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy 3 s.h.
 GEOG:3760 (044:175) Hazards and Society 3 s.h.
 GEOG:3920 (044:136) Planning Livable Cities 3 s.h.
 GEOG:4010 (044:180) Field Methods in Physical Geography 2-4 s.h.
 GEOG:4500 (044:145) Applications in Environmental Remote Sensing 4 s.h.
 GEOG:4520 (044:128) GIS for Environmental Studies: Applications 3 s.h.
 GEOG:4650 (044:142) Simulation in Environmental Geography 3 s.h.
 GEOG:4750 (044:125) Environmental Impact Analysis 4 s.h.
 GEOG:4770 (044:177) Environmental Justice 3 s.h.

GEOGRAPHIC INFORMATION SCIENCE TRACK

The geographic information science track (GISci) requires a minimum of 18-19 s.h. It is designed for students preparing for positions in government agencies, nongovernment organizations, international development agencies, and business. It also provides preparation for graduate study in geography, planning, and other disciplines. The track focuses on the design, implementation, and use of geographic information systems. Courses address how geographic data are acquired, stored, accessed, displayed, managed, and analyzed.

Students in the geographic information science track learn to address problems involved in modeling environmental systems, identifying the best locations for service facilities, assessing environmental impacts, and forecasting the populations of small areas. They use the department's Geographical Information Systems Instructional Lab (GISIL) extensively to develop expertise in using GIS software.

Course work in the track covers methods of spatial analysis and geographical modeling and involves database management and computer programming.

In addition to the common requirements for all geography majors, students in the geographic information science track complete a common track course (3-4 s.h.) and at least 15 s.h. of upper-level geographical and sustainability sciences courses.

Common course—all GISci track students take one of these:

CS:1110 (22C:005) Introduction to Computer Science	3 s.h.
CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
CS:2110 (22C:080) Programming for Informatics	4 s.h.

Students choose a total of five upper-level courses (at least 15 s.h.) from the following lists, in consultation with their advisors (a total of four courses from the first two lists plus one course from the third list). GISci track students are encouraged to add breadth to their degree by taking additional upper-level courses in the department. Students interested in the application of GIS to environmental issues should select additional courses from the department's environmental studies area; those interested in socioeconomic issues should select additional courses from the department's health and society area.

At least one of these:

GEOG:3500 (044:105) Introduction to Environmental Remote Sensing	3 s.h.
GEOG:3520 (044:110) GIS for Environmental Studies	3 s.h.
GEOG:3530 (044:112) Mapping American Cities and Regions	3 s.h.
GEOG:3540 (044:109) Introduction to Geographic Visualization	3 s.h.
GEOG:4650 (044:142) Simulation in Environmental Geography	3 s.h.

At least one of these:

GEOG:4500 (044:145) Applications in Environmental Remote Sensing	4 s.h.
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GEOG:4520 (044:128) GIS for Environmental Studies: Applications	3 s.h.
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GEOG:4570 (044:139) Spatial Analysis and Location Models	3 s.h.
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GEOG:4580 (044:141) Introduction to Geographic Databases	3 s.h.
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At least one of these:

GEOG:3340 (044:179) Ecosystem Services: Human Dependence on Natural Systems	3 s.h.
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GEOG:3560 (044:130) Spatial Analyses of Wind Energy	3 s.h.
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GEOG:3760 (044:175) Hazards and Society	3 s.h.
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GEOG:4010 (044:180) Field Methods in Physical Geography	2-4 s.h.
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GEOG:4020 (044:181) Field Methods: Mapping and Mobile Computing	3 s.h.
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GEOG:4150 (044:137) Health and Environment: GIS Applications	3 s.h.
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HEALTH AND SOCIETY TRACK

The health and society track requires a minimum of 15 s.h. It is designed for students interested in understanding the causes and consequences of social inequalities, the long-term effects that changing human/environmental interactions have on human health, and emerging transnational challenges to the sustainability of livelihoods. The track provides students with foundational knowledge and skills to support postgraduate employment in governmental or nongovernmental positions, graduate study in public health or in health-related fields, and service experiences such as the Peace Corps and AmeriCorps.

Students in the health and society track gain understanding of the factors and processes that determine geographic patterns of health. They explore the effects of the social, built, and natural environments on the physical, social, and mental health of populations. Course work in the track examines patterns and causes of infectious and chronic diseases; hazards, vulnerability, and environmental justice; and the spatial methods used to understand such issues.

Thematic content from courses is complemented by quantitative spatial and statistical analysis course work, enabling students to analyze and understand geographic patterns of health. Students have opportunities to work on applied problems, such as assessing patterns of disease, identifying the underlying population and environmental drivers of good or poor health, and evaluating the social dimensions of environmental impacts.

In addition to satisfying the common requirements for all geography majors, students in the health and society track complete three common track courses (9 s.h.) and at least two upper-level geographical and sustainability sciences courses (6 s.h.).

Common courses—all health and society track students take these:

GEOG:2110 (044:011) Population Geography	3 s.h.
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GEOG:3110 (044:131) Geography of Health	3 s.h.
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GEOG:4150 (044:137) Health and Environment: GIS Applications	3 s.h.
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Students choose two upper-level courses (at least 6 s.h.) from the following list, in consultation with their

advisors. Those who wish to gain additional experience in theory and application of GIS systems should also take an additional 6 s.h. in GIS-based geographical and sustainability sciences courses.

At least two of these:

GEOG:3070 (044:107) Hungry Planet: Global Geographies of Food	3 s.h.
GEOG:3210 (044:174) Health, Work, and the Environment	3 s.h.
GEOG:3760 (044:175) Hazards and Society	3 s.h.
GEOG:3920 (044:136) Planning Livable Cities	3 s.h.
GEOG:4770 (044:177) Environmental Justice	3 s.h.

B.A. or B.S. with Teacher Licensure

Geography majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

Before the third semester begins: one introductory course in the major

Before the fifth semester begins: five courses in the major

Before the seventh semester begins: 11 courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: 14 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Before the third semester begins: two introductory courses in the major

Before the fifth semester begins: six courses in the major

Before the seventh semester begins: 12 courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: 15 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General

Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in geography have the opportunity to graduate with honors in the major. Departmental honors students must maintain a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in all work for the major. They must be admitted to the department's honors program by the first semester of their senior year or earlier.

Honors students in geography pursue study beyond the typical undergraduate level. In order to graduate with honors in the major, they work under the direction of a faculty member to conduct original research and then prepare and present an honors thesis based on their research. The thesis is reviewed by a committee of at least three faculty members. Departmental honors students earn credit for their thesis by registering for GEOG:4995 (044:199) Honors Thesis. They may substitute GEOG:4030 (044:150) Senior Project Seminar for GEOG:4995 (044:199), as long as they continue to work on the thesis under the direction of a faculty member.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor: Geographic Information Science

The minor in geographic information science requires a minimum of 15 s.h. in geographical and sustainability sciences courses, including 12 s.h. in University of Iowa courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

Students majoring in geography may not earn the minor in geographic information science.

Geographic Information Science is the study of geography using digital technology. The field uses geographic information systems (computer-based technologies designed to facilitate the capture, organization, analysis, and display of geographic data), remote sensing (primarily interpretation of satellite imagery), and spatial modeling (viewing, analyzing, and mapping spatial data) to study geographic patterns and processes and to examine research on the nature, development, and use of these tools.

The minor in geographic information science requires one core course, three mid-level specialization courses, and an advanced course that builds on one of the three mid-level courses. Students should contact the department secretary to request an advisor for help in selecting the advanced course.

Core course—one of these:

GEOG:1050 (044:005) Foundations of GIS	3 s.h.
GEOG:3010 (044:118) Geographic Information Systems and Science	3 s.h.

Mid-level specialization courses—all of these:

GEOG:3500 (044:105) Introduction to Environmental Remote Sensing	3 s.h.
GEOG:3520 (044:110) GIS for Environmental Studies	3 s.h.
GEOG:3540 (044:109) Introduction to Geographic Visualization	3 s.h.
Advanced course—one of these:	
GEOG:3570 (044:146) Light Detection and Ranging (LiDAR): Principles and Applications	3 s.h.
GEOG:4020 (044:181) Field Methods: Mapping and Mobile Computing	3 s.h.
GEOG:4150 (044:137) Health and Environment: GIS Applications	3 s.h.
GEOG:4500 (044:145) Applications in Environmental Remote Sensing	4 s.h.
GEOG:4520 (044:128) GIS for Environmental Studies: Applications	3 s.h.
GEOG:4570 (044:139) Spatial Analysis and Location Models	3 s.h.
GEOG:4580 (044:141) Introduction to Geographic Databases	3 s.h.
GEOG:4650 (044:142) Simulation in Environmental Geography	3 s.h.

Minor: Geography

The minor in geography requires a minimum of 15 s.h. in geographical and sustainability sciences courses, including 12 s.h. in University of Iowa courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students are encouraged to concentrate their course work in tracks—environmental studies, geographic information science, or health and society (see "Bachelor of Arts, Bachelor of Science" above). For help in selecting courses, students should contact the department secretary to request an advisor for the minor.

Courses for General Education

The Department of Geographical and Sustainability Sciences offers a number of courses that students in other majors may use to satisfy requirements of College of Liberal Arts and Sciences General Education Program. Look for courses with the prefix GEOG under "Natural Sciences," "Social Sciences," and "International and Global Issues" in the General Education Program (p. 323) section of the Catalog.

Nonmajors also may choose geographical and sustainability sciences courses as electives.

Certificate in Wind Energy

The Department of Geographical and Sustainability Sciences (College of Liberal Arts and Sciences) and the Department of Mechanical and Industrial Engineering (College of Engineering) administer the undergraduate certificate program in wind energy; see Wind Energy (p. 939) (College of Engineering) in the Catalog.

Graduate Programs of Study

- Master of Arts in geography
- Doctor of Philosophy in geography

In addition to offering graduate degree programs, the department administers the geoinformatics subtrack of the graduate Certificate in Informatics; see Informatics (p. 972) (Graduate College) in the Catalog.

Department of Geographical and Sustainability Sciences graduate programs focus on investigating the environmental consequences of human decisions on local, regional, and global scales. Central to the department's studies are geographic information science and the theories and models of environmental and social sciences. Within this broad domain, the department is developing strengths in environmental justice, environmental modeling, GIScience and GIS, land use and its environmental consequences, and health geography.

The Master of Arts and Doctor of Philosophy programs prepare students to carry on creative and productive research in selected areas of geography. University of Iowa graduates hold positions on college and university faculties, in private research organizations, and in business and government.

The department provides opportunities for graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instructors.

Graduate students present research papers at conferences and regularly win awards. Students are involved in faculty research that leads to coauthored publications; they also publish their own papers. Graduate students compete successfully for intramural and extramural funding for graduate education and research.

Master of Arts

The Master of Arts program in geography requires a minimum of 30 s.h. of graduate credit with thesis and 32 s.h. of graduate credit without thesis. The program is designed to be completed in four semesters.

Thesis students must earn 15 s.h. of credit in Department of Geographical and Sustainability Sciences courses numbered 5000 or above; they may count 6 s.h. of thesis credit and 2 s.h. earned in GEOG:7000 (044:350) Geography Colloquium toward the degree. Students who earn more than 30 s.h. may use the additional work to increase their breadth of knowledge in geography and to tailor their study programs to their individual interests.

Nonthesis students build skills across a range of topics in geographical and sustainability sciences during their first year and develop skills in particular application areas during their second year. Nonthesis students must earn 15 s.h. of credit in Department of Geographical and Sustainability Sciences courses numbered 5000 or above.

M.A. students demonstrate competence by completing appropriate course work; completing and defending an M.A. thesis (for thesis students) or completing a portfolio of finished work and having it reviewed (nonthesis students).

More detailed information about M.A. requirements is provided in the department's Manual for Graduate Degree Requirements; contact the Department of Geographical and Sustainability Sciences.

Doctor of Philosophy

The Doctor of Philosophy program in geography requires 72 s.h. of graduate credit and is designed to be completed

in four or five years. The degree prepares students for college and university teaching and for advanced research. It provides study programs that lead to broad knowledge of a field of geography and its literature and to special expertise in a subfield.

Students may enter the Ph.D. program upon completing an undergraduate degree or with advanced standing corresponding to previous graduate education.

All Ph.D. students take the following courses. They take GEOG:7000 (044:350) Geography Colloquium (1 s.h.) each semester they are in residence.

GEOG:5010 (044:210) Fundamentals of Geography	3 s.h.
GEOG:5050 (044:211) Research and Writing in Geography	3 s.h.
GEOG:7000 (044:350) Geography Colloquium (taken each semester)	1 s.h.
Two courses in geography numbered above GEOG:5001 (044:200)	6 s.h.
Two research seminars chosen from GEOG:6500 (044:315) through GEOG:6900 (044:319); each course for 3 s.h.	6 s.h.

Doctoral students complete a set of research milestones, including a research paper, an area of concentration bibliography, and a written qualifying examination in the discipline. With the approval of his or her dissertation advisor, each student submits a dissertation proposal to the dissertation committee for critical comments, oral questioning, and approval. Once the dissertation is completed, an oral defense of the dissertation is held.

More detailed information about Ph.D. requirements is provided in the department's Manual for Graduate Degree Requirements; contact the Department of Geographical and Sustainability Sciences.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

A bachelor's degree with a major in geography is not required, but applicants must have an undergraduate background relevant to the field. Strength in social science, environmental science, or geographic information science and interest in exploring the spatial perspectives that characterize modern geography are important in admission decisions. Depending on their prior training, graduate students may be required to take courses that are prerequisites for course work in their chosen area of graduate study; credit earned in prerequisites does not count toward the graduate degree.

Application materials include an undergraduate transcript with grade-point average, scores on the Graduate Record Examination (GRE) General Test, three letters of recommendation, and an essay in which the applicant states his or her reasons for wanting to study geography at The University of Iowa.

Applicants whose first language is not English must take the Test of English as a Foreign Language (TOEFL). Their scores must be sent to the University's Office of Admissions.

New graduate students whose first language is not English are required to take a speaking proficiency test when they arrive at the University; eventually they take the English Language Performance Test (ELPT). Students must be fully certified by the ELPT before they begin their fourth semester in order to be considered for funding in succeeding semesters. Students who do not pass the tests are required to take Teaching Assistant Preparation in English (TAPE) courses until they have achieved proficiency in spoken English.

Financial Support

A number of graduate teaching and research assistantships are available. In addition, outstanding applicants and underrepresented minorities are eligible for several fellowships. Awards are based on merit. In making awards, the department pays particular attention to grade-point average, especially for the junior and senior years; score on the Graduate Record Examination (GRE) General Test; letters of recommendation; and fit of the student's objectives with department specializations. Applications for graduate appointments must be received by February 1. Applications for fellowships are due by January 15.

Internships

The Department of Geographical and Sustainability Sciences is a participant in the University's internship program, which provides opportunities for both undergraduate and graduate students to participate in paid and unpaid activities related to their academic programs. The Pomerantz Career Center works with students to develop appropriate internships.

Facilities and Resources

The department houses three geographic information computational laboratories. They support a variety of GIS software packages, including the latest software from ESRI (ArcGIS) and Erdas (Imagine) as well as a suite of other commercial and open-source software. All lab computers are regularly updated to ensure that they are capable of running the latest software at peak performance.

The Geographical Information Systems Instructional Lab (GISIL) is the department's center for GIS teaching as well as a place where students conduct geographic and GIS-related projects. It is equipped with 27 networked student workstations, instructional support technology (e.g., CRT projection), and a suite of peripherals, including a LiDAR 3-D scanner, high-end global positioning system (GPS) units, and a large-format printer.

Environmental modeling and GIS research laboratories contain state-of-the-art machines (Windows and Linux platforms), geoprocessing and statistical software, and an array of software development tools. Projects requiring massive storage or high-performance computing have access to additional resources managed by the University's Information Technology Services research support group. The University of Iowa is a charter member of Internet2, with a high-performance network link to the Department of Geographical and Sustainability Sciences. The University also is a member of the University Consortium on Geographic Information Science.

To aid studies of water resources and physical geography, the department has a laboratory for the analysis of vegetation, soil, and water quality. The laboratory has a

variety of field equipment, including soil probes, portable meteorological stations, GPS, ground-based 3-D LIDAR, anemometers, spectrometers, light sensors, and data loggers.

Faculty and graduate students participate in multidisciplinary working groups through the University's Program in Applied Mathematical and Computational Sciences (p. 949), the Center for Global and Regional Environmental Research, the Center for Health Effects of Environmental Contamination, International Programs, the Institute for Rural and Environmental Health, the Iowa Quaternary Studies Group, and the Public Policy Center. Participation in multidisciplinary working groups also is available through interdisciplinary research grants with investigators from other UI academic units, for example, the College of Engineering, the Carver College of Medicine, and the College of Public Health.

Geographic researchers have access to other University of Iowa resources, as well, such as the University's Main Library, whose collections include more than 115,500 maps; 3,600 atlases and reference works; and around 100,000 aerial photographs, primarily of Iowa.

Courses

Lower-Level Undergraduate

- GEOG:1000 (044:029) First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.
- GEOG:1010 (044:001) Introduction to Human Geography** 3 s.h.
Geographic examination of how people occupy and shape physical space; examination of global population distribution and migration, language and religion, urban and economic spaces; application of geographic principles to contemporary global issues including social and political conflicts, globalization, and economic development. GE: Social Sciences.
- GEOG:1020 (044:003) The Global Environment** 3 s.h.
Climate change and interactions between atmosphere and geological, hydrological, and biological systems; response of these systems to climate change and how such responses affect atmospheric processes through feedbacks (e.g., flows of energy, cycles of carbon and water); how geographic differences in such interactions create ecological patterns around the world (e.g., rainforests, prairies). GE: Natural Sciences without Lab.
- GEOG:1021 (044:004) The Global Environment Lab** 1 s.h.
Laboratory complement to GEOG:1020 (044:003). Corequisites: GEOG:1020 (044:003), if not taken as a prerequisite. GE: Natural Sciences Lab only.
- GEOG:1046 (044:046) People and the Environment: Technology, Culture, and Social Justice** 3 s.h.
How resources, commodities, people, and ideas cross borders; examination of globalization through issues of technology, social justice, environment; perspectives from anthropology, gender studies, geography, energy science, and development. GE: International and Global Issues. Same as ANTH:1046 (113:046), GWSS:1046 (131:046).
- GEOG:1050 (044:005) Foundations of GIS** 3 s.h.
Cartography, map analysis, and geographic information systems; map projections and scale; data collection, remote sensing, and GPS; data structures and organization; cartometry; symbolization and visualization.
- GEOG:1060 (044:060) Geography of Asia: From Japan to Pakistan** 3 s.h.
Varied cultures and environments of Asia; exploration of physical and cultural landscapes of region; processes of development in context of globalization and regionalism; population growth; rise of megacities and urban agglomerations; ethnic, religious and political diversity and tensions; colonial legacies and emerging economies; food and water scarcity; climate change and biodiversity; natural hazards; migration and double burden of disease. GE: International and Global Issues.
- GEOG:1065 (044:065) Introduction to Spatial Analysis** 3 s.h.
Basic concepts and techniques fundamental to analysis of spatial data; probability theory, hypothesis testing, descriptive spatial statistics, spatial correlation, and spatial regression analysis; application of methods to datasets.
- GEOG:1070 (044:019) Contemporary Environmental Issues** 3 s.h.
Political, economic, cultural, technologic, ecological, and ethical issues associated with natural resource and environmental problems, including population, global climate change, food production, tropical deforestation, soil erosion, waste management. GE: International and Global Issues; Social Sciences.
- GEOG:1090 (044:010) Globalization and Geographic Diversity** 3 s.h.
Examination of contemporary global society; focus on world regions including physical environment, culture, economy, politics of each region, and relationships between regions; analysis of current conflicts within and between regions including social, religious, political, and economic issues. GE: International and Global Issues; Social Sciences.
- GEOG:2110 (044:011) Population Geography** 3 s.h.
Spatial considerations of population growth and distribution; minorities within a population; poverty; housing; social organization and disorganization; social systems, including education, religion, recreation, medical and social services; diffusion of ideas and traits over space. GE: Social Sciences.
- GEOG:2115 (044:016) History and Science of Oil** 3 s.h.
History, politics, and science of oil and oil industry. Same as ENVS:2115 (159:015), EES:2115 (012:015), HIST:2115 (016:085).

GEOG:2130 (044:055) World Cities 3 s.h.

Exploration of important urban centers, past and present; focus on why cities exist, how they are organized; key social, economic, and cultural roles played in human societies; examination of different historical eras, including ancient, medieval, and modern; analysis of urban physical structures and spatial organization, how they reflect societies that created them; case study cities include Ancient Rome, medieval Vienna, baroque Versailles, mercantile Amsterdam and London, major contemporary industrial and financial centers.

GEOG:2310 (044:101) Climatology 3 s.h.

Boundary layer processes that drive atmospheric dynamics; exchanges of energy and water at simple and complex surfaces; global climate change records, theories, models; impacts of climate on society. Prerequisites: EES:1020 (012:020). Same as EES:2310 (012:104).

GEOG:2331 (044:031) Human Dimensions of Climate 3 s.h.

How climate shapes human societies; focus on how climate and climate variability affects food production, water use, energy use, and human disease systems (e.g., influenza, malaria, air pollution, diarrheal disease); climate change impacts (e.g., sea level rise, droughts, wildfires, famine); societal impact, adaptation and vulnerability, mitigation strategies; policy.

GEOG:2374 (044:103) Biogeography 3 s.h.

Patterns of plant and animal distribution and their interpretation; historical geography including glaciation and plate tectonics; ecological geography, including physical factors (e.g., climate and geology); applications to conservation in diverse regions. Prerequisites: GEOG:1020 (044:003) or BIOL:1141 (002:002) or BIOL:1261 (002:001) or BIOL:1370 (002:022) or BIOL:1412 (002:032). Same as BIOL:2374 (002:103).

GEOG:2404 (044:161) African Development 3 s.h.

Problems of economic, political, spatial integration in Africa; patterns and processes of economic development and nation building. GE: International and Global Issues; Social Sciences.

GEOG:2410 (044:104) Environment and Development 3 s.h.

Environmental impacts of industrial and rural development explored through Third World case studies (Latin America, Africa, South and East Asia); environmental degradation from perspectives of political economy and ecology; class, gender, and indigenous peoples' issues; industry-agriculture linkages.

GEOG:2910 (044:030) The Global Economy 3 s.h.

Examination of contemporary economic geography; types of national economies, uneven development, role of government in shaping economy, multinational corporations; foundation for understanding national economies and economic statistics; contemporary issues including economic globalization, commodification of nature, de-industrialization. GE: International and Global Issues; Social Sciences.

GEOG:2930 (044:111) Water Resources 3 s.h.

Introduction to science and policy issues affecting water resources management in the U.S.; how intersection of people, climate, technology, and geography affects quality, availability, and demand for freshwater resources; basic hydrological processes; water needs of people and ecosystems; influence of regulations and management on water quality, availability, and hazards; historical and contemporary developments in management of water, including international conflicts.

GEOG:2950 (044:088) Environmental Conservation 3 s.h.

Scientific foundations of biological conservation; strategies used to better connect conservation practice with needs of a growing human population. Prerequisites: GEOG:1020 (044:003) or ENVS:1080 (159:008), and GEOG:1070 (044:019).

GEOG:2990 (044:100) Readings for Undergraduates arr.

Supervised readings in geography.

Upper-Level Undergraduate and Graduate

GEOG:3001 (044:197) Special Topics arr.

Contemporary fields of inquiry, such as political economy, regional/African development, biophysical systems, GIS, locational analysis, water resources, economic geography, demographic analysis, environment, urbanization, transportation.

GEOG:3010 (044:118) Geographic Information Systems and Science 3 s.h.

Solid foundation and introduction to GIS and digital map making; what GIS is and how GIS can contribute to research, careers, and everyday life; fundamentals that underlie GIS, including methods for GIS data collection and georeferencing, spatial modeling, spatial data analysis, and visualization; GIS trends including mobile GIS and the Web.

GEOG:3020 (044:102) Earth Surface Processes 3 s.h.

Basic geomorphic and environmental processes that shape the earth's surface; emphasis on erosion, transport, deposition by land mass movement (creep, landslides, earth flow), fluid agents (wind, water, ice); methods used to study these processes. Prerequisites: EES:1050 (012:005) or EES:1080 (012:008) or ENVS:1080 (159:008) or GEOG:1020 (044:003). Same as ENVS:3020 (159:102), EES:3020 (012:102).

GEOG:3070 (044:107) Hungry Planet: Global Geographies of Food 3 s.h.

Societal and environmental implications of past, current, and future global food supply examined from a geographical perspective; focus on questions of who eats what, where, and why; transformative history of agriculture, modern agribusiness and alternative food supplies, geopolitical implications of food production, food scarcity and rising food costs, urban versus rural agriculture, the obesity epidemic versus malnutrition, and the future of food. Same as GHS:3070 (152:107).

- GEOG:3110 (044:131) Geography of Health** 3 s.h.
Provision of health care in selected countries, with particular reference to the Third World; focus on problems of geographical, economic, cultural accessibility to health services; disease ecology, prospective payment systems, privatization, medical pluralism. Same as GHS:4111 (152:131).
- GEOG:3210 (044:174) Health, Work, and the Environment** 3 s.h.
Current topics in occupational and environmental health; how the United States protects workers, protects people from environmental agents, and reduces environmental harm. Same as OEH:3210 (175:101).
- GEOG:3310 (044:123) Landscape Ecology** 3 s.h.
Effects of spatial pattern on spatial processes in ecology; characteristics of matrix, patch, corridor; fragmentation, deforestation, habitat loss; spatial flows of energy, matter, genetic information; relationship to human impact, global climate change. Requirements: GEOG:2374 (044:103) or ecology course numbered 1000-4999.
- GEOG:3320 (044:126) Wetlands: Function, Geography, and Management** 3 s.h.
Hydrological, geomorphological, and ecological processes and their interaction in wetlands; geographic differences in wetlands based on climate and hydrology; wetlands, lakes, and rivers; role of wetlands in drainage basin hydrology and flooding; values and valuation of wetlands; wetland law and wetland delineation; wetlands and water resources. Prerequisites: GEOG:2374 (044:103) or EES:2310 (012:104). Same as EES:3260 (012:126).
- GEOG:3340 (044:179) Ecosystem Services: Human Dependence on Natural Systems** 3 s.h.
Ecosystem services from an interdisciplinary perspective centering on geographic techniques used to measure, map, and model ecosystem services; methods used to incorporate ecosystem services into decision and policy making; reliance on ecosystem services, valuable goods, and services produced by ecosystems such as flood control, food production, and water purification for well being; how activities alter ecosystems and thus alter these services, reducing quality-of-life or, in some cases, the ability to survive. Prerequisites: GEOG:1050 (044:005), and GEOG:1020 (044:003) or GEOG:1070 (044:019) or GEOG:2374 (044:103) or GEOG:3310 (044:123) or BIOL:1370 (002:022) or BIOL:2673 (002:134) or EES:1080 (012:008) or ENVS:1080 (159:008) or ENVS:2673 (159:134).
- GEOG:3350 (044:116) Urban Ecology** 3 s.h.
Main theories and concepts of urban ecology; examination of urban ecosystems from an interdisciplinary perspective; how cities function as socioecological systems in their own right and how urban areas function as parts of larger regional and global ecosystems; how urban form and dynamics influence ecological functioning; urban species and nature conservation; urban ecological planning and design. Requirements: GEOG:2374 (044:103) or ENVS:2673 (159:134) or introductory course in ecology, and junior standing,
- GEOG:3360 (044:186) Soil Genesis and Geomorphology** 3 s.h.
Introduction to soil genesis, soil geomorphology, and classification including the basics of soil profile description and soil-landscape, soil-vegetation, and soil-climate relationships; emphasis on study of soils as the interface between living and non-living Earth systems and the role of soils in sustaining ecosystems and human societies; short field excursions and a weekend field trip. Requirements: college earth science and chemistry. Same as EES:3360 (012:136).
- GEOG:3400 (044:117) Iowa Environmental Policy in Practice** 3 s.h.
How Iowa government addresses environmental policy development and implementation; policy process and current environmental issues; meetings with Iowa state legislators and relevant agency personnel in Des Moines, attendance at legislative sessions and hearings, and observation of how policies move into practice in agency offices; small group work to prepare a presentation on a policy or planning issue. Requirements: GEOG:3780 (044:120) or ANTH:3102 (113:185) or ANTH:3112 (113:114) or POLI:3111 (030:126) or mid-level or higher course in environmental policy and planning curriculum; and junior or higher standing.
- GEOG:3500 (044:105) Introduction to Environmental Remote Sensing** 3 s.h.
Basic concepts and principles of remote sensing; sources of data; georegistration; digital processing and classification of remotely sensed images for extraction of environmental information; linkage of remote sensing techniques with GIS analysis.
- GEOG:3505 (044:106) Foundations of GIS** 3 s.h.
Cartography, map analysis, and geographic information systems; map projections and scale; data collection, remote sensing, GPS; data structures and organization; cartometry; symbolization and visualization.
- GEOG:3520 (044:110) GIS for Environmental Studies** 3 s.h.
Methods of managing and processing geographic information for environmental analysis; basic concepts, structures, theories of geographic information system (GIS), basic analytical techniques, and hands-on experience in GIS operations. Prerequisites: GEOG:1050 (044:005).
- GEOG:3530 (044:112) Mapping American Cities and Regions** 3 s.h.
Foundation concepts for GIS-based analysis of urban, social, and economic data for the United States; geo-referenced sources of U.S. national and state data; application to contemporary social issues. Prerequisites: GEOG:1050 (044:005).
- GEOG:3540 (044:109) Introduction to Geographic Visualization** 3 s.h.

Basic concepts and techniques that underlie cartographic representation and the broader field of geographic visualization; digital cartographic practices; how scientific visualization, information visualization, and user interface design contribute to geographic visualization; map symbolization, scale and generalization, animation and dynamic map design, multimedia, virtual and mixed environments, interfaces for GIS; experience applying cartographic and visualization techniques. Prerequisites: GEOG:1050 (044:005).

GEOG:3550 (044:241) Integrating Time into GIS 3 s.h.

Fundamental concepts for integrating temporal elements into geographic information systems (GIS); conceptual and formal models of time, models of change, event-based modeling, modeling of moving entities; topics related to fundamentals of spatiotemporal databases and query languages. Prerequisites: GEOG:1050 (044:005).

GEOG:3560 (044:130) Spatial Analyses of Wind Energy 3 s.h.

Introduction to underlying processes, measurement methods, and spatial analyses related to wind energy; siting criteria, techniques for data collection and analysis, GIS-based approaches for suitability studies.

GEOG:3570 (044:146) Light Detection and Ranging (LiDAR): Principles and Applications 3 s.h.

Basic principles and applications of Light Detection and Ranging (LiDAR); LiDAR as an essential technology for mapping and analysis of a vast range of surfaces; application examples include floodplain mapping, forestry management, transportation planning, vegetation analysis, urban planning, and 3-D modeling; theoretical understanding and practical experience using different software. Recommendations: GEOG:3500 (044:105) or EES:3100 (012:110).

GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy 3 s.h.

Geographical perspectives in the study and interpretation of chemicals in the environment; environmental standards under existing laws; local, regional, national, international case studies in environment and health; socioeconomic and institutional considerations in designing environmental protection strategies. Prerequisites: STAT:1020 (22S:025).

GEOG:3760 (044:175) Hazards and Society 3 s.h.

Introduction to social science perspectives on societal responses to natural and technological hazards; risk perception and communication, disaster management, social vulnerability, and risk assessment; case studies of recent major disasters (e.g., Haiti earthquake, Tohoku earthquake/tsunami/nuclear accident, Hurricane Katrina); current directions in hazards research, policy, and practice. Same as GHS:3760 (152:180).

GEOG:3780 (044:120) U.S. Energy Policy in Global Context 3 s.h.

Historical and contemporary aspects of U.S. governmental planning and policy on a wide range of energy issues in global context. Prerequisites: GEOG:1020 (044:003) or EES:1080 (012:008), and GEOG:1070 (044:019). Same as GHS:3780 (152:178).

GEOG:3910 (044:194) Geographic Perspectives on Development 3 s.h.

Theoretical and empirical studies of the regional development process, with emphasis on developing countries; alternative regional development theories and changes in development theories in the literature of geography, related disciplines.

GEOG:3920 (044:136) Planning Livable Cities 3 s.h.

Development of livable cities in the United States; economic, physical, environmental, and political forces that shape their growth; impact of planning, how it shapes the future of cities. Same as URP:3001 (102:101).

GEOG:3940 (044:133) Transportation Economics 3 s.h.

Overview of transportation markets—intercity, rural, urban; transportation modes—rail, highway, air, water, pipeline, transit; issues in finance, policy, planning, management, physical distribution, and environmental, economic, and safety regulation. Recommendations: ECON:1100 (06E:001) and ECON:1200 (06E:002). Same as URP:3350 (102:133), ECON:3750 (06E:145).

GEOG:3992 (044:195) Undergraduate Research arr.

Supervised research in geography.

GEOG:4010 (044:180) Field Methods in Physical Geography 2-4 s.h.

Methods of measuring climate, vegetation, soil, landforms, water; projects in areas including field meteorology, tree-ring sampling, topographic surveying, vegetation sampling, water quality sampling, use of global positioning systems; introduction to research design.

GEOG:4020 (044:181) Field Methods: Mapping and Mobile Computing 3 s.h.

Development and application of mobile geographic information technologies; key issues associated with global positioning systems (GPS), wireless technologies, field-based data collection and analysis, ubiquitous computing, and location-based services; experience using GPS, advanced mobile computing technologies, mobile GIS software to construct geographic datasets, and data sampling techniques.

GEOG:4030 (044:150) Senior Project Seminar 3 s.h.

Development of a research project and preparation of a research report. Offered spring semesters.

GEOG:4150 (044:137) Health and Environment: GIS Applications 3 s.h.

Applications of GIS and spatial analysis for studying health outcomes and exposure to environmental contaminants at different geographical scales. Same as GHS:4150 (152:139).

- GEOG:4500 (044:145) Applications in Environmental Remote Sensing** 4 s.h.
Theory and practice of remote sensing and digital image processing; practical applications to human-environment interactions. Recommendations: GEOG:3500 (044:105) or EES:3110 (012:111) or ENVS:3110 (159:111).
- GEOG:4520 (044:128) GIS for Environmental Studies: Applications** 3 s.h.
Applications of geographic information system (GIS) techniques in environmental change analysis (especially land use/cover change), environmental assessment, hazard/risk analysis, environmental decision making. Prerequisites: GEOG:3520 (044:110).
- GEOG:4570 (044:139) Spatial Analysis and Location Models** 3 s.h.
Application of location models within GIS environments to support decision making; small area demographic forecasting, location-allocation models, regionalization problems, shortest path models, other spatial analysis methods used to support spatial decisions. Prerequisites: GEOG:1050 (044:005).
- GEOG:4580 (044:141) Introduction to Geographic Databases** 3 s.h.
Introduction to key aspects of database design for GIS applications; major database models that support spatial data; formal models for key spatial relationships that underlie many different GIS applications; basics of SQL for making queries on datasets; design and construction of ArcGIS geodatabases; ArcGIS tools for geoprocessing. Prerequisites: GEOG:1050 (044:005).
- GEOG:4650 (044:142) Simulation in Environmental Geography** 3 s.h.
How computer simulations are used in environmental studies, with focus on landscape ecology (spatial patterns of organisms and ecosystems); basics of performing simulations; principles and applications of simulation through readings and performing simulations; frontiers of simulation use in the field; hands-on experience writing computer simulations that capture environmental processes (e.g., changing climate, predator-prey relations, nutrient flux), and analyzing the outcomes. Requirements: advanced courses in environmental geography or environmental science and senior standing.
- GEOG:4750 (044:125) Environmental Impact Analysis** 4 s.h.
Environmental impact assessment methodologies; emphasis on cost-benefit-risk, cost-effectiveness and incremental analysis, and overlay and graphic techniques; optimal resource use, system simulation; field trips to local environmental control facilities. Prerequisites: GEOG:1070 (044:019). Same as URP:4750 (102:125).
- GEOG:4770 (044:177) Environmental Justice** 3 s.h.
Review of theoretical positions for examining environmental justice, application of those theories to environmental controversies around the globe.
- GEOG:4870 (044:188) Applied Geostatistics** 3 s.h.
Applications of geostatistical methods to geology, geography, hydrology, environmental sciences, and engineering; variogram, Kriging, analysis of spatial-varied data with varied computer software in participants' specialties. Same as EES:4870 (012:178).
- GEOG:4930 (044:135) Urban Geography** 3 s.h.
Central ideas of modern urban geography, their links to social theory; focus on interrelation between social change, urban environment; evolution of urban systems, emergence of the capitalist city, urban social and residential differentiation, local politics of uneven development.
- GEOG:4960 (044:164) The Middle East** 3 s.h.
Middle East cultures, political economy, conflict; significance of the Middle East in world affairs, vice versa.
- GEOG:4990 (044:151) Senior Thesis** 3 s.h.
Original research. Requirements: senior standing.
- GEOG:4995 (044:199) Honors Thesis** arr.
Original research. Requirements: honors standing.
- ## Graduate
- GEOG:5001 (044:200) Readings** arr.
Supervised readings by graduate students in topics of their choice.
- GEOG:5010 (044:210) Fundamentals of Geography** 3 s.h.
Geography as an academic discipline; history, advances, epistemology, common themes.
- GEOG:5050 (044:211) Research and Writing in Geography** 3 s.h.
Identification of research areas; research questions and hypotheses; responsible conduct of research; methodological decisions; research proposal and paper writing.
- GEOG:5070 (044:297) Special Topics** arr.
Contemporary fields of inquiry, such as political economy, regional/African development, biophysical systems, GIS, locational analysis, water resources, economic geography, demographic analysis, environment, urbanization, transportation.
- GEOG:5129 (044:140) Information Systems for Resource Management** 3 s.h.
Understanding and managing natural and engineered resources requiring data-reach foundation; management of data; complex data-driven technologies integrated into data and information systems (DIS); hands-on opportunity to develop or use capabilities of DIS for study or research area of interest (science, engineering, industrial operation); wind power generation, an emerging field in Iowa, used as a case study for illustrating key DIS components, links, and functionalities. Same as IE:5129 (056:129), ME:5129 (058:129), CEE:5129 (053:129), ECE:5129 (055:129).
- GEOG:5550 (044:243) Modeling Space and Time** 3 s.h.

How to generate time-space-resolved estimates of sociophysical environmental contexts with the aid of modern geo-spatial technologies; how to model social, behavioral, and health outcomes with reference to multilevel time-space-resolved sociophysical environmental contexts; environmental contexts from air pollution and pesticide concentration to neighborhood diversity; statistical modeling of varied social, behavioral, and health outcomes such as dropping out of college, smoking, excessive weight, asthma, mental and physical disability. Requirements: a course in statistics and good understanding of correlation and regression.

GEOG:5650 (044:242) Simulations in Landscape Ecology 3 s.h.

Dynamics of land use and land cover change explored through advanced use of computer simulations in landscape ecology; how simulation is used in the field; simulations based on landscape ecology questions, with analysis of results using typical landscape ecology metrics. Prerequisites: GEOG:4650 (044:142).

GEOG:6100 (044:318) Seminar in Health and Environment 3 s.h.

Research on health and environment.

GEOG:6264 (044:265) Planning Sustainable Transportation 2-4 s.h.

Theories and methods of exerting public control over passenger and freight transportation; social and environmental regulation; effects of changing finance, regulation, and pricing policies, including privatization, tolls, impact fees. Same as URP:6265 (102:265).

GEOG:6500 (044:315) Seminar in Spatial Analysis and Modeling 1-3 s.h.

Research themes in spatial analysis, GIScience, simulation, remote sensing.

GEOG:6300 (044:316) Seminar in Environment, Conservation, and Land Use 3 s.h.

Research on land use, water resources, conservation.

GEOG:6632 (044:287) Crossing Borders Proseminar arr.

Same as HIST:6632 (016:244), POLI:6632 (030:243), ANTH:6632 (113:248), GRMN:6632 (013:260), SPAN:6903 (035:271), CINE:6632 (048:244).

GEOG:6635 (044:286) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).

GEOG:6900 (044:319) Seminar in International Development 3 s.h.

Research on GIScience and development.

GEOG:7000 (044:350) Geography Colloquium arr.

GEOG:7150 (044:418) Research in Health and Environment 1-3 s.h.

Directed research in health and environment.

GEOG:7350 (044:416) Seminar: Environment, Conservation, and Land Use 1-3 s.h.

Directed research in land use, water resources, conservation.

GEOG:7550 (044:415) Research in Spatial Analysis and Modeling 1-3 s.h.

Directed research in spatial analysis, GIScience, simulation.

GEOG:7750 (044:417) Research in Environmental Policy 1-3 s.h.

Directed research in environmental justice and policy.

GEOG:7950 (044:419) Research in International Development 1-3 s.h.

Directed research in international development.

GEOG:7999 (044:450) Thesis arr.

German

Director, Division of World Languages, Literatures, and Cultures

- Russell Ganim

Chair, Department of German

- Russell Ganim

General Education language coordinator

- Bruce Spencer

Professors

- Sarah M.B. Fagan, Waltraud Maierhofer

Associate professors

- Glenn Ehrstine, Sabine Gölz

Assistant professor

- Yasemin Mohammad

Lecturer

- Bruce Nottingham-Spencer

Professors emeriti

- Judith P. Aikin, Wolfgang Ertl, James P. Sandrock, Ingeborg H. Solbrig

Associate professors emeriti

- Ford B. Parkes, Richard M. Runge

Undergraduate major: German (B.A.)

Undergraduate minor: German

Graduate degree: M.A. in German

Web site: <http://clas.uiowa.edu/dwllc/german>

The Department of German provides education in the language, literature, and culture traditionally designated as German, as expressed in the language and cultural heritage of Germany, Austria, and Switzerland. Its faculty members conduct research and teach on topics in German language, literature, and culture from disciplinary and interdisciplinary perspectives.

Undergraduate students in all majors may satisfy the World Languages requirement of the General Education Program with courses in German; see "Language for General Education" below. They may satisfy other General Education requirements with courses on German literature and culture that are taught in English; look for courses with the prefix GRMN in the area lists under "Culture, Society, and the Arts" in the General Education Program (p. 323) section of the Catalog. General Education courses on German literature and culture also are listed with departmental courses taught in English under "Courses" at the end of this Catalog section.

University graduates with degrees in German frequently enter the teaching profession. They also find positions in government, foreign service, and commercial enterprise.

The Department of German is one of the academic units in the Division of World Languages, Literatures, and Cultures (p. 235).

Undergraduate Programs of Study

- Major in German (Bachelor of Arts)
- Minor in German

Bachelor of Arts

The Bachelor of Arts with a major in German requires a minimum of 120 s.h., including at least 30 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). Students who plan to earn licensure to teach in elementary and/or secondary schools should see "B.A. with Teacher Licensure" below.

Students who begin a German major with no previous German language experience must complete the following courses or their equivalents.

GRMN:1001 (013:011) Elementary German I	4 s.h.
GRMN:1002 (013:012) Elementary German II	4 s.h.
GRMN:2001 (013:021) Intermediate German I	4 s.h.
GRMN:2002 (013:022) Intermediate German II	4 s.h.

This requirement also may be satisfied by various combinations of GRMN:1020 (013:013) Intensive Elementary German, GRMN:1010 (013:014) First-Year German Review, and GRMN:2020 (013:025) Intensive Intermediate German.

The 30 s.h. required for the major must include at least five upper-level German courses taken at The University of Iowa. Note: GRMN:3501 (013:101) Introduction to German Literature (or equivalent) is prerequisite for some other German literature courses.

The major in German requires the following course work.

Core courses—all of these:

GRMN:3103 (013:103) Composition and Conversation I	3 s.h.
GRMN:3104 (013:104) Composition and Conversation II	3 s.h.
GRMN:3501 (013:101) Introduction to German Literature	3 s.h.

Linguistics—one of these:

GRMN:3807 (013:107) Introduction to German Linguistics	3 s.h.
GRMN:3855 (013:122) The Sounds of German	3 s.h.
GRMN:3865 (013:165) History of the German Language	3 s.h.

Culture—one of these:

GRMN:3405 (013:105) German Cultural History	3 s.h.
GRMN:4315 (013:115) Contemporary German Civilization	3 s.h.

Capstone course:

GRMN:4850 (013:185) Senior Seminar	3 s.h.
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Electives:

Four electives chosen from Department of German courses (prefix GRMN), with at least two numbered 3000-4999 12 s.h.

Students may count a maximum of two Department of German courses taught in English and numbered 2500-2999 toward the major by registering for 4 s.h. of credit for each course instead of 3 s.h.; the additional 1 s.h. of credit reflects an added research component. See "German in Translation" under "Courses"/"Lower-Level Undergraduate" toward the end of this Catalog section. Courses taught in English that are taken for 3 s.h. do not count toward the major in German.

With the approval of the departmental director of undergraduate studies, students also may apply one course from the University of Iowa Honors Program to the requirements of the German major or minor when that course concerns German culture or language. Honors courses are subject to the same limits on courses taught in English as are Department of German courses.

German majors, both undergraduate and graduate, are urged to supplement their degree programs with relevant courses in areas such as German history, philosophy, and business.

B.A. with Teacher Licensure

German majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students who plan to use their work toward a German minor as academic background for earning teacher licensure should contact the Office of Education Services about requirements.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: language competency equal to first-year German

Before the fifth semester begins: language competency equal to second-year German

Before the seventh semester begins: four courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester: two or three additional courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Exceptional students majoring in German have the opportunity to pursue honors study in the major and to graduate with honors in the major. To participate in

the department's honors program, students must have completed three years of college-level German, or the equivalent, with a g.p.a. of at least 3.50 in upper-level German courses.

Students working toward graduation with honors in the German major must register for GRMN:4990 (013:190) Honors Program in German and must meet regularly with their faculty director of studies. They are expected to engage in readings and discussions in German linguistics, literature, or culture and to write essays in German and English. They also must complete honors research and write an honors thesis, registering for GRMN:4991 (013:191) Honors Research and Thesis. They complete their honors requirements by presenting their honors thesis to a faculty committee of at least three members.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in German requires a minimum of 15 s.h. in college-level German courses, including at least 12 s.h. in courses taken at The University of Iowa. All Department of German courses numbered 3000 or above count toward the minor. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

The minor must include 9 s.h. in Department of German courses (prefix GRMN) numbered 3000 or above. It also may include a maximum of 3 s.h. in Department of German courses numbered 2002-2100.

Students may count one Department of German course taught in English and numbered 2500-2999 toward the minor by registering for 4 s.h. of credit for the course instead of 3 s.h.; the additional 1 s.h. of credit reflects an added research component. See "German in Translation" under "Courses"/"Lower-Level Undergraduate" toward the end of this Catalog section. Courses taught in English that are taken for 3 s.h. do not count toward the minor in German.

With the approval of the director of undergraduate studies, students may count up to 6 s.h. earned in study abroad at a university in a German-speaking country toward the minor.

Language for General Education

The department offers several sequences of German language courses that students in all majors may use to satisfy the World Languages requirement of the College of Liberal Arts and Sciences General Education Program (p. 323). Students who have had experience with German should take the online World Languages Placement Test, which helps determine the level at which a student should begin German language study at The University of Iowa. Students with no background in German should begin their study with GRMN:1001 (013:011) Elementary German I.

The following sequences satisfy the World Languages Requirement of the General Education Program. Students using German to satisfy the World Languages requirement

should talk with departmental advisors to determine which sequence is best for them.

GRMN:1001 (013:011) Elementary German I	4 s.h.
GRMN:1002 (013:012) Elementary German II	4 s.h.
GRMN:2001 (013:021) Intermediate German I	4 s.h.
GRMN:2002 (013:022) Intermediate German II	4 s.h.

or

GRMN:1001 (013:011) Elementary German I	4 s.h.
GRMN:1002 (013:012) Elementary German II	4 s.h.
GRMN:2020 (013:025) Intensive Intermediate German	4-6 s.h.

or

GRMN:1020 (013:013) Intensive Elementary German	4,6 s.h.
GRMN:2020 (013:025) Intensive Intermediate German	4-6 s.h.

or

GRMN:1010 (013:014) First-Year German Review	5 s.h.
GRMN:2001 (013:021) Intermediate German I	4 s.h.
GRMN:2002 (013:022) Intermediate German II	4 s.h.

or

GRMN:1010 (013:014) First-Year German Review	5 s.h.
GRMN:2020 (013:025) Intensive Intermediate German	4-6 s.h.

Joint B.A./M.A.

The joint Bachelor of Arts/Master of Arts program in German permits students to count 12 s.h. of approved course work toward both degrees and to take graduate-level German courses while they are still undergraduates. Students may complete both degrees in five years. They receive the B.A. when they have satisfied all requirements for the bachelor's degree, and they receive the M.A. when they have completed all master's degree requirements.

The joint B.A./M.A. is appropriate for students who enter the University from high school with advanced German language preparation. It is attractive to highly motivated students who plan to study abroad and who plan to pursue a Ph.D. in German or second language acquisition. It may serve as preparation for other programs, such as those related to international studies, library science, business with an international focus, or international relations. Students seeking careers in teaching or other fields may pursue the joint degree as a credential.

Joint program students must fulfill all requirements for the B.A. They ordinarily spend two semesters in their junior year enrolled in the study abroad program at the University of Freiburg, in Germany (see "Study Abroad" below), unless they have satisfied this requirement another way (e.g., a year abroad during high school or another study abroad program with similar content).

During the last two semesters of their senior year, they may take up to 12 s.h. of graduate-level courses that count toward both degrees (for the B.A., 6 s.h. toward required courses and 6 s.h. toward electives). Once they complete

all B.A. requirements, they complete the remaining M.A. requirements.

Students must maintain an undergraduate German g.p.a. of at least 3.50; if they fail to meet this standard for more than one semester, they may be required to leave the program. They must have an overall undergraduate g.p.a. of at least 3.00 when they achieve graduate standing.

Applicants must be admitted to the joint program before the beginning of their seventh semester (senior year). They must be University of Iowa undergraduate students; must have completed 80 s.h. or be in the process of completing 90 s.h. of undergraduate work; and must have completed or be in the process of completing at least 21 s.h. of courses in the German major numbered 3000 or above. They must have completed or be in the process of completing a study abroad program in a German-speaking country or have satisfied this requirement another way. They also must have a g.p.a. of at least 3.50 in German when they apply to the program or a letter from a Department of German faculty member recommending an exception.

Students pay undergraduate tuition and fees during their first semester in the joint program (normally their seventh semester); beginning with their second semester in the program (normally their eighth semester), they begin paying graduate tuition and fees. Students may hold a graduate appointment beginning with their second semester in the joint program.

Study Abroad

The Department of German participates in an academic year abroad program for undergraduates at the Albert Ludwig University of Freiburg, in Germany. The Freiburg program is offered by a consortium made up of The University of Iowa, Michigan State University, the University of Michigan, and the University of Wisconsin-Madison.

Students arrive during the first week of September and participate in a four-week intensive language program. Then they take a blend of special program classes and regular German university courses. Organized field trips are designed to give students a broader perspective on German culture. Vacation periods permit extensive travel throughout Europe, and students are encouraged to use weekends for shorter trips in the region.

To apply, students must have reached at least sophomore standing by the beginning of the program, must have completed at least the first four semesters of college German or the equivalent with a g.p.a. of at least 3.00 in German, and must be in good academic standing at a U.S. college or university.

Students earn resident credit in all courses successfully completed in the program. They may count up to 21 s.h. earned at Freiburg toward the major in German. Credit also counts toward the minor in German. Students in other majors should consult with their advisor or their department's undergraduate director.

Contact the Department of German or International Programs Study Abroad for more information.

Graduate Program of Study

- Master of Arts in German (with or without thesis)

Advanced undergraduate students majoring in German may begin working toward a master's degree in German while completing their bachelor's degree; see "Joint B.A./M.A." above.

Master of Arts

The Master of Arts program in German requires a minimum of 33 s.h. of graduate credit. It is offered with or without thesis.

M.A. students choose one of two concentrations: German literature or Germanic linguistics. The German literature concentration requires seven literature courses (21 s.h.) and four linguistics courses (12 s.h.). The Germanic linguistics concentration requires seven linguistics courses (21 s.h.) and four literature courses (12 s.h.).

M.A. students are expected to complete at least 24 s.h. in the Department of German. All M.A. course work taken outside the department requires the graduate advisor's approval.

Before taking the M.A. exam, students must demonstrate reading knowledge of a foreign language other than German, at a level equivalent to two years of college study or four years of high school study. Students may demonstrate competence by submitting proof that they have taken the required course work with a g.p.a. of at least 3.00 or by passing an exam at the fourth-semester college level, as determined by the appropriate language department.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

Teaching assistantships, research assistantships, and partial tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funke prizes to students of distinction.

Facilities and Resources

Students have the opportunity to improve their comprehension and command of German by working with recorded materials in the Language Media Center. They also may benefit from the multimedia courseware and digital video recordings from German television.

An extensive collection of works and periodicals at University of Iowa Libraries facilitates research in all major areas of German literature and Germanic linguistics and at all levels of study.

The Global Mosaic and Spoken Here Living-Learning Communities are two on-campus housing options of special interest to undergraduate world languages students.

Courses

Lower-Level Undergraduate

GRMN:1001 (013:011) Elementary German I 4 s.h.

Understanding and speaking "everyday German"; reading and writing skills; acquaintance with the German-speaking world through discussion, readings, videos. GE: World Languages First Level Proficiency.

GRMN:1002 (013:012) Elementary German II 4 s.h.

Continuation of GRMN:1001 (013:011). Prerequisites: GRMN:1001 (013:011). GE: World Languages Second Level Proficiency.

GRMN:1005 (013:016) German Conversation and Culture I 1 s.h.

Conversational practice and exposure to German culture; development of listening and speaking skills, expansion of vocabulary, and exposure to contemporary culture of German-speaking countries; conversation practice, games, and introduction to cultural topics through short texts, videos, and songs. Corequisites: GRMN:1001 (013:011) or GRMN:1020 (013:013).

GRMN:1006 (013:018) German Conversation and Culture II 1 s.h.

Conversational practice and exposure to German culture; development of listening and speaking skills, expansion of vocabulary, and exposure to contemporary culture of German-speaking countries; conversation practice, games, and introduction to cultural topics through short texts, videos, and songs. Prerequisites: GRMN:1001 (013:011). Corequisites: GRMN:1002 (013:012) or GRMN:1010 (013:014).

GRMN:1010 (013:014) First-Year German Review 5 s.h.

Accelerated course in preparation for third-semester German. Requirements: at least two years of high-school German. GE: World Languages Second Level Proficiency.

GRMN:1020 (013:013) Intensive Elementary German 4,6 s.h.

Elementary German I and II combined in one intensive course. GE: World Languages Second Level Proficiency.

GRMN:1040 (013:040) German for Travelers 2 s.h.

Basic German skills for tourists; for students with no previous knowledge of German.

GRMN:2001 (013:021) Intermediate German I 4 s.h.

Proficiency in spoken and written German; German-speaking cultures of central Europe, their historical background; emphasis on refinement of reading skills. Prerequisites: GRMN:1002 (013:012) or GRMN:1010 (013:014). GE: World Languages Second Level Proficiency.

GRMN:2002 (013:022) Intermediate German II 4 s.h.

Continuation of GRMN:2001 (013:021). Prerequisites: GRMN:2001 (013:021). GE: World Languages Fourth Level Proficiency.

GRMN:2005 (013:023) German Conversation and Culture III 1 s.h.

Conversational practice and exposure to German culture; development of listening and speaking skills, vocabulary expansion, and exposure to contemporary culture of German-speaking countries; conversation practice, games, and introduction to cultural topics in the form of short texts, videos, and songs. Prerequisites: GRMN:1002 (013:012). Corequisites: GRMN:2001 (013:021) or GRMN:2020 (013:025).

GRMN:2006 (013:024) German Conversation and Culture IV 1 s.h.

Conversational practice and exposure to German culture; development of listening and speaking skills, expansion of vocabulary, and exposure to contemporary culture of German-speaking countries; conversation practice, games, and introduction to cultural topics through short texts, videos, and songs. Prerequisites: GRMN:2001 (013:021). Corequisites: GRMN:2002 (013:022) or GRMN:2020 (013:025).

GRMN:2020 (013:025) Intensive Intermediate German 4-6 s.h.

Intermediate German I and II combined in one intensive course. Prerequisites: GRMN:1002 (013:012) or GRMN:1020 (013:013) or GRMN:1010 (013:014). GE: World Languages Fourth Level Proficiency.

German in Translation

GRMN:1000 (13E:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first or second semester standing.

GRMN:2618 (13E:118) The Third Reich and Literature 3-4 s.h.

Nazi literature, literature of the Holocaust and the Opposition, exile literature, in English translation. Taught in English. GE: Values, Society, and Diversity. Same as CL:2618 (218:148).

GRMN:2650 (13E:057) Ethnicity, Race, and National Identity 3-4 s.h.

Introduction to nationalism and national identity in context of modern Germany; examination of various theories on nationalism—what a nation is and what historical experiences particular nations have undergone; history of German nationalism and politics of citizenship; how German citizens of Turkish and Jewish origin negotiate their national identity in contemporary Germany; focus on complex relationship between concepts of race, ethnicity, religion, and nation.

GRMN:2666 (13E:066) Pact with the Devil 3-4 s.h.

Pact with the devil—a metaphor for humankind's desire to surpass the limits of knowledge and power—in German literature and culture from early modern time to early 20th century; Goethe's *Faust*, Klaus Mann's *Mephisto*, Thomas Mann's *Doctor Faustus*, Weber opera; fascination with the forbidden in regard to women, such as in Meinhold's *Amber Witch*; the pact in other cultures and in contemporary American literature and culture. Taught in English. Requirements: RHET:1030 (010:003) or completion of General Education rhetoric requirement. GE: Literary, Visual, and Performing Arts.

GRMN:2675 (13E:095) The Politics of Memory: Holocaust, Genocide, and 9/11 3-4 s.h.

How contested legacies of genocide, global violent conflict, and 9/11 continue to pose an urgent and generationally mediated challenge for critical politics of memory; various approaches to effective or failed coming-to-terms with injurious and difficult past (e.g., Holocaust, Armenian genocide); analysis of museums, sites of memory, and art work. Taught in English.

GRMN:2720 (13E:120) Germany in the World 3-4 s.h.

The Federal Republic of Germany's increasing prominence in post-Cold War international affairs, against backdrop of 20th-century history. Taught in English. GE: International and Global Issues. Same as HIST:2920 (16E:090).

GRMN:2775 (13E:075) Scandinavian Crime Fiction 3-4 s.h.

Contemporary Scandinavian crime novel in its literary, historical, geographic, cultural, and social context. Taught in English. GE: Literary, Visual, and Performing Arts.

GRMN:2780 (13E:080) King Arthur Through the Ages 3-4 s.h.

Representation and function of King Arthur in European literature and film, from Geoffrey of Monmouth's *History of the Kings of Britain* (ca. 1136) to present. Taught in English. GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity.

GRMN:2785 (13E:085) The Fantastic and Supernatural in German Fiction and Film 3-4 s.h.

Themes of the fantastic and supernatural in German literature; works by well-known authors from 18th century to present (Goethe to Kafka, the Romantics, *Magic Flute* to latest science fiction or fantasy) in historical context; writers' struggle to define and maintain themselves through tumultuous social and personal changes. GE: Literary, Visual, and Performing Arts.

Upper-Level Undergraduate and Graduate

GRMN:3010 (013:141) Stories in German 3 s.h.

Stories and other relatively short prose by representative authors; discussion and response; varied topics. Taught in German. Prerequisites: GRMN:3501 (013:101).

GRMN:3103 (013:103) Composition and Conversation I 3 s.h.

Active command of German in reading, speaking, writing. Taught in German. Prerequisites: GRMN:2002 (013:022).

GRMN:3104 (013:104) Composition and Conversation II 3 s.h.

Taught in German. Prerequisites: GRMN:2002 (013:022).

GRMN:3199 (013:197) German Readings and Research 1 s.h.

Research and readings in German language, literature, and culture. Prerequisites: GRMN:2002 (013:022). Requirements: German major or minor, and concurrent registration in one German course numbered 2500-2999.

- GRMN:3214 (013:114) Business German** 3 s.h.
World of German business, role of German-speaking countries in world trade; emphasis on German business protocol, correspondence. Taught in German. Offered fall semesters of even years. Prerequisites: GRMN:2002 (013:022) or GRMN:2020 (013:025).
- GRMN:3250 (013:135) Brief Texts About Big Events** 3 s.h.
Twentieth-century German literature in context of major historical events. Taught in German. Prerequisites: GRMN:2002 (013:022).
- GRMN:3405 (013:105) German Cultural History** 3 s.h.
Emphasis on mythical historical persons and places. Taught in German. Prerequisites: GRMN:3103 (013:103) or GRMN:3104 (013:104) or GRMN:3501 (013:101).
- GRMN:3501 (013:101) Introduction to German Literature** 3 s.h.
Literary works from various genres. Taught in German. Prerequisites: GRMN:2002 (013:022).
- GRMN:3540 (013:259) Grammar in Second Language Teaching/Learning** 3 s.h.
Grammar, second language acquisition, and teaching. Taught in English, projects in varied languages. Same as SLA:5973 (164:225).
- GRMN:3550 (013:156) The Politics of Remembrance in German Multicultural Literature and Film** 3 s.h.
Exploration of contemporary literary texts and films by multicultural German authors and filmmakers who deal critically with German collective memory and the politics of remembrance. Prerequisites: GRMN:2002 (013:022) or GRMN:2020 (013:025).
- GRMN:3555 (013:155) Image of America in German Literature and Film** 3 s.h.
Examination of real and imagined cultural stereotypes; representations of the United States in German literature, film, and media. Prerequisites: GRMN:3103 (013:103) or GRMN:3104 (013:104) or GRMN:3501 (013:101).
- GRMN:3807 (013:107) Introduction to German Linguistics** 3 s.h.
Phonology, morphology, syntax, semantics, historical development. Taught in German. Offered spring semesters of even years. Prerequisites: GRMN:3103 (013:103) or GRMN:3104 (013:104) or GRMN:3501 (013:101).
- GRMN:3855 (013:122) The Sounds of German** 3 s.h.
Analysis of sounds and sound system of German; practice in listening and speaking. Prerequisites: GRMN:2002 (013:022).
- GRMN:3865 (013:165) History of the German Language** 3 s.h.
History of the German language; its Indo-European roots, important characteristics of the language's major periods. Prerequisites: GRMN:3103 (013:103) or GRMN:3104 (013:104) or GRMN:3501 (013:101).
- GRMN:4116 (013:116) Advanced Composition and Conversation** 3 s.h.
Speaking and writing. Taught in German. Prerequisites: GRMN:3103 (013:103) and GRMN:3104 (013:104). Requirements: German undergraduate standing.
- GRMN:4315 (013:115) Contemporary German Civilization** 3 s.h.
Government and political structure, economy, mass media, education, social and cultural life of Germany, Austria, Switzerland from the end of World War II to present. Taught in German. Offered spring semesters of odd years. Prerequisites: GRMN:3103 (013:103) or GRMN:3104 (013:104) or GRMN:3501 (013:101). GE: International and Global Issues.
- GRMN:4540 (013:140) Literature in Film** 3 s.h.
Representative texts of German literature with film adaptations as specific readings. Taught in German. Corequisites: GRMN:3501 (013:101), if not taken as a prerequisite.
- GRMN:4587 (013:148) Violence and Culture** 3 s.h.
Violence viewed with a mixture of fear and fascination in modern German society, source of creation and destruction; how this is treated in literary, cinematic, and critical works from the 19th and 20th centuries; how violence is interpreted and evaluated in these works in social, political, psychological, and philosophical terms. Prerequisites: GRMN:3501 (013:101).
- GRMN:4589 (013:153) Tyrants and Terror** 3 s.h.
Introduction to literature and adaptations in film from 1750 to the present; artists' and writers' views of appalling events and historical figures; application of creative role playing to better understand structural and psychological components and describing and generating emotions; readings range from Schiller's classical dramatization of the Wilhelm Tell myth to recent Nobel-prize winner Herta Mueller writing about communist Romania. Prerequisites: GRMN:2002 (013:022) and GRMN:3501 (013:101). Requirements: two years of German language.
- GRMN:4630 (013:152) German Culture Before the Third Reich** 3 s.h.
Introduction to self-consciously, avant-garde literature (drama, poetry, prose) and other art forms (film, music, visual arts) produced in Germany between 1910-1930; examination of various styles, including expressionism, Dadaism, new objectivity, surrealism; artistic innovation and cultural resonance. Prerequisites: GRMN:3501 (013:101).
- GRMN:4643 (013:143) Witch Trials: Fact and Fiction** 3 s.h.
Historical construction and fictional representation of women and men persecuted as witches and witchmasters in German-speaking countries. Prerequisites: GRMN:3501 (013:101).
- GRMN:4730 (013:150) Beautiful Souls and Scandalous Writing** 3 s.h.

Varied works of and about the 18th century; fairy tales, plays, short novels, poems, and other texts by authors such as Lichtenberg, Goethe, Naubert, Schiller, Schlegel, Sueskind; gender roles ascribed to women and men. Prerequisites: GRMN:2002 (013:022).

GRMN:4850 (013:185) Senior Seminar arr.

Capstone course for majors in their last year; online graduation portfolio. Prerequisites: GRMN:3103 (013:103) and GRMN:3104 (013:104). Requirements: German major and undergraduate standing.

GRMN:4900 (013:100) Individual German arr.

Requirements: German major or minor.

GRMN:4990 (013:190) Honors Program in German 3 s.h.

Individual work in literature, linguistics, and culture. Requirements: three years of college-level German and g.p.a. of at least 3.50 in German.

GRMN:4991 (013:191) Honors Research and Thesis 3 s.h.

Prerequisites: GRMN:4990 (013:190). Requirements: honors standing.

German in Translation

GRMN:3236 (013:136) German Film 3 s.h.

Overview 1925-1987; examples of avant-garde films of the Weimar Republic, propagandist filmmaking from the Third Reich, filmmaking traditions of the German Democratic Republic (GDR) and the Federal Republic of Germany (FRG). Prerequisites: GRMN:2002 (013:022).

GRMN:4266 (13E:166) Topics in Literature and Theory 3 s.h.

Same as CL:4266 (218:166).

GRMN:4475 (13E:126) Germany Since 1914: Weimar, Hitler, and After 3-4 s.h.

Continuity, change in 20th-century German politics, society, culture; creation, collapse of Weimar Republic; Nazism and Third Reich; East and West Germany since 1945; unification and its discontents. GE: International and Global Issues. Same as HIST:4475 (16E:156).

GRMN:4512 (013:172) Topics in Global and Transnational Culture 3-4 s.h.

In-depth look at a theme in cultural expression arising from interactions between countries and regions; focus on contemporary or historical issues; use of materials ranging from literature and the visual arts to music, mass media, and more; general processes through which cultures are formed in mutual and uneven relationships; research project. Recommendations: completion of an international and global issues GE course. Same as WLLC:4512 (218:172), ARAB:4512 (195:172).

Graduate

Graduate Nonmajors

Graduate students not pursuing a degree in German also may take GRMN:1020 (013:013) Intensive Elementary German and GRMN:2020 (013:025) Intensive Intermediate German; see "Lower-Level Undergraduate" above.

GRMN:5000 (013:128) German Reading for Graduate Students 4 s.h.

Grammar review, vocabulary building, extensive reading of sophisticated texts. Offered spring semesters. Prerequisites: GRMN:1002 (013:012) or GRMN:1010 (013:014) or GRMN:1020 (013:013). Requirements: non-German graduate standing.

Graduate Students in German

GRMN:5030 (013:221) Principles of Teaching and Learning Foreign Languages 3 s.h.

Same as FREN:5030 (009:234), ASIA:5030 (039:234), SLAV:5030 (041:234).

GRMN:6632 (013:260) Crossing Borders Proseminar arr.

Same as HIST:6632 (016:244), POLI:6632 (030:243), GEOG:6632 (044:287), ANTH:6632 (113:248), SPAN:6903 (035:271), CINE:6632 (048:244).

GRMN:6635 (013:262) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).

GRMN:6920 (013:253) Multimedia and Second Language Acquisition 3 s.h.

Foreign language multimedia in context of current second language acquisition theories and research; readings on interactivity, interface design, feedback, learner control; acquisition of vocabulary, grammar, and culture. Requirements: foreign language teaching methodology course. Same as SLA:6920 (164:211), FREN:6920 (009:238), SPAN:6920 (035:212).

GRMN:7000 (013:200) Advanced Studies arr.

Special problems in German literature and linguistics. Requirements: German graduate standing.

GRMN:7300 (013:300) Master's Thesis arr.

GRMN:7400 (013:400) Ph.D. Dissertation arr.

Global Health Studies

Director

- Christopher Squier

Undergraduate minor: global health studies

Undergraduate certificate: global health studies

Graduate certificate: global health studies

Web site: <http://clas.uiowa.edu/global-health-studies>

Education, research, and practice in global health places a priority on improving health and achieving equity for all people worldwide. Issues in the field include social determinants of health, health care disparities, infectious and noncommunicable diseases, environmental challenges, and human rights as well as economic development, health policy, and health systems.

The University of Iowa's Global Health Studies Program examines the complex processes influencing health and disease around the world. It considers not only the manifestations of significant diseases and public health and health care systems, but also the underlying forces and institutions—such as technology, politics, culture, legal structure, history, and economics—that collectively influence patterns of health and disease.

The Global Health Studies Program equips its students to:

- identify the nature, magnitude, and distribution of factors that contribute to excess morbidity and mortality, including disparities in health status by gender, race, ethnicity, rural or urban location, and economic status;
- understand how commerce, labor, food supply and sustainability, the environment, climate change and natural disasters, pharmaceuticals, international aid, human rights, and conflict may contribute to health status; and
- be aware of and able to assess the appropriateness of intervention strategies to promote health and to address major health problems, particularly in low-resource settings, and be able to evaluate the effectiveness and sustainability of such interventions.

The Global Health Studies Program attracts undergraduate, graduate, and professional students from a wide range of disciplines, including international studies, anthropology, public health, health and pre-health sciences, health economics, nursing, environmental engineering, history, law, business, journalism, social work, and education.

Undergraduate and Graduate Programs of Study

- Certificate in Global Health Studies (undergraduate and graduate)
- Minor in global health studies (undergraduate)

The College of Liberal Arts and Sciences grants the undergraduate certificate and minor; the Graduate College confers the graduate certificate.

Certificate

The Certificate in Global Health Studies requires 18 s.h. of credit. Students must maintain a g.p.a. of at least 3.00

in work for the certificate. Completion of the certificate is noted on the student's transcript.

The undergraduate certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Undergraduates may earn the certificate or the minor in global health studies, but not both.

The graduate certificate is open to University of Iowa graduate and professional students.

Admission to the certificate program is competitive. Applicants must be in good academic standing and must be able to demonstrate interest in and understanding of the field of global health. For application forms and deadline information, contact the Global Health Studies Program advisor.

Work for the certificate includes core courses, electives, an international experience that culminates in a public presentation and written report, and study of a world language. Students must earn at least 15 s.h. of credit for the certificate in courses numbered 3000 or above taken at The University of Iowa. They may choose courses offered by the Global Health Studies Program (see "Courses" below) and those offered by other departments and programs (see "Associated Courses" below).

Students may be granted credit toward the certificate for course work they completed up to two years before beginning the program. Graduate and professional students who would like to count credit from a degree program toward the global health studies certificate should consult their major academic programs.

The Certificate in Global Health Studies requires the following work.

CORE COURSES

All of these:

GHS:3010 (152:150) Identifying and Developing a Global Health Project (may be repeated for elective credit)	3 s.h.
GHS:3020 (152:151) Proseminar in Global Health	1 s.h.
GHS:3030 (152:152) Global Health Conference (may be repeated for elective credit)	1 s.h.
GHS:3720 (152:160) Global Health Seminar	3 s.h.
GHS:4210 (152:111)/EPID:4210 (173:111)/OEH:4210 (175:111) International Health	3 s.h.

ELECTIVES

Students complete 7 s.h. of approved electives chosen from the lists under "Associated Courses" and "Courses" below. They may petition to use other courses as electives if they can demonstrate that the courses include substantial material related to global health. Students may apply up to 3 s.h. of academic credit earned for research, internship, or study abroad experiences to the elective requirement. Contact the Global Health Studies Program for details.

INTERNATIONAL EXPERIENCE

Students must complete an international experience in which they systematically address an important global health issue. The experience typically takes place in an international setting and lasts eight weeks. The

international experience may be completed as part of a study abroad program, a service learning course, an internship, a volunteer experience, or an independent research project.

Projects require approval by the Global Health Studies Program steering committee and must be supervised by a faculty member. Students may apply for an international travel scholarship (\$1,000); other financial support may be available for some projects. Visit Certificate/International Experience on the program's web site for more information.

Language Study

Students should complete four semesters of modern language study or course work that fulfills or is equivalent to the College of Liberal Arts and Sciences General Education Program (p. 323) World Languages requirement.

The Global Health Studies Program steering committee may require students to take additional language study in preparation for a research or internship program. Students interested in learning an infrequently taught language to facilitate their participation in an international experience should investigate the Autonomous Language Learning Network (ALLNET).

Public Presentation and Report

Certificate requirements culminate in a public presentation and report, in which each student presents the results of his or her international experience in GHS:3010 (152:150) Identifying and Developing a Global Health Project or in an equivalent public forum. Students also must submit a 10-12 page report that summarizes their international experience.

Minor

The minor in global health studies requires a minimum of 15 s.h., including 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may earn either the certificate or the minor in global health studies, but not both.

The minor is interdisciplinary, designed for undergraduates who wish to study health issues in a global context. Each student's plan of study for the minor is developed according to the student's interests and in consultation with a program advisor. Students may choose courses from those offered by the Global Health Studies Program (see "Courses" below) or by other departments and programs (see "Associated Courses" below); they should choose course work from at least two different disciplines. Students are strongly encouraged to include one of the core courses required for the Certificate in Global Health Studies in their plan of study for the minor. The program highly recommends that students complete a period of study abroad focused on global health issues.

Activities and Resources

The Global Health Studies Program organizes both on-campus and international activities and research opportunities for students and faculty members, enabling them to become acquainted with major global health issues. Several scholarships, academic fellowships, international fellowships, and research and study abroad programs supplement the global health studies certificate

program. These are sponsored by the University and a variety of agencies. Contact the Global Health Studies Program for details.

Associated Courses

In addition to courses offered by the Global Health Studies Program (see "Courses" below), students may use the following courses to complete requirements for the certificate or minor.

AGING STUDIES

ASP:1800 (153:085) Basic Aspects of Aging 3 s.h.

ANTHROPOLOGY

ANTH:4140 (113:133) The Anthropology of Women's Health 3 s.h.

COMMUNITY AND BEHAVIORAL HEALTH

CBH:5205 (172:130) Social Determinants of Health 3 s.h.

CBH:5220 (172:150) Health Behavior and Health Education 3 s.h.

ECONOMICS

ECON:3760 (06E:113) Health Economics 3 s.h.

EDUCATION

EPLS:5195 (07B:195) Research in Cross-Cultural Settings 3 s.h.

OCCUPATIONAL AND ENVIRONMENTAL HEALTH

OEH:4240 (175:197) Global Environmental Health 3 s.h.

PUBLIC HEALTH

MPH:5100 (170:101) Introduction to Public Health 3 s.h.

Courses

Lower-Level Undergraduate

GHS:1029 (152:029) First-Year Seminar 1 s.h.
Introduction to intellectual life of the University; opportunity to work closely with a faculty member or senior administrator; active participation to ease transition to college-level learning.

GHS:1100 (152:030) Contraception Across Time and Cultures 3 s.h.
Methods and history of contraception and abortion; issues of unwanted pregnancy and birth control in fiction, film, and media around the world. Same as WLLC:1100 (218:050).

GHS:1181 (152:081) Ancient Medicine 3 s.h.
Thematic examination of theories and practices of Greco-Roman physicians, which in turn became the medical tradition of medieval Islamic world and European medicine until mid-19th century; historical medical terms, theories, and practices. GE: Historical Perspectives. Same as CLSA:1181 (20E:081).

GHS:2150 (152:050) Natural Environmental Systems 3-4 s.h.

Environmental chemistry and biology of air, water, and soil quality, air and water pollution, limnology, global atmospheric change, fate and transport of pollutants; hazardous substances, risk analysis, standard setting. Prerequisites: CHEM:1110 (004:011). Same as CEE:2150 (053:050).

GHS:2164 (152:091) Culture and Healing for Future Health Professionals 3 s.h.

Health professions increasingly focused on how to best provide health care to culturally diverse populations; introduction to key cultural and social influences on sickness and healing; worldwide examples. Same as ANTH:2164 (113:091).

GHS:2181 (152:147) The Anthropology of Aging 3 s.h.

Comparative anthropological perspective on aging; ethnographies from diverse contexts used to examine intersections of kinship, religion, health, and medicine in later life. Same as ANTH:2181 (113:147), ASP:2181 (153:181).

GHS:2320 (152:090) Anthropological Perspectives on Human Infectious Disease: Origins and Evolution 3 s.h.

Origin and evolution of important infectious diseases in human history; biological evolution of infectious agents and biocultural responses to emerging infectious diseases; primary focus on viruses and bacteria; selected world problems from an anthropological perspective; current dilemmas and those faced by diverse human groups in recent times and distant past. Same as ANTH:2320 (213:090).

Upper-Level Undergraduate and Graduate

GHS:3010 (152:150) Identifying and Developing a Global Health Project 2-3 s.h.

Preparation for an international experience (study abroad, service learning, volunteering, internship, or independent research project); addressing a global health issue in a systematic way.

GHS:3020 (152:151) Proseminar in Global Health 1 s.h.

Important health problems and issues of a global and interrelated nature that affect the developed and developing world.

GHS:3030 (152:152) Global Health Conference 1 s.h.

Annual research conference on major global health issues.

GHS:3040 (152:119) Health in Mexico 3 s.h.

Use of anthropological perspectives to examine disease, healing systems, and ideas about health and the body in Mexico and its diaspora; relationships between structural conditions and historical and political transformations; ideas about gender and race; chronic and acute disease in Mexico; conquest and disease; racialized bodies; sexual health; biomedicine; shamanism; immigration and health; pollution and narcoviolence; readings in English. Same as ANTH:3111 (113:119).

GHS:3050 (152:153) Global Aging 3 s.h.

Demographic factors that contribute to the world wide phenomena of population aging in context of WHO Active Aging and the United Nation's Principles for Older Persons frameworks. Same as SSW:3135 (042:135), ASP:3135 (153:135).

GHS:3060 (152:154) Studies in Complementary and Alternative Medicine 3 s.h.

Topics vary; may include studies in mind-body medicine; complementary and alternative medicine (CAM); group of medical and health care systems, practices, and products that are not considered to be part of conventional medicine; treatments used instead of standard ones (alternative treatments); nonstandard treatments used together with standard ones (complementary medicine); examples of CAM therapies (acupuncture, chiropractic, herbal medicines); approaches widely used in other parts of the world that may represent an important component of health care in a country (e.g., ayurvedic medicine in India).

GHS:3070 (152:107) Hungry Planet: Global Geographies of Food 3 s.h.

Societal and environmental implications of past, current, and future global food supply examined from a geographical perspective; focus on questions of who eats what, where, and why; transformative history of agriculture, modern agribusiness and alternative food supplies, geopolitical implications of food production, food scarcity and rising food costs, urban versus rural agriculture, the obesity epidemic versus malnutrition, and the future of food. Same as GEOG:3070 (044:107).

GHS:3102 (152:185) Medical Anthropology 3 s.h.

Major theoretical, methodological approaches; international health and development; biomedicine as a cultural system; ethnomedicine; anthropology and AIDS, human reproduction, epidemiology, ethnopsychiatry. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010). Same as ANTH:3102 (113:185), CBH:5125 (172:173).

GHS:3110 (152:121) Health of Indigenous Peoples 3 s.h.

Health problems and services for indigenous populations worldwide, from perspective of Fourth World postcolonial politics. Prerequisites: ANTH:1101 (113:003). Same as ANTH:3110 (113:121), AINS:3110 (149:121).

GHS:3113 (152:145) Religion and Healing 3 s.h.

Historical evidence of religious healing in Christian, Hindu, Buddhist, Native American, and Shaman traditions. Same as ANTH:3113 (113:145), RELS:3580 (032:180).

GHS:3131 (152:170) Health Care and Health Reforms in Russia 3 s.h.

Societal changes and their continuing effect on the Russian health care system since 1991; guest lectures from public health, nursing, medicine, cultural anthropology. Same as SLAV:3131 (041:104).

- GHS:3150 (152:159) Media and Health** 3 s.h.
Potential and limits of mass media's ability to educate the public about health; research and theory on the influence of information and entertainment media; theories, models, assumptions of mass communication in relation to public health issues. Same as JMC:3150 (019:160), CBH:3150 (172:140).
- GHS:3151 (152:156) The Anthropology of the Beginnings and Ends of Life** 3 s.h.
Examination of diverse understandings of birth and death, drawing on anthropological analysis of personhood, kinship, ritual, and medicine; how social inequality and new technologies shape human experience at life's margins. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010). Same as ANTH:3151 (113:151), ASP:3151 (153:151).
- GHS:3152 (152:149) Anthropology of Caregiving and Health** 3 s.h.
Diverse understandings and practices of care around the world; focus on relationships between caregiving practices and health across the life course. Same as ANTH:3152 (113:152), ASP:3152 (153:152).
- GHS:3191 (152:191) Sustainable Development: India and the Global Context** 3 s.h.
Introduction to development in India; critical examination of current discourses on domestic sociological, economic, and ecological environmental effects of the current model of development; taught in Mysore, India.
- GHS:3192 (152:192) Environment and Health in Modern India** 3 s.h.
Introduction to India's environmental and health traditions; major contemporary scenarios; taught in Mysore, India.
- GHS:3326 (152:157) Infectious Disease and Human Evolution** 3 s.h.
Infectious disease as a central and important role in evolution of modern humans; impact of important infectious diseases on human history through primary literature. Recommendations: evolutionary theory background or interest. Same as ANTH:3326 (213:153).
- GHS:3555 (152:155) Understanding Health and Disease in Africa** 3 s.h.
Cultural, historical, and political framework for the delivery of health care services in African nations. Recommendations: junior or higher standing. Same as IS:3555 (187:155).
- GHS:3720 (152:160) Global Health Seminar** 3 s.h.
Local and global dimensions of health and disease.
- GHS:3760 (152:180) Hazards and Society** 3 s.h.
Introduction to social science perspectives on societal responses to natural and technological hazards; risk perception and communication, disaster management, social vulnerability, and risk assessment; case studies of recent major disasters (e.g., Haiti earthquake, Tohoku earthquake/tsunami/nuclear accident, Hurricane Katrina); current directions in hazards research, policy, and practice. Same as GEOG:3760 (044:175).
- GHS:3780 (152:178) U.S. Energy Policy in Global Context** 3 s.h.
Historical and contemporary aspects of U.S. governmental planning and policy on a wide range of energy issues in global context. Prerequisites: GEOG:1020 (044:003) or EES:1080 (012:008), and GEOG:1070 (044:019). Same as GEOG:3780 (044:120).
- GHS:3850 (152:158) Promoting Health Globally** 3 s.h.
Major global health threats in the United States and abroad; impact of culture, history, economics on health disparities; approaches, programs, policies to remedy them. Requirements: junior or senior standing, or certificate student. Same as HHP:3850 (027:176).
- GHS:4100 (152:125) Topics in Global Health** 1-3 s.h.
- GHS:4111 (152:131) Geography of Health** 3 s.h.
Provision of health care in selected countries, with particular reference to the Third World; focus on problems of geographical, economic, cultural accessibility to health services; disease ecology, prospective payment systems, privatization, medical pluralism. Same as GEOG:3110 (044:131).
- GHS:4126 (152:126) International Perspectives: Xicotepec** 2-3 s.h.
Introduction to providing service to a community in a less developed country; student projects intended to improve community life in Xicotepec. Requirements: P3 standing. Same as PHAR:8788 (046:126), CEE:4788 (053:126).
- GHS:4141 (152:141) Design for the Developing World** 3 s.h.
Experience working on interdisciplinary teams to solve problems of the developing world; technologies for improving water and sanitation, energy, housing, and health; community building strategies, participatory methods, other techniques essential to good design; service-learning component. Recommendations: junior or higher standing. Same as CEE:4141 (053:141).
- GHS:4150 (152:139) Health and Environment: GIS Applications** 3 s.h.
Applications of GIS and spatial analysis for studying health outcomes and exposure to environmental contaminants at different geographical scales. Same as GEOG:4150 (044:137).
- GHS:4160 (152:137) History of Public Health** 3 s.h.
State-endorsed measures to avert or control disease in society. Same as HIST:4160 (16W:137).
- GHS:4162 (152:138) History of Global Health** 3 s.h.
Foremost problems of health and disease in colonial and postcolonial societies; topical approach. Same as HIST:4162 (16W:138).

GHS:4210 (152:111) International Health 3 s.h.
 Urgent health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Same as EPID:4210 (173:111), OEH:4210 (175:111).

GHS:4220 (152:252) U.S. and Global Environmental Health Policy 3 s.h.
 Major concerns in environment and human health, legislation enacted to deal with these concerns; emphasis on contemporary issues. Offered fall semesters of odd years. Requirements: for OEH:4220 (175:252) — OEH:4240 (175:197); for CEE:4220 (053:204) — CEE:2150 (053:050). Same as CEE:4220 (053:204), OEH:4220 (175:252).

GHS:4230 (152:182) Health Experience of Immigrants, Migrants, and Refugees 3 s.h.

GHS:4275 (152:195) Research Methods in Disaster Studies 3 s.h.
 Epidemiologic study of disasters and their health consequences; research to identify and reduce health effects, research in context of response and preparedness. Same as EPID:4520 (173:175), OEH:4520 (175:175).

GHS:4340 (152:135) Global Health and Global Food 3 s.h.
 Practices, patterns, and policies that contribute to the epidemics of obesity, diabetes, and heart disease in wealthy populations; environmental degradation, hunger, and malnutrition among impoverished populations; strategies to meet food and agricultural needs for the world; local/global aspects or perspectives on food/health concerns for lowa and the international community. Same as HHP:4340 (027:135).

GHS:4508 (152:109) Medicine and Public Health in Latin America, 1820-2000 3 s.h.
 Survey of major topics in modern Latin American history in relation to development of medicine and public health. Same as HIST:4508 (16W:108).

GHS:4600 (152:120) Global Health and Human Rights 2-3 s.h.
 Requirements: sophomore or higher standing.

GHS:4605 (152:140) Disease, Politics, and Health in South Asia 2-4 s.h.
 South Asia's long-term success lengthening lives and stopping disease, weighed against its continuing burden of infection, violence, pollution, and class-based suffering. Same as HIST:4605 (16W:140).

GHS:4990 (152:199) Special Projects in Global Health arr.

Graduate

GHS:5455 (152:217) Health Insurance and Managed Care 3 s.h.

History and theory of insurance, comparative health systems, health systems and networks, HMOs, public health insurance, care for uninsured; emphasis on public policy. Prerequisites: HMP:5005 (174:200). Corequisites: PHAR:6330 (046:263) or HMP:5410 (174:212). Same as HMP:5450 (174:217).

GHS:6550 (152:257) Epidemiology of Infectious Diseases 3 s.h.
 Underlying epidemiological concepts of infection disease, including causation and surveillance; prevention and control; case studies. Offered fall semesters. Prerequisites: EPID:4400 (173:140). Same as EPID:6550 (173:255).

Health and Human Physiology

Chair

- Kelly J. Cole

Professors

- Warren G. Darling (Health and Human Physiology/Physical Therapy and Rehabilitation Science), Benjamin K. Hunnicutt, Kathleen F. Janz (Health and Human Physiology/Epidemiology), Kevin C. Kregel (Health and Human Physiology/Radiation Oncology), Kenneth E. Mobily, John Ringen, Michael L. Teague

Associate professors

- Kelly J. Cole (Health and Human Physiology/Physical Therapy and Rehabilitation Science), Harald M. Stauss (Health and Human Physiology/Internal Medicine)

Assistant professors

- Melissa Bates, Lucas Carr, Vitor A. Lira, Gary L. Pierce, Amy Sindler

Lecturers

- Chih-Chia Chen, Ray F. Fagenbaum, John E. Farland, Shawn W. Flanagan, Amy Fletcher, Danny T. Foster, Clint S. Huntrods, Christina R. Johnson, Daniel R. Matheson, Katherine R. Mellen, Patrick Moran, Emily N.R. Mozena, Clayton R. Peterson, Jennifer Rogers, Christopher E. Schwartz, Brianna L. Swope, Kathy B. Walter

Adjunct professors

- John P. Albright (Orthopaedics and Rehabilitation), Annunziato Amendola (Orthopaedics and Rehabilitation), Joseph A. Buckwalter (Orthopaedics and Rehabilitation), Alan K. Johnson (Psychology)

Adjunct assistant professor

- Maureen F. McCue

Adjunct instructors

- Ned C. Ashton, Emily Baxter, Christine P. Brus, Angela L. Charsha-Harney, Joseph C. Cilek, Thomas K. Dean, Matthew Doyle, Acie Earl, Marcie A. Evans, Johnnie James, Patricia M. Kutcher, Wilene E. Larpenteur, Erin L. Litton, Michael E. Moran, Sherri L. Proud, Caleb Recker, Jennie L. Sertterh, Michael A. Shaffer, Melanie A. Vick, Tanya J. Villhauer, Trisha L. Welter

Adjunct lecturers

- Landon C. Evans, Kate Klefstad, Marc A. Pizzimenti

Professors emeriti

- Richard D. MacNeil, Gina C. Schatteman

Undergraduate majors: health and human physiology (B.A.); human physiology (B.S.); athletic training (B.S.); sport and recreation management (B.S.); therapeutic recreation (B.S.)

Undergraduate minors: human physiology; physical activity and nutrition science

Graduate degrees: M.A. in leisure studies; M.S. in health and human physiology; Ph.D. in health and human physiology

Web site: <http://clas.uiowa.edu/hhp/>

The Department of Health and Human Physiology offers undergraduate majors and minors and graduate degree programs in health and human physiology and related areas. In addition, the department is home to the Health and Physical Activity Skills Program, which offers courses that provide instruction and practice in lifetime sports, fitness training, and wellness activities aimed at enhancing physical health and well-being. Undergraduates in all majors may use several health and human physiology courses to fulfill requirements of the College of Liberal Arts and Sciences General Education Program (p. 323). The department's First-Year Seminar is designed for entering undergraduate students.

Undergraduate Programs of Study

- Major in health and human physiology (Bachelor of Arts)
- Major in human physiology (Bachelor of Science)
- Major in athletic training (Bachelor of Science)
- Major in sport and recreation management (Bachelor of Science)
- Major in therapeutic recreation (Bachelor of Science)
- Minor in human physiology
- Minor in physical activity and nutrition science

Students may complete a major in health and human physiology (B.A.) or a major in human physiology (B.S.), but not both.

Students majoring in health and human physiology (B.A.) or human physiology (B.S.) or athletic training (B.S.) may not earn the minor in human physiology or the minor in physical activity and nutrition science.

Bachelor of Arts: Health and Human Physiology

The Bachelor of Arts with a major in health and human physiology requires a minimum of 120 s.h., including work for the major, which varies by track. The health promotion track requires a total of 49-51 s.h. of work for the major; the health studies track requires 40-42 s.h. of work for the major; and the exercise science track requires 51-53 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The health promotion track is intended for students seeking careers that promote wellness in the community and the workplace. The health studies track is designed for students who want a more flexible health science curriculum. The exercise science track is intended for students seeking careers as professionals in fitness and in strength and conditioning.

Admission to the health promotion track is selective; students must apply and be admitted. Applicants must have completed the three courses listed under "Science and Math Foundation" below (chemistry, biology, and mathematics or statistics) and must have a University of Iowa and a cumulative g.p.a. of at least 2.70. Students may apply during the semester in which they will complete the science and math foundation courses required for

application to the track. Application deadlines are October 1 for the following spring semester, March 1 for the following fall semester.

Admission to the health studies track and the exercise science track is open; students may enter either track without applying to it.

Students majoring in health and human physiology (B.A.) may not earn a second degree in human physiology (B.S.).

Students in all tracks are required to complete a set of common requirements as well as additional courses required specifically for their track.

The major in health and human physiology requires the following course work.

Common Requirements

Each track requires the following science and math foundation (minimum of 10 s.h.) and the departmental core (15 s.h.).

SCIENCE AND MATH FOUNDATION

All students complete three foundation courses (minimum of 10 s.h.): one each in chemistry, biology, and mathematics or statistics.

Chemistry—one of these:

CHEM:1080 (004:008) General Chemistry II	3 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.

Biology—one of these:

BIOL:1140 (002:021) Human Biology	4 s.h.
BIOL:1141 (002:002) Introductory Animal Biology	4 s.h.
BIOL:1411 (002:031) Foundations of Biology	4 s.h.

Mathematics or statistics—one of these:

MATH:1020 (22M:009) Elementary Functions	4 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.
MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.
PSQF:4143 (07P:143)/STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.
STAT:1020 (22S:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

DEPARTMENTAL CORE

All students must complete the five-course departmental core (15 s.h.).

All of these:

HHP:1100 (027:053) Human Anatomy	3 s.h.
HHP:1300 (027:050) Fundamentals of Human Physiology	3 s.h.
HHP:2200 (027:039) Physical Activity and Health	3 s.h.
HHP:2310 (027:040) Nutrition and Health	3 s.h.

HHP:3400 (027:140) Applied Exercise Physiology	3 s.h.
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Health Promotion Track Requirements

Health promotion track students also complete the following health promotion core courses (15 s.h.) and guided electives (9 s.h.) in addition to the courses listed under "Common Requirements" above (math and science foundation and departmental core).

HEALTH PROMOTION: CORE

All of these:

HHP:3200 (027:136) Health Behavior and Health Promotion	3 s.h.
HHP:3430 (027:137) Community and Worksite Health Promotion	3 s.h.
HHP:4200 (027:138) Metabolic Exercise Testing and Prescription	3 s.h.
HHP:4320 (027:134) Nutrition Interventions	3 s.h.
HHP:4420 (027:156) Planning and Evaluating Health Interventions	3 s.h.

HEALTH PROMOTION: GUIDED ELECTIVES

Students must complete at least 9 s.h. selected from the courses below, including at least 6 s.h. in courses numbered 3000 or above.

HHP:2130 (027:044) Human Development Through the Life Span	3 s.h.
HHP:3050 (027:128) Obesity: Causes, Consequences, Prevention, and Treatment	3 s.h.
HHP:3100 (027:110) Health Literacy	3 s.h.
HHP:3420 (027:144) College Health Education	3 s.h.
HHP:3440 (027:147) Physical Activity and Healthy Communities	3 s.h.
HHP:3850 (027:176) Promoting Health Globally	3 s.h.
HHP:4210 (027:139) Musculoskeletal Exercise Testing and Prescription	3 s.h.
HHP:4390 (027:151) Understanding Human Disease	3 s.h.
HHP:4400 (027:152) Health Promotion Clinical Practicum (may be taken twice)	1 s.h.
HHP:4405 (027:153) Health Promotion Community and Worksite Practicum (may be taken twice)	1 s.h.
HHP:4440 (027:143) Physiology of Nutrition	3 s.h.
HHP:4500 (027:195) Undergraduate Independent Study	arr.
HHP:4940 (027:187) Health Promotion Honors Readings	1-2 s.h.
HHP:4950 (027:188) Health Promotion Honors Problems	3-4 s.h.
ACCT:2100 (06A:001) Introduction to Financial Accounting	3 s.h.
ASP:1800 (153:085) Basic Aspects of Aging	3 s.h.
JMC:3150 (019:160) Media and Health	3 s.h.
RCE:4175 (07C:175) Motivational Interviewing	3 s.h.
RCE:4185 (07C:185) Introduction to Substance Abuse	3 s.h.

Health Studies Track Requirements

In addition to completing the courses listed under "Common Requirements" above (math and science foundation and departmental core), health studies track students must earn at least 15 s.h. in courses chosen from the list below, including 12 s.h. in courses numbered 3000 or above.

HHP:1110 (027:054) Human Anatomy Laboratory	1 s.h.
HHP:1310 (027:051) Human Physiology Laboratory	1 s.h.
HHP:2130 (027:044) Human Development Through the Life Span	3 s.h.
HHP:2500 (027:076) Psychological Aspects of Sport and Physical Activity	3 s.h.
HHP:3000 (027:120) Equity Issues in the Health Sciences	3 s.h.
HHP:3030 (027:131) Coaching for Health and Wellness	3 s.h.
HHP:3050 (027:128) Obesity: Causes, Consequences, Prevention, and Treatment	3 s.h.
HHP:3300 (027:117) Human Growth and Motor Development	3 s.h.
HHP:3440 (027:147) Physical Activity and Healthy Communities	3 s.h.
HHP:3655 (027:175) Emotional and Psychological Aspects of Health	3 s.h.
HHP:4220 (027:197) Biomechanics of Human Motion	3 s.h.
HHP:4230 (027:158) Motor Learning: Theory and Application	3 s.h.
HHP:4390 (027:151) Understanding Human Disease	3 s.h.
HHP:4440 (027:143) Physiology of Nutrition	3 s.h.
HHP:4500 (027:195) Undergraduate Independent Study	arr.

Exercise Science Track Requirements

Exercise science track students complete the following exercise science core courses (18 s.h.) and guided electives (8 s.h.) in addition to the courses listed under "Common Requirements" above (the math and science foundation and the departmental core).

EXERCISE SCIENCE: CORE

All of these:

HHP:2350 (027:095) Biomechanics of Sport and Physical Activity	3 s.h.
HHP:2500 (027:076) Psychological Aspects of Sport and Physical Activity	3 s.h.
HHP:4200 (027:138) Metabolic Exercise Testing and Prescription	3 s.h.
HHP:4210 (027:139) Musculoskeletal Exercise Testing and Prescription	3 s.h.
HHP:4310 (027:133) Sport and Exercise Nutrition	3 s.h.
HHP:4390 (027:151) Understanding Human Disease	3 s.h.

EXERCISE SCIENCE: GUIDED ELECTIVES

Students must complete at least 8 s.h. from the courses below, including at least 6 s.h. in courses numbered 3000 or above.

ATEP:2030 (027:057) Basic Athletic Training	3 s.h.
HHP:1110 (027:054) Human Anatomy Laboratory	1 s.h.
HHP:1310 (027:051) Human Physiology Laboratory	1 s.h.
HHP:2210 (027:030) Principles of Exercise Leadership	3 s.h.
HHP:3030 (027:131) Coaching for Health and Wellness	3 s.h.
HHP:3050 (027:128) Obesity: Causes, Consequences, Prevention, and Treatment	3 s.h.
HHP:3300 (027:117) Human Growth and Motor Development	3 s.h.
HHP:3650 (027:174) Advanced Sport and Exercise Psychology	3 s.h.
HHP:3860 (027:170) Leadership Theory for Health and Fitness	3 s.h.
HHP:4150 (027:150) Clinical Exercise Physiology	3 s.h.
HHP:4190 (027:159) Scientific Basis of Training for Elite Performance	3 s.h.
HHP:4230 (027:158) Motor Learning: Theory and Application	3 s.h.
HHP:4350 (027:163) Practicum in Personal Training	2 s.h.
HHP:4360 (027:164) Practicum in Group Fitness Instruction	2 s.h.
HHP:4370 (027:166) Practicum in Strength and Conditioning	2 s.h.
LEIS:3148 (169:148) Introduction to Personal Training	3 s.h.
LEIS:3151 (169:151) Liability in Recreation and Sport	3 s.h.
SPST:2081 (028:180) Theory and Ethics of Coaching	3 s.h.

The department recommends that exercise science students also complete the following two courses.

ATEP:1000 (027:056) First Aid and CPR	2 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.

Bachelor of Science: Human Physiology

The Bachelor of Science with a major in human physiology requires a minimum of 120 s.h., including 60 s.h. of work for the major (26 s.h. in health and human physiology and 34 s.h. in required cognate courses). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in human physiology is designed primarily for individuals who intend to continue their education beyond the B.S. in the health professions, including medicine, dentistry, optometry, physician assistant, physical therapy, and podiatry, and for those who intend to pursue graduate degrees in basic life sciences. The program includes study

in anatomy, biomechanics, physiology, neural control of movement, and the cognate areas of biology, chemistry, mathematics, physics, and statistics.

Students majoring in human physiology (B.S.) may not earn a second degree in health and human physiology (B.A.).

In addition to course work required for the major, students are encouraged to include specific electives to complete the credit required for graduation; see "Recommended Electives" below. The department recommends that students fulfill the General Education Program's Natural Sciences requirement by taking CHEM:1110 (004:011) Principles of Chemistry I, CHEM:1120 (004:012) Principles of Chemistry II, and BIOL:1411 (002:031) Foundations of Biology. It also recommends that they fulfill the Social Sciences requirement with PSY:1001 (031:001) Elementary Psychology.

The major in human physiology requires the following course work.

HUMAN PHYSIOLOGY

All of these:

HHP:1100 (027:053) Human Anatomy	3 s.h.
HHP:1110 (027:054) Human Anatomy Laboratory	1 s.h.
HHP:1310 (027:051) Human Physiology Laboratory	1 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.

At least 18 s.h. from these:

HHP:3110 (027:154) Advanced Anatomy Laboratory	3 s.h.
HHP:3300 (027:117) Human Growth and Motor Development	3 s.h.
HHP:3450 (027:177) Immunology in Health and Disease	3 s.h.
HHP:3510 (027:132) Advanced Human Physiology Laboratory	3 s.h.
HHP:4130 (027:155) Skeletal Muscle Physiology	3 s.h.
HHP:4150 (027:150) Clinical Exercise Physiology	3 s.h.
HHP:4200 (027:138) Metabolic Exercise Testing and Prescription	3 s.h.
HHP:4210 (027:139) Musculoskeletal Exercise Testing and Prescription	3 s.h.
HHP:4220 (027:197) Biomechanics of Human Motion	3 s.h.
HHP:4230 (027:158) Motor Learning: Theory and Application	3 s.h.
HHP:4250 (027:161) Human Pathophysiology	3 s.h.
HHP:4300 (027:160) Neural Control of Posture and Movement	3 s.h.
HHP:4410 (027:141) Exercise Physiology	3 s.h.
HHP:4440 (027:143) Physiology of Nutrition	3 s.h.
HHP:4450 (027:146) Genetic Basis of Disease	3 s.h.
HHP:4460 (027:145) Cardiovascular Physiology	3 s.h.
HHP:4470 (027:148) Physiology of Aging	3 s.h.
HHP:4480 (027:165) Introduction to Human Pharmacology	3 s.h.

HHP:4500 (027:195) Undergraduate Independent Study	arr.
HHP:4900 (027:199) Honors Research II	3 s.h.
BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:2603 (002:105) Mechanisms of Aging	3 s.h.
BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
MICR:2157 (061:157) General Microbiology	5 s.h.

Students may count the following courses toward the human physiology requirement or the cognate requirement, but not toward both requirements: BIOC:3110 (099:110) Biochemistry, BIOL:2254 (002:150) Endocrinology, BIOL:2512 (002:128) Fundamental Genetics, BIOL:2603 (002:105) Mechanisms of Aging, BIOL:2723 (002:114) Cell Biology, BIOL:2753 (002:145) Introduction to Neurobiology, BIOL:3233 (002:104) Introduction to Developmental Biology, and MICR:2157 (061:157) General Microbiology.

COGNATE AREAS

Students must earn a minimum of 34 s.h. in cognate areas—subjects outside of human physiology—by completing courses from the following lists.

Biology

This sequence:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
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At least 3 s.h. from these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) Biochemistry and Molecular Biology I	3 s.h.
BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:2346 (002:108) Vertebrate Zoology	4 s.h.
BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:2603 (002:105) Mechanisms of Aging	3 s.h.
BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3244 (002:143) Animal Behavior	4 s.h.
BIOL:3253 (002:180) Neurobiology	4 s.h.
BIOL:3343 (002:124) Animal Physiology	3 s.h.
BIOL:4353 (002:181) Neurophysiology	3-4 s.h.
MICR:2157 (061:157) General Microbiology	5 s.h.
MICR:3112 (061:112) Pharmacy Microbiology	4 s.h.
MICR:3147 (061:147) Survey of Immunology	3 s.h.
MICR:3164 (061:164) Nursing Microbiology	4 s.h.

Students may count the following courses toward the human physiology requirement or the cognate requirement, but not toward both requirements: BIOC:3110 (099:110) Biochemistry, BIOL:2254 (002:150) Endocrinology, BIOL:2512 (002:128) Fundamental

Genetics, BIOL:2603 (002:105) Mechanisms of Aging, BIOL:2723 (002:114) Cell Biology, BIOL:2753 (002:145) Introduction to Neurobiology, BIOL:3233 (002:104) Introduction to Developmental Biology, and MICR:2157 (061:157) General Microbiology.

Chemistry

Students must complete CHEM:1110 (004:011) before they may register for CHEM:1120 (004:012).

Both of these:

CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.

These additional chemistry courses are highly recommended.

CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
CHEM:2220 (004:122) Organic Chemistry II	3 s.h.
CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.

Mathematics

One of these:

MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
MATH:1850 (22M:025) Calculus I (or a mathematics course numbered above 1850)	4 s.h.

Physics

This sequence:

PHYS:1511 (029:011)-PHYS:1512 (029:012) College Physics I-II	8 s.h.
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Statistics

At least 3 s.h. from these:

STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.

RECOMMENDED ELECTIVES

The department recommends that students choose from the following electives in order to complete the minimum of 120 s.h. required for a Bachelor of Science. Additional recommended courses in biology and chemistry are listed under "Courses for the Major: Cognates" above.

Anthropology

ANTH:3305 (213:190) Human Osteology	3 s.h.
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Biochemistry

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) Biochemistry and Molecular Biology I	3 s.h.
BIOC:3130 (099:130) Biochemistry and Molecular Biology II	3 s.h.
BIOC:3140 (099:140) Experimental Biochemistry	2 s.h.

Biology

BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:2346 (002:108) Vertebrate Zoology	4 s.h.
BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.
BIOL:3244 (002:143) Animal Behavior	4 s.h.
BIOL:3253 (002:180) Neurobiology	4 s.h.
BIOL:3343 (002:124) Animal Physiology	3 s.h.
BIOL:4353 (002:181) Neurophysiology	3 s.h.

Chemistry

CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
CHEM:2220 (004:122) Organic Chemistry II	3 s.h.
CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.
CHEM:3110 (004:111) Analytical Chemistry I	3 s.h.
CHEM:3120 (004:112) Analytical Chemistry II	3 s.h.
CHEM:4431 (004:131) Physical Chemistry I	3 s.h.

Classics

CLSA:3750 (20E:103) Medical and Technical Terminology	2 s.h.
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Communication Sciences and Disorders

CSD:2140 (003:140) Manual Communication	1 s.h.
CSD:3116 (003:116) Basic Neuroscience for Speech and Hearing	3 s.h.

Computer Science

CS:1020 (22C:001) Principles of Computing	3 s.h.
CS:1110 (22C:005) Introduction to Computer Science	3 s.h.
CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
ENGR:2730 (057:017) Computers in Engineering	3 s.h.

Education

RCE:4185 (07C:185) Introduction to Substance Abuse	3 s.h.
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Engineering

ENGR:2110 (059:007) Engineering Fundamentals I: Statics	2 s.h.
ENGR:2710 (057:010) Dynamics	3 s.h.
ENGR:2750 (057:019) Mechanics of Deformable Bodies	3 s.h.

English

CNW:2680 (08N:080) The Art and Craft of Creative Nonfiction	3 s.h.
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Free Radical and Radiation Biology

FRRB:5000 (077:103) Radiation Biology	4 s.h.
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Health Promotion

HHP:4200 (027:138) Metabolic Exercise Testing and Prescription	3 s.h.
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HHP:4210 (027:139) Musculoskeletal Exercise Testing and Prescription 3 s.h.

Microbiology

MICR:2157 (061:157) General Microbiology 5 s.h.
 MICR:3112 (061:112) Pharmacy Microbiology 4 s.h.
 MICR:3147 (061:147) Survey of Immunology 3 s.h.
 MICR:3164 (061:164) Nursing Microbiology 4 s.h.

Pharmacology

PCOL:2120 (071:120) Drugs: Their Nature, Action, and Use 2 s.h.
 PCOL:4130 (071:130) Drug Mechanisms and Actions 3 s.h.

Psychology

PSY:1001 (031:001) Elementary Psychology 3 s.h.
 PSY:2930 (031:063) Abnormal Psychology: Health Professions 3 s.h.
 PSY:3010 (031:152) Health Psychology 3 s.h.
 PSY:3220 (031:126) Behavioral Neuroscience 3 s.h.
 PSY:3230 (031:128) Psychopharmacology 3 s.h.
 PSY:3250 (031:129) Neuroscience of Learning and Memory 3 s.h.
 PSY:3320 (031:163) Abnormal Psychology 3 s.h.

Bachelor of Science: Athletic Training

The Bachelor of Science with a major in athletic training requires a minimum of 120 s.h., including 53-54 s.h. of work for the major plus one prerequisite (1 s.h.) for application to the major and several prerequisites (34-36 s.h.) to course work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major provides concentrated studies and clinical experiences that lead to national certification in athletic training. The Department of Health and Human Physiology collaborates with the Department of Orthopaedics and Rehabilitation (Carver College of Medicine) to offer the major.

Athletic trainers work with active patients, including athletes, to help prevent injuries, offer advice about appropriate equipment, recognize and evaluate injuries, administer emergency treatment, and determine need for specialized medical care. Athletic trainers also work as members of health care teams involved in postinjury rehabilitation.

Employment opportunities for graduates include work as health care professionals for sports medicine clinics and hospitals; these individuals often work with secondary school athletic teams. Additional education usually is required for employment with professional, college, and university athletic teams and for specialized positions in corporations, industry, and other areas. Teacher certification is recommended but not required.

Admission to the major in athletic training is competitive; students must apply. They may be admitted as first-year students and begin clinical experience as sophomores. Applicants must have at least 11 s.h. of graded college

credit (pass/fail credit does not count), including ATEP:1010 (027:096) Exploring Athletic Training with a grade of C or higher; and they must have a g.p.a. of at least 2.50 on all undergraduate course work. Preference is given to applicants with high scholastic standing, strong writing skills, and varied athletic training and health care experience. A personal interview may be required; the athletic training program contacts applicants about interviews.

Fulfillment of admission requirements does not ensure admission to the athletic training major. The program selects candidates who appear to be best qualified for the study and practice of athletic training. Students denied admission to the major may reapply in a subsequent fall semester.

All students admitted to the major in athletic training are required to comply with entrance and periodic health screening history and immunization, which is coordinated through the program's medical director.

Students who have not formally contacted the athletic training program director before enrolling at The University of Iowa should talk to an athletic training advisor or their academic advisor upon entering the University. Early advising for course selection is vital to ensure that students take prerequisites and sequenced skill development courses in the right order. Students should begin taking prerequisites for required major courses during their first year and should complete their final prerequisites after admission to the athletic training major.

For current information on rules, procedures, and curriculum, contact the athletic training program director.

The major in athletic training requires the following course work.

ADMISSION PREREQUISITE

Students must complete this course before they apply for admission to the athletic training major.

ATEP:1010 (027:096) Exploring Athletic Training	1 s.h.
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PREREQUISITES TO COURSE WORK FOR THE MAJOR

Students must complete the following courses (34-36 s.h.) as they begin course work for the major.

One of these:

BIOL:1141 (002:002) Introductory Animal Biology	4 s.h.
BIOL:1411 (002:031) Foundations of Biology	4 s.h.

One of these sequences:

CHEM:1070 (004:007) & CHEM:1080 (004:008) General Chemistry I-II	6 s.h.
CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.

One of these:

PHYS:1400 (029:008) Basic Physics	4 s.h.
PHYS:1511 (029:011) College Physics I	4 s.h.

All of these:

ATEP:1000 (027:056) First Aid and CPR	2 s.h.
ATEP:2030 (027:057) Basic Athletic Training	3 s.h.

HHP:1100 (027:053) Human Anatomy	3 s.h.
LEIS:1045 (169:045) Health for Living	3 s.h.
PSQF:1075 (07P:075) Educational Psychology and Measurement	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.
STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.

COURSES FOR THE MAJOR

Students must complete the following course work for the major (53-54 s.h.).

One of these:

HHP:3400 (027:140) Applied Exercise Physiology	3 s.h.
HHP:4410 (027:141) Exercise Physiology	3 s.h.

One of these:

HHP:1300 (027:050) Fundamentals of Human Physiology	3 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.

One of these:

HHP:4480 (027:165) Introduction to Human Pharmacology	3 s.h.
PCOL:2120 (071:120) Drugs: Their Nature, Action, and Use	2 s.h.
PCOL:4130 (071:130) Drug Mechanisms and Actions	3 s.h.

All of these:

ATEP:2010 (027:036) & ATEP:2020 (027:037) Practicum in Athletic Training I-II	4 s.h.
ATEP:2040 (027:172) Clinical Sciences I	2 s.h.
ATEP:2060 (027:180) Advanced Emergency Care for Athletic Trainers	2 s.h.
ATEP:3010 (027:182) & ATEP:3040 (027:183) Clinical Sciences III-IV	6 s.h.
ATEP:3020 (027:185) Clinical Sciences V: Rehabilitation	2 s.h.
ATEP:3030 (027:186) Practicum in Athletic Training III (must be taken twice)	6 s.h.
ATEP:4010 (027:171) Administration of Athletic Training Programs	2 s.h.
HHP:3060 (027:118) Advanced Human Anatomy for Athletic Trainers	4 s.h.
HHP:4220 (027:197) Biomechanics of Human Motion	3 s.h.
HHP:4440 (027:143) Physiology of Nutrition (or equivalent)	3 s.h.
ORTH:4187 (076:187) Practicum in Athletic Training IV (must be taken twice)	8 s.h.
RCE:4199 (07C:199) Counseling for Related Professions (or equivalent)	3 s.h.

Bachelor of Science: Sport and Recreation Management

The Bachelor of Science with a major in sport and recreation management requires a minimum of 120 s.h., including 39 s.h. of work for the major (24 s.h. in sport and recreation management and 15 s.h. in supporting course work from other disciplines). Students must maintain a

g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The sport and recreation management major prepares students for leadership in meeting the challenges of sport. Its comprehensive curriculum uses an integrative business approach and provides a collaborative environment for learning how to analyze and resolve challenges in the business and culture of sport locally, nationally, and internationally.

The major is appropriate for students who want to work with sport and club teams, intercollegiate and high school athletic programs, international sport organizations, national and international amateur sport organizations, community recreation, and firms specializing in sport marketing, sport sponsorship, and commercial fitness businesses.

Students interested in sport and recreation management learn skills for organizing, planning, and budgeting in a variety of settings. They prepare for work in positions such as activities director, community recreation specialist, campus recreation professional, and program coordinator in a park or recreation department.

The major also provides a foundation for graduate study in sport or recreation management and related graduate degree programs.

Work for the major consists of foundation courses in sport and recreation management plus a concentration area, which includes courses in other disciplines. Students have the option to complete an internship, with a preinternship seminar, for an additional 10 s.h. of credit.

The sport and recreation management major requires the following course work.

FOUNDATION COURSES

One of these:

LEIS:1060 (169:060) Contemporary Issues in Sports	3 s.h.
LEIS:2065 (169:065) The Experience Economy	3 s.h.

All of these:

LEIS:3151 (169:151) Liability in Recreation and Sport	3 s.h.
LEIS:3152 (169:152) Recreation and Sport Facility Management	3 s.h.
LEIS:3153 (169:153) Sport Business Practices	3 s.h.
LEIS:3156 (169:156) Design of Recreation Facilities	3 s.h.
LEIS:3158 (169:158) Recreation and Sport Promotion	3 s.h.
LEIS:3172 (169:172) Finance in Sport and Recreation	3 s.h.

One of these:

LEIS:3150 (169:150) Recreation Administration	3 s.h.
LEIS:3157 (169:157) Managerial Operations in Sport	3 s.h.

CONCENTRATION AREAS

Students complete the requirements (total of 15 s.h.) for one of the following concentration areas: business studies,

coaching and sport instruction, entrepreneurship, event management, sport and diversity, or student-designed concentration.

Business Studies Concentration

Students must earn 15 s.h. for the concentration, chosen from the following list.

LEIS:4197 (169:197) Recreation and Sport Business Practicum	1-3 s.h.
LEIS:4198 (169:198) NCAA Rules Compliance and Enforcement	3 s.h.
ACCT:2100 (06A:001) Introduction to Financial Accounting	3 s.h.
ACCT:2200 (06A:002) Managerial Accounting	3 s.h.
CNW:3640 (08N:113) Writing for Business and Industry	3 s.h.
ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
ECON:3690 (06E:165) Sports Economics	3 s.h.
FIN:3000 (06F:100) Introductory Financial Management	3 s.h.
MGMT:2000 (06j:047) Introduction to Law	3 s.h.
MGMT:2100 (06j:048) Introduction to Management	3 s.h.
MSCI:1500 (06K:050) Business Computing Essentials	2 s.h.

Coaching and Sport Instruction Concentration

Students must earn 15 s.h. for the concentration, chosen from the following list. This concentration includes all courses needed for a state coaching certificate.

APEP:1000 (027:056) First Aid and CPR	2 s.h.
APEP:2030 (027:057) Basic Athletic Training	3 s.h.
HHP:1100 (027:053) Human Anatomy	3 s.h.
HHP:2130 (027:044) Human Development Through the Life Span	3 s.h.
HHP:2200 (027:039) Physical Activity and Health	3 s.h.
HHP:3020 (027:127) Nutrition for Health, Fitness, and Sport	3 s.h.
HHP:3300 (027:117) Human Growth and Motor Development (prior course in anatomy, human physiology, or biology recommended)	3 s.h.
HHP:3400 (027:140) Applied Exercise Physiology (at least one prior human physiology course recommended)	3 s.h.
LEIS:3149 (169:149) Coaching Interscholastic Athletics	3 s.h.
LEIS:4197 (169:197) Recreation and Sport Business Practicum	1-3 s.h.
LEIS:4198 (169:198) NCAA Rules Compliance and Enforcement	3 s.h.
EDTL:3114 (07E:114) Parent-Child Relationships	3 s.h.
EDTL:3131 (07E:131) Movement Education	2 s.h.

Entrepreneurship Concentration

Students must earn 15 s.h. for the concentration, chosen from the following list. Students who choose ENTR:1350 (06T:050) Foundations in Entrepreneurship

must register for ENTR:2000 (06T:120) Entrepreneurship and Innovation during the same semester if they have not taken ACCT:2100 (06A:001) Introduction to Financial Accounting and MKTG:3000 (06M:100) Introduction to Marketing Strategy.

ECON:3690 (06E:165) Sports Economics	3 s.h.
ENTR:1350 (06T:050) Foundations in Entrepreneurship	2 s.h.
ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.
ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.
ENTR:3300 (06T:145) Legal Aspects of Entrepreneurship	3 s.h.
ENTR:3400 (06T:146) Strategic Management of Technology and Innovation	3 s.h.
ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.
ENTR:3595 (06T:144) Nonprofit Organizational Effectiveness I	3 s.h.
ENTR:3600 (06T:148) E-Commerce Strategies for Entrepreneurs	3 s.h.
ENTR:4400 (06T:150) Managing the Growth Business	3 s.h.
ENTR:4450 (06T:151) Professional Sports Management	3 s.h.

Event Management Concentration

Students must earn 15 s.h. for the concentration, chosen from the following lists.

Both of these:

LEIS:3147 (169:147) Sport Event Management	3 s.h.
LEIS:3154 (169:154) Foundations of Event Management	3 s.h.

And at least 9 s.h. from these:

LEIS:1061 (169:061) Recreation Leadership and Programming	3 s.h.
LEIS:4197 (169:197) Recreation and Sport Business Practicum	1-3 s.h.
BUS:3800 (06B:140) Business Writing	3 s.h.
ENTR:1350 (06T:050) Foundations in Entrepreneurship	2 s.h.
ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.
ENTR:3600 (06T:148) E-Commerce Strategies for Entrepreneurs	3 s.h.
ENTR:4450 (06T:151) Professional Sports Management	3 s.h.
JMC:1500 (019:050) Social Media Today	3 s.h.

Sport and Diversity Concentration

Students must earn 15 s.h. for the concentration, chosen from the following list.

HHP:2500 (027:076) Psychological Aspects of Sport and Physical Activity	3 s.h.
LEIS:1040 (169:040) The Good Society	3 s.h.
LEIS:1070 (169:070) Perspectives on Leisure and Play	3 s.h.

LEIS:1072 (169:072) Leisure and the Liberal Arts	3 s.h.
AFAM:1020 (129:061) Introduction to African American Culture	3 s.h.
AFAM:1030 (129:060) Introduction to African American Society	3 s.h.
AFAM:2600 (129:093) Black Culture and Experience	3 s.h.
AFAM:2610 (129:097)/LEIS:1097 (169:097) Race, Sport, and Globalization	3 s.h.
AFAM:3925 (129:122) African Americans and the Media	3 s.h.
ANTH:1101 (113:003) Cultural Anthropology	3 s.h.
ANTH:1401 (113:014) Language, Culture, and Communication	3 s.h.
CLSA:1875 (20E:075) Ancient Sports and Leisure	3 s.h.
COMM:1174 (036:074) Media and Society	3 s.h.
COMM:4143 (036:143) Classical Rhetoric and Greek Culture	3 s.h.
HIST:1040 (016:040) Perspectives: Diversity in American History	3 s.h.
JMC:1200 (019:091) Media History and Culture	3 s.h.
JMC:1500 (019:050) Social Media Today	3 s.h.
RELS:2700 (032:060) Sacred World of Native Americans	3 s.h.
SOC:1310 (034:018) Gender and Society	3-4 s.h.
SPAN:2700 (035:070) Introduction to Latin American Studies	3 s.h.
SPST:1074 (028:074)/AMST:1074 (045:074)/GWSS:1074 (131:074) Inequality in American Sport	3 s.h.

Student-Designed Concentration

Students may develop a concentration in consultation with an academic advisor. The student must submit a two-page proposal to the sport and recreation management committee; the proposal should provide a rationale for the student-designed concentration and should describe the concentration. The student-designed concentration must require at least 15 s.h. of work.

OPTIONAL INTERNSHIP

Students who decide to complete the optional internship must register for both of these.

LEIS:4190 (169:190) Preinternship Seminar	1 s.h.
LEIS:4196 (169:196) Recreation Sport Business Internship	9 s.h.

Bachelor of Science: Therapeutic Recreation

The Bachelor of Science with a major in therapeutic recreation requires a minimum of 120 s.h., including 63-64 s.h. of work for the major (total credit depends on the track). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The therapeutic recreation program prepares students for professional work with persons who have disabilities, impairments, and illnesses. Both of the major's tracks emphasize the use of a systematic process of assessment,

planning, implementation, and evaluation in order to provide recreation, leisure, and play activities to individuals and populations.

Admission to both tracks is selective; students must apply and be admitted.

The major in therapeutic recreation (child life track and inclusive recreation track) requires the following course work.

Child Life Track

The child life track requires 63 s.h. of work for the major (12 s.h. in admission prerequisites plus a total of 51 s.h. in additional courses, supporting course work from other departments, and the required internship). Students must apply and be admitted to the child life track, and they must complete the admission prerequisites before they may enter the track.

Child life specialists are professionals with expertise in child development who advance effective coping through play activities, preparation for medical procedures and operations, patient and family education, and self-expressive activities. Child life specialists provide services to support families and to promote children's mastery of varied experiences, particularly children's health care events. They provide care to children's families by assisting in accurate information processing and helping family members and other caregivers. Child life specialists also help educate other medical staff and community members regarding issues and needs of children involved in health care events or other stressful experiences. For more information about the profession, visit Child Life Council.

Before students who apply to the child life track may be admitted, they must complete 24 s.h. at The University of Iowa (or 12 s.h. for transfer students), including the courses listed under "Child Life: Admission Prerequisites" below. Applicants must have a University of Iowa g.p.a. of at least 3.00 and a cumulative g.p.a. of at least 3.00; students with lower grade-point averages may apply for exceptional admission.

Applicants for admission to the track should use the child life track application form on the Department of Health and Human Physiology web site. Completed applications must be submitted by March 15 for admission the following fall semester (students may enter the child life track only in fall).

Students who complete the child life track curriculum, including the child life internship, are eligible to sit for the Child Life Professional Certification Examination administered by the Child Life Council. The exam confers professional certification.

The major in therapeutic recreation with the child life track requires the following course work.

CHILD LIFE: ADMISSION PREREQUISITES

All of these:

HHP:1100 (027:053) Human Anatomy	3 s.h.
LEIS:1070 (169:070) Perspectives on Leisure and Play	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.

One of these:

PSY:2501 (031:015) Introduction to Social Psychology	3 s.h.
SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
SOC:3210 (034:020) Principles of Social Psychology	3-4 s.h.

CHILD LIFE: COMMON CORE

All of these:

LEIS:1061 (169:061) Recreation Leadership and Programming	3 s.h.
LEIS:1077 (169:077) Introduction to Child Life	3 s.h.
LEIS:3160 (169:160) Introduction to Therapeutic Recreation	3 s.h.
LEIS:3161 (169:161) Assessment and Evaluation in Therapeutic Recreation	3 s.h.
LEIS:3162 (169:162) Therapeutic Recreation: Clientele	3 s.h.

CHILD LIFE: FOUNDATION

All of these:

LEIS:3165 (169:165) Child Life: Methods and Materials	3 s.h.
LEIS:3166 (169:166) Child Life: Seminar	3 s.h.
LEIS:3260 (169:175) Play and Childhood	3 s.h.
LEIS:4167 (169:167) Child Life Practicum (taken twice, once for 1 s.h. and once for 2 s.h.)	3 s.h.

One of these:

HHP:2130 (027:044) Human Development Through the Life Span	3 s.h.
NURS:1030 (096:030) Human Development and Behavior	3 s.h.
PSY:2401 (031:014) Introduction to Developmental Science	3 s.h.

CHILD LIFE: SUPPORTING COURSE WORK

Students must complete 9 s.h. from these. Other supporting courses may be added with consent of the student's advisor.

LEIS:3170 (169:170) Children and Health Care	3 s.h.
LEIS:3171 (169:171) Child Life Practical Application	3 s.h.
LEIS:3174 (169:174) Cultural Perspectives in Health Care	3 s.h.
LEIS:4169 (169:169) Spring Break Child Life Experience	1 s.h.
CLSA:3750 (20E:103) Medical and Technical Terminology	2 s.h.
DST:3101 (219:101) Introduction to Disability Studies	3 s.h.
EDTL:3114 (07E:114) Parent-Child Relationships	3 s.h.
EDTL:4940 (07U:140) Characteristics of Disabilities	3 s.h.
EDTL:4990 (07U:190) Interdisciplinary Issues in Disabilities	1-3 s.h.
PSY:2301 (031:013) Introduction to Clinical Psychology	3 s.h.

PSY:2930 (031:063) Abnormal Psychology: Health Professions	3 s.h.
RCE:4145 (07C:145) Marriage and Family Interaction	3 s.h.
RCE:4176 (07C:176) Child Abuse: Assessment, Intervention, and Advocacy	3 s.h.
RCE:4199 (07C:199) Counseling for Related Professions	3 s.h.
SOC:2222 (034:022) Introduction to Social Work	4 s.h.
SOC:3710 (034:061) The American Family	3 s.h.
SSW:3786 (042:186) Death/Dying: Issues Across the Life Span	3 s.h.
SSW:6238 (042:238) Introduction to Play Therapy	2 s.h.
SSW:6281 (042:281) Social Work Practice: Selected Aspects	arr.

CHILD LIFE: INTERNSHIP

Child life students must complete an internship; they register for the following course.

LEIS:4192 (169:192) Child Life Internship	12 s.h.
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Inclusive Recreation Track

The inclusive recreation track requires 64 s.h. of work for the major (12 s.h. in admission prerequisites plus a total of 52 s.h. in additional courses, supporting course work from other departments, and the required internship). Students must apply and be admitted to the inclusive recreation track, and they must complete the admission prerequisites before they may enter the track.

Inclusive recreation is a health-oriented field that involves providing recreation programs designed to improve or maintain the physical, emotional, mental, and social functioning of patients and consumers. Inclusive recreation's therapeutic services involve a continuum of care that uses recreational activities to improve functional abilities; leisure education to help individuals acquire skills, knowledge, and attitudes that facilitate an independent lifestyle; and other activities to enhance health, growth, development, and independence through intrinsically rewarding leisure behavior. Inclusive recreation provides opportunities for people with all abilities and disabilities to participate together in therapeutic recreation programs based on choice and common interests.

Inclusive recreation professionals are commonly employed in settings such as skilled nursing facilities, community recreation departments, state and community mental health institutions, general hospitals, physical rehabilitation centers, special recreation districts, correctional facilities, senior centers, facilities for persons with intellectual disabilities or mental illness, and substance-abuse programs.

Before students who apply to the inclusive recreation track may be admitted, they must complete 24 s.h. at The University of Iowa (or 12 s.h. for transfer students), including the courses listed under "Inclusive Recreation: Admission Prerequisites" below. Applicants must have a University of Iowa g.p.a. of at least 2.50 and a cumulative g.p.a. of at least 2.50; students with lower grade-point averages may apply for exceptional admission.

Applicants for admission to the track should use the inclusive recreation track application form on the

Department of Health and Human Physiology web site. Completed applications must be submitted by October 15 for admission the following spring semester or by March 15 for admission the following fall semester.

Students who complete the inclusive recreation curriculum, including the therapeutic recreation internship, are eligible to sit for the National Council for Therapeutic Recreation Certification Exam. The exam confers the Certified Therapeutic Recreation Specialist credential.

The major in therapeutic recreation with the inclusive recreation track requires the following course work.

INCLUSIVE RECREATION: ADMISSION PREREQUISITES

All of these:

HHP:1100 (027:053) Human Anatomy	3 s.h.
LEIS:1070 (169:070) Perspectives on Leisure and Play	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.

One of these:

PSY:2501 (031:015) Introduction to Social Psychology	3 s.h.
SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
SOC:3210 (034:020) Principles of Social Psychology	3-4 s.h.

INCLUSIVE RECREATION: COMMON CORE

All of these:

LEIS:1061 (169:061) Recreation Leadership and Programming	3 s.h.
LEIS:1077 (169:077) Introduction to Child Life	3 s.h.
LEIS:3160 (169:160) Introduction to Therapeutic Recreation	3 s.h.
LEIS:3161 (169:161) Assessment and Evaluation in Therapeutic Recreation	3 s.h.
LEIS:3162 (169:162) Therapeutic Recreation: Clientele	3 s.h.

INCLUSIVE RECREATION: FOUNDATION

All of these:

LEIS:3163 (169:163) Concepts and Issues in Therapeutic Recreation: Advancement of the Profession	3 s.h.
LEIS:3164 (169:164) Therapeutic Recreation: Rehabilitation	3 s.h.
LEIS:3261 (169:176) Inclusive Recreation	3 s.h.
PSY:2930 (031:063) Abnormal Psychology: Health Professions	3 s.h.

One of these:

HHP:2130 (027:044) Human Development Through the Life Span	3 s.h.
NURS:1030 (096:030) Human Development and Behavior	3 s.h.

INCLUSIVE RECREATION: SUPPORTING COURSE WORK

Students must complete 9 s.h. in supporting course work in human services (aging studies, disability studies,

psychology, sociology, social work, and special education). Students should consult their advisors.

INCLUSIVE RECREATION: INTERNSHIP

Both of these:

LEIS:4190 (169:190) Preinternship Seminar	1 s.h.
LEIS:4191 (169:191) Therapeutic Recreation Internship	12 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Students entering majors with selective admission must be admitted to their major on schedule in order to complete the Four-Year Graduation Plan.

B.A.: Health and Human Physiology

Before the fifth semester begins: one foundation course and at least six more courses in the major

Before the seventh semester begins: at least six more courses in the major (total of 13) and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least two more courses in the major (total of 15)

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Human Physiology

Before the fifth semester begins: calculus and at least six more courses in the major

Before the seventh semester begins: at least six more courses in the major (total of 13) and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least two more courses in the major (total of 15)

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Athletic Training

Before the fifth semester begins: nine courses in the major

Before the seventh semester begins: at least 90 s.h. earned toward the degree

Before the eighth semester: three more courses in the major (total of 12)

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Sport and Recreation Management

The Four-Year Graduation Plan is not available to sport and recreation management students who complete the optional internship. Students who choose the internship option should work with their advisors to develop individual graduation plans.

Before the fifth semester begins: four foundation courses and at least 3 s.h. in the concentration area

Before the seventh semester begins: two more foundation courses (total of six), an additional 6 s.h. in the concentration area, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two more foundation courses (total of eight) and the remaining concentration area courses

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Therapeutic Recreation

Before the fifth semester begins: all core courses and at least one foundation course

Before the seventh semester begins: two more foundation courses (total of three), 3 s.h. of supporting course work, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two more foundation courses (total of five) and the remaining supporting course work

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in health and human physiology, human physiology, athletic training, sport and recreation management, or therapeutic recreation have the opportunity to graduate with honors in the major. Departmental honors students must maintain a g.p.a. of at least 3.33 in work for their major.

Health and human physiology: in order to graduate with honors in the major, students must successfully complete a health and human physiology honors designation course, research practicum, teaching practicum, or service learning course. They must successfully complete HHP:4940 (027:187) Health Promotion Honors Readings and HHP:4950 (027:188) Health Promotion Honors Problems and must write an honors thesis, usually based on original research or creative work. They also must make an oral or poster presentation of the honors thesis in an approved venue, such as a department research seminar or a professional conference.

Human physiology: in order to graduate with honors in the major, students must complete the honors research course sequence HHP:4800 (027:198) Honors Research I and HHP:4900 (027:199) Honors Research II; write an honors thesis that is deposited with the University of Iowa Honors Program and is judged to be of honors quality; and

make an oral presentation of their research and thesis that is judged to be of honors quality.

Athletic training: in order to graduate with honors in the major, students must complete the practicum course sequence ATEP:3030 (027:186) Practicum in Athletic Training III and ORTH:4187 (076:187) Practicum in Athletic Training IV. They also must write an honors thesis that is deposited with the University of Iowa Honors Program and is judged to be of honors quality.

Sport and recreation management, or therapeutic recreation: in order to graduate with honors in either major, students must successfully complete LEIS:4194 (169:194) Honors Readings and LEIS:4195 (169:195) Honors Problems, in which they conduct a reading or research project under the supervision of a faculty member in their major and write a paper summarizing the project's results.

Departmental honors students must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor: Human Physiology

The minor in human physiology requires a minimum of 15 s.h. in Department of Health and Human Physiology courses, including 12 s.h. in courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Transfer credit does not count toward the minor.

Students majoring in health and human physiology (B.A.), human physiology (B.S.), or athletic training (B.S.) may not earn the minor in human physiology.

Students choose courses for the minor from the following list. Enrollment in HHP:3510 (027:132) Advanced Human Physiology Laboratory and HHP:4220 (027:197) Biomechanics of Human Motion requires special permission. Some of these courses have prerequisites; students must complete all of a course's prerequisites before they may register for the course.

HHP:1100 (027:053) Human Anatomy	3 s.h.
HHP:1110 (027:054) Human Anatomy Laboratory	1 s.h.
HHP:1310 (027:051) Human Physiology Laboratory	1 s.h.
HHP:3110 (027:154) Advanced Anatomy Laboratory	3 s.h.
HHP:3300 (027:117) Human Growth and Motor Development	3 s.h.
HHP:3400 (027:140) Applied Exercise Physiology	3 s.h.
HHP:3450 (027:177) Immunology in Health and Disease	3 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.
HHP:3510 (027:132) Advanced Human Physiology Laboratory	3 s.h.
HHP:4130 (027:155) Skeletal Muscle Physiology	3 s.h.
HHP:4150 (027:150) Clinical Exercise Physiology	3 s.h.

HHP:4220 (027:197) Biomechanics of Human Motion	3 s.h.	HHP:3030 (027:131) Coaching for Health and Wellness	3 s.h.
HHP:4230 (027:158) Motor Learning: Theory and Application	3 s.h.	HHP:3440 (027:147) Physical Activity and Healthy Communities	3 s.h.
HHP:4250 (027:161) Human Pathophysiology	3 s.h.	HHP:3500 (027:130) Human Physiology	3 s.h.
HHP:4300 (027:160) Neural Control of Posture and Movement	3 s.h.	HHP:3650 (027:174) Advanced Sport and Exercise Psychology	3 s.h.
HHP:4410 (027:141) Exercise Physiology	3 s.h.	HHP:3655 (027:175) Emotional and Psychological Aspects of Health	3 s.h.
HHP:4440 (027:143) Physiology of Nutrition	3 s.h.	HHP:4230 (027:158) Motor Learning: Theory and Application	3 s.h.
HHP:4450 (027:146) Genetic Basis of Disease	3 s.h.	HHP:4310 (027:133) Sport and Exercise Nutrition	3 s.h.
HHP:4460 (027:145) Cardiovascular Physiology	3 s.h.	HHP:4320 (027:134) Nutrition Interventions	3 s.h.
HHP:4470 (027:148) Physiology of Aging	3 s.h.	HHP:4340 (027:135) Global Health and Global Food	3 s.h.
HHP:4480 (027:165) Introduction to Human Pharmacology	3 s.h.	HHP:4390 (027:151) Understanding Human Disease	3 s.h.
		HHP:4440 (027:143) Physiology of Nutrition	3 s.h.

Minor: Physical Activity and Nutrition Science

The minor in physical activity and nutrition science requires a minimum of 15 s.h. in Department of Health and Human Physiology courses, including at least 9 s.h. in courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Transfer credit does not count toward the minor.

Students majoring in health and human physiology (B.A.), human physiology (B.S.), or athletic training (B.S.) may not earn the minor in physical activity and nutrition science.

The minor in physical activity and nutrition science is designed in conjunction with the Obesity Research and Education initiative. The minor provides a specialized group of courses that unify concepts underlying the causes, consequences, treatment, and prevention of obesity, with attention to physical activity, nutrition, physiology, psychology, and human disease. Students who earn the minor will be prepared to apply their knowledge in areas such as clinical health professions, public health policy, personal coaching and fitness, health psychology, and health promotion.

For the minor, students complete three core courses plus two elective courses that focus on various facets of obesity and on its treatment and prevention. One of the core courses and both of the elective courses are at the intermediate or advanced level. Students choose electives in consultation with an undergraduate advisor. Some courses for the minor have prerequisites; students must complete all of a course's prerequisites before they may register for the course.

The minor in physical activity and nutrition science requires the following course work.

Core courses—all of these:

HHP:2200 (027:039) Physical Activity and Health	3 s.h.
HHP:2310 (027:040) Nutrition and Health	3 s.h.
HHP:3050 (027:128) Obesity: Causes, Consequences, Prevention, and Treatment	3 s.h.

Electives—two courses from the following lists:

HHP:3000 (027:120) Equity Issues in the Health Sciences	3 s.h.
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HHP:3400 (027:140) Applied Exercise Physiology	3 s.h.
HHP:4410 (027:141) Exercise Physiology	3 s.h.

Electives may include one of these:

HHP:3400 (027:140) Applied Exercise Physiology	3 s.h.
HHP:4410 (027:141) Exercise Physiology	3 s.h.

Graduate Programs of Study

- Master of Arts in leisure studies (with or without thesis)
- Master of Science in health and human physiology (with or without thesis)
- Doctor of Philosophy in health and human physiology

Master of Arts

The Master of Arts program in leisure studies requires a minimum of 33 s.h. of graduate credit with thesis or 36 s.h. of graduate credit without thesis. Students choose one of two specialization areas—leisure and recreational sport management or therapeutic recreation—and must satisfy the prerequisites required for their areas. Work for each specialization area includes core requirements and area courses.

Leisure and Recreational Sport Management Specialization

The leisure and recreational sport management specialization prepares students for positions in public and private recreation and sport management. Students typically find employment in community or municipal recreation programs, campus recreation programs, or commercial recreation and sport operations.

The leisure and recreational sport management specialization requires the following course work.

LEISURE AND RECREATIONAL SPORT MANAGEMENT: CORE

All of these:

LEIS:5065 (169:265) The Economy of Experience	3 s.h.
LEIS:5200 (169:200) Historical and Philosophical Perspectives on Leisure	3 s.h.
PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.

LEISURE AND RECREATIONAL SPORT MANAGEMENT: AREA COURSES

All of these:

LEIS:6251 (169:251) Risk Management	3 s.h.
LEIS:6252 (169:252) Economics and Financing	3 s.h.
LEIS:6253 (169:253) Sport Administration	3 s.h.
LEIS:6254 (169:254) Marketing and Sport Promotion	3 s.h.

Cognate area courses (sport and athletic administration, business, communications, or cultural studies) 6-9 s.h.

Nonthesis students take an additional 6 s.h. of electives. Thesis students complete 6 s.h. of LEIS:7398 (169:398) M.A. Thesis.

Therapeutic Recreation Specialization

The therapeutic recreation specialization prepares students to meet the challenges of inpatient- and community-based health care service delivery. The program stresses research and practical skills that enable graduates to find the best jobs in the field.

Therapeutic recreation specialists are increasingly called upon to deliver preventive outpatient services, such as programs designed to prevent secondary impairments in persons with disabilities (e.g., arthritis exercise to manage pain, fall prevention for older adults); education for individuals with negative lifestyle habits (e.g., smoking, substance abuse); programs designed to restore meaning and purpose to life following traumatic events (e.g., following a spinal cord injury); and initiatives to help communities make services accessible to persons with disabilities.

Iowa's therapeutic recreation program emphasizes skills for delivery of services in clinical or community settings. The program includes related cognate areas, such as child life, aging, developmental disabilities, or counseling.

Students acquire research skills that they may apply directly to therapeutic recreation practice, for example, to assess the effectiveness of specific interventions or the demand for varied services in a specific setting.

The therapeutic recreation specialization requires the following course work.

THERAPEUTIC RECREATION: CORE

All of these:

LEIS:5200 (169:200) Historical and Philosophical Perspectives on Leisure	3 s.h.
LEIS:5205 (169:205) Research Methods and Leisure Behavior	3 s.h.
PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.

THERAPEUTIC RECREATION: AREA COURSES

All of these:

LEIS:3160 (169:160) Introduction to Therapeutic Recreation	3 s.h.
LEIS:3161 (169:161) Assessment and Evaluation in Therapeutic Recreation	3 s.h.
LEIS:3162 (169:162) Therapeutic Recreation: Clientele	3 s.h.

LEIS:3163 (169:163) Concepts and Issues in Therapeutic Recreation: Advancement of the Profession 3 s.h.

LEIS:3164 (169:164) Therapeutic Recreation: Rehabilitation 3 s.h.

Cognate area courses (aging studies, child life, counseling, disability studies) 9-12 s.h.

Thesis students complete 6 s.h. of LEIS:7398 (169:398) M.A. Thesis.

Therapeutic recreation students must complete a practicum, LEIS:7290 (169:290) Graduate Internship, in order to sit for a national certification examination.

Master of Science

The Master of Science program in health and human physiology requires 30-32 s.h. of graduate credit. Required credit varies by track: the athletic training track requires a minimum of 30 s.h. and is offered without thesis; the clinical exercise physiology track requires a minimum of 32 s.h. and is offered without thesis; the health and human physiology track requires a minimum of 30 s.h. and is offered with thesis.

Students interested in pursuing a Ph.D. after earning a master's degree should choose the M.S. health and human physiology track (with thesis).

Athletic Training Track

The athletic training track provides an advanced clinical education and research area of study for certified athletic trainers. It focuses on a health care team approach to sports medicine, medical care management, wellness, pediatric/adolescent health, and special health populations. The program emphasizes application of established research findings to the wide variety of problems encountered in everyday practice.

In order to be admitted to the program, athletic trainers must have completed the following prerequisite course work and must hold the following certifications.

anatomy (3-4 s.h.);

human physiology (3 s.h.);

athletic training core—prevention (3 s.h.), evaluation and recognition (3 s.h.), modalities (3 s.h.), rehabilitation (3 s.h.), administrative (2 s.h.);

exercise science core—exercise physiology (3 s.h.), biomechanics (3 s.h.);

current emergency certification; and

Board of Certification (BOC) certification and state license.

The Master of Science with the athletic training track requires the following course work.

STATISTICS CORE

One of these:

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.

EXERCISE SCIENCE CORE

Three of these:

HHP:3110 (027:154) Advanced Anatomy Laboratory	3 s.h.
HHP:4130 (027:155) Skeletal Muscle Physiology	3 s.h.
HHP:4150 (027:150) Clinical Exercise Physiology	3 s.h.
HHP:4220 (027:197) Biomechanics of Human Motion	3 s.h.
HHP:4300 (027:160) Neural Control of Posture and Movement	3 s.h.
HHP:4310 (027:133) Sport and Exercise Nutrition	3 s.h.
HHP:4410 (027:141) Exercise Physiology	3 s.h.
HHP:4440 (027:143) Physiology of Nutrition	3 s.h.
HHP:4450 (027:146) Genetic Basis of Disease	3 s.h.
HHP:4460 (027:145) Cardiovascular Physiology	3 s.h.
HHP:4470 (027:148) Physiology of Aging	3 s.h.
HHP:4480 (027:165) Introduction to Human Pharmacology	3 s.h.
HHP:6130 (027:255) Advanced Skeletal Muscle Physiology	1-3 s.h.
HHP:6150 (027:250) Advanced Clinical Exercise Physiology	1-3 s.h.
HHP:6210 (027:249) Epidemiology of Physical Activity	3 s.h.
HHP:6410 (027:240) Advanced Exercise Physiology	3 s.h.
HHP:6460 (027:245) Advanced Cardiovascular Physiology	1-3 s.h.
HHP:6480 (027:265) Advanced Human Pharmacology	3 s.h.
HHP:7300 (027:260) Advanced Neural Control of Posture and Movement	1-3 s.h.

CLINICAL RESEARCH TOOLS

One approved clinical tool course in computer science, counseling, epidemiology, health promotion, leisure studies, nursing, or pathology.

ATHLETIC TRAINING CORE

All of these:

HHP:5000 (027:200) Problems	2 s.h.
HHP:6010 (027:301) Non-Thesis Seminar	2 s.h.
HHP:7000 (027:202) Practicum in College Teaching	2-3 s.h.

One of these:

EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.
PSQF:6205 (07P:205) Design of Instruction	3 s.h.

ELECTIVES

Students choose elective courses that enhance their concentration in medical care management, wellness, pediatric/adolescent health, or special health populations. Course selection must be approved by the advisor.

Clinical Exercise Physiology Track

The clinical exercise physiology track provides an advanced scientific and clinical education. It prepares

students to be allied health professionals who work in the application of physical activity and behavioral interventions for clinical diseases and health conditions including cardiovascular, pulmonary, metabolic, orthopaedic, neuromuscular, immunologic, and hematologic diseases.

In order to be admitted to the program, students must:

- hold a B.S. or B.A. with a g.p.a. of at least 3.00; and
- have completed anatomy and physiology with laboratories (8 s.h.).

The Master of Science with the clinical exercise physiology track requires the following course work.

STATISTICS CORE

One of these:

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.

ADVANCED STATISTICS

One of these:

BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
STAT:6513 (22S:148) Intermediate Statistical Methods	4 s.h.

CLINICAL EXERCISE PHYSIOLOGY CORE

All of these:

HHP:6150 (027:250) Advanced Clinical Exercise Physiology	1-3 s.h.
HHP:6200 (027:238) Advanced Metabolic Exercise Testing and Prescription	3 s.h.
HHP:6410 (027:240) Advanced Exercise Physiology	3 s.h.
HHP:6460 (027:245) Advanced Cardiovascular Physiology	1-3 s.h.
HHP:6480 (027:265) Advanced Human Pharmacology	3 s.h.

Two enrollments (1 s.h. each) chosen from these:

HHP:6300 (027:314) Seminar in Motor Control	1 s.h.
HHP:6400 (027:241) Integrative Physiology Seminar	1 s.h.
HHP:6500 (027:296) Seminar in Health Promotion	1 s.h.

INTERNSHIP

Students complete an individually arranged internship, usually during their second year, earning 3 s.h. of credit.

ELECTIVES

Students choose elective courses that enhance their concentration in human and exercise physiology, clinical exercise physiology, prescriptive exercise and training for health and fitness, health maintenance, and understanding human disease. Students complete a minimum of two courses from the following list, with their advisor's approval.

HHP:3050 (027:128) Obesity: Causes, Consequences, Prevention, and Treatment	3 s.h.
HHP:3650 (027:174) Advanced Sport and Exercise Psychology	3 s.h.
HHP:4190 (027:159) Scientific Basis of Training for Elite Performance	3 s.h.
HHP:4210 (027:139) Musculoskeletal Exercise Testing and Prescription	3 s.h.
HHP:4400 (027:152) Health Promotion Clinical Practicum	1 s.h.
HHP:6130 (027:255) Advanced Skeletal Muscle Physiology	1-3 s.h.
HHP:6210 (027:249) Epidemiology of Physical Activity	3 s.h.
HHP:6470 (027:248) Advanced Physiology of Aging	3 s.h.
HHP:7300 (027:260) Advanced Neural Control of Posture and Movement	1-3 s.h.
ACB:5203 (060:203) Gross Human Anatomy for Graduate Students	6 s.h.
BIOL:3743 (002:192) Basic Biology of Human Disease	2 s.h.
EPID:4110 (173:110) Quality Dietary Studies for Individuals and Environment	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
EPID:6350 (173:235) Nutritional Epidemiology	2 s.h.
EPID:6650 (173:265) Cardiovascular Disease Epidemiology	3 s.h.
EPID:6360 (173:236) Nutrition Intervention in Clinical Trials Research	2 s.h.
PSY:3010 (031:152) Health Psychology	3 s.h.
PSY:3340 (031:170) Behavior Modification	3 s.h.
PTRS:6224 (101:224) Activity-Based Neural and Musculoskeletal Plasticity in Health Care	4 s.h.
PTRS:7812 (101:212) Biomedical Instrumentation and Measurement	3 s.h.
PTRS:7875 (101:275) Analysis of Activity-Based Neural and Musculoskeletal Plasticity	3 s.h.

Health and Human Physiology Track

The health and human physiology track requires a thesis. Students who intend to earn a Ph.D. after the master's degree should choose this track. In order to be admitted to the program, students must:

- hold a B.S. or B.A. with a g.p.a. of at least 3.00; and
- have completed courses in anatomy and physiology with laboratory (8 s.h.) and basic physics (3 s.h.).

The Master of Science with the health and human physiology track requires the following work.

ADVANCED STATISTICS

One of these:

BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
NURS:7002 (096:338) Designing Research	3 s.h.
NURS:7003 (096:344) Quantitative Research	4 s.h.
STAT:6513 (22S:148) Intermediate Statistical Methods	4 s.h.

RESEARCH METHODS

One of these:

LEIS:5205 (169:205) Research Methods and Leisure Behavior	3 s.h.
EALL:5150 (07X:150) Introduction to Educational Research	3 s.h.
NURS:7002 (096:338) Designing Research	3 s.h.
NURS:7003 (096:344) Quantitative Research	4 s.h.
PSQF:6220 (07P:220) Quantitative Educational Research Methodologies	3 s.h.

SEMINAR COURSES

Four enrollments (1 s.h. each) chosen from these:

HHP:6300 (027:314) Seminar in Motor Control	1 s.h.
HHP:6400 (027:241) Integrative Physiology Seminar	1 s.h.
HHP:6500 (027:296) Seminar in Health Promotion	1 s.h.

ELECTIVES

Students choose elective courses that broaden their knowledge in health and human physiology and related disciplines and that enhance their knowledge in their specific areas of interest. Students choose electives with guidance from their advisor/mentor. Electives may include the following.

HHP:3050 (027:128) Obesity: Causes, Consequences, Prevention, and Treatment	3 s.h.
HHP:3650 (027:174) Advanced Sport and Exercise Psychology	3 s.h.
HHP:4190 (027:159) Scientific Basis of Training for Elite Performance	3 s.h.
HHP:4210 (027:139) Musculoskeletal Exercise Testing and Prescription	3 s.h.
HHP:5000 (027:200) Problems	arr.
HHP:6000 (027:201) Research	arr.
HHP:6130 (027:255) Advanced Skeletal Muscle Physiology	1-3 s.h.
HHP:6150 (027:250) Advanced Clinical Exercise Physiology	1-3 s.h.
HHP:6200 (027:238) Advanced Metabolic Exercise Testing and Prescription	3 s.h.
HHP:6210 (027:249) Epidemiology of Physical Activity	3 s.h.
HHP:6410 (027:240) Advanced Exercise Physiology	3 s.h.
HHP:6460 (027:245) Advanced Cardiovascular Physiology	1-3 s.h.
HHP:6470 (027:248) Advanced Physiology of Aging	3 s.h.
HHP:6480 (027:265) Advanced Human Pharmacology	3 s.h.
HHP:7300 (027:260) Advanced Neural Control of Posture and Movement	1-3 s.h.
ACB:5203 (060:203) Gross Human Anatomy for Graduate Students	6 s.h.
BIOC:3110 (099:110) Biochemistry	3 s.h.
CBH:5220 (172:150) Health Behavior and Health Education	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.

EPID:5241 (173:241) Statistical Methods in Epidemiology	4 s.h.
EPID:5600 (173:160) Introduction to Epidemiology Data Management and Analysis	3 s.h.
EPID:6350 (173:235) Nutritional Epidemiology	2 s.h.
EPID:6400 (173:240) Epidemiology II: Advanced Methods	4 s.h.
EPID:6600 (173:260) Epidemiology of Chronic Diseases	3 s.h.
MPB:5153 (072:153) Graduate Physiology	4 s.h.
PTRS:7812 (101:212) Biomedical Instrumentation and Measurement	3 s.h.
PTRS:7875 (101:275) Analysis of Activity-Based Neural and Musculoskeletal Plasticity	3 s.h.

THESIS

Both of these:

HHP:7500 (027:404) Thesis: M.S.	4 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity (takes two semesters to complete)	0 s.h.

Doctor of Philosophy

The Doctor of Philosophy program in health and human physiology requires a minimum of 72 s.h. of graduate credit.

Doctoral students should have a strong background in the natural sciences and/or health promotion, and a working knowledge of statistics and research methodology. Students may acquire additional knowledge of statistics and research methodology after entering the program.

All Ph.D. students complete a common core of courses, scientific area courses, courses in their specialization, and 10 s.h. of independent research in addition to the dissertation requirement. They must complete a dissertation in their specialization area and must submit an appropriate manuscript of the dissertation to a refereed professional journal for publication.

Some courses in the program are offered by other departments. Faculty members from those departments frequently serve on comprehensive examination committees and on dissertation committees for the initial presentation of a candidate's prospectus. They also participate in the final examination.

The Doctor of Philosophy requires the following course work.

COMMON CORE

All of these:

HHP:6000 (027:201) Research	10 s.h.
HHP:7900 (027:405) Thesis: Ph.D.	12 s.h.
BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity (takes two semesters to complete)	0 s.h.
STAT:6513 (22S:148) Intermediate Statistical Methods	4 s.h.

SEMINAR COURSES

Four enrollments (1-2 s.h. each) chosen from these:

HHP:6300 (027:314) Seminar in Motor Control	1 s.h.
HHP:6400 (027:241) Integrative Physiology Seminar	1 s.h.
HHP:6500 (027:296) Seminar in Health Promotion	1 s.h.

SCIENTIFIC AREA COURSES

Students obtain a breadth of knowledge over the key scientific areas that constitute the basis of the major by completing at least three courses outside of their specialization area.

SPECIALIZATION ELECTIVES

Students are expected to obtain broad-based knowledge in their specialization area. This normally entails approximately 30 s.h. of course work. Students choose specialization electives with guidance from their advisor/mentor. Electives may include the following.

HHP:3060 (027:118) Advanced Human Anatomy for Athletic Trainers	4 s.h.
HHP:4200 (027:138) Metabolic Exercise Testing and Prescription	3 s.h.
HHP:4310 (027:133) Sport and Exercise Nutrition	3 s.h.
HHP:6200 (027:238) Advanced Metabolic Exercise Testing and Prescription	3 s.h.
HHP:6210 (027:249) Epidemiology of Physical Activity	3 s.h.
ACB:5203 (060:203) Gross Human Anatomy for Graduate Students	6 s.h.
ACB:8114 (060:234) Medical Neuroscience	4 s.h.
BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) Biochemistry and Molecular Biology I	3 s.h.
BIOC:3130 (099:130) Biochemistry and Molecular Biology II	3 s.h.
BIOC:3140 (099:140) Experimental Biochemistry	2 s.h.
BIOL:3253 (002:180) Neurobiology	4 s.h.
BME:5610 (051:150) Musculoskeletal Biomechanics	3 s.h.
CBH:5220 (172:150) Health Behavior and Health Education	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
EPID:5241 (173:241) Statistical Methods in Epidemiology	4 s.h.
EPID:5600 (173:160) Introduction to Epidemiology Data Management and Analysis	3 s.h.
EPID:6350 (173:235) Nutritional Epidemiology	2 s.h.
EPID:6400 (173:240) Epidemiology II: Advanced Methods	4 s.h.
EPID:6600 (173:260) Epidemiology of Chronic Diseases	3 s.h.
FRRB:7000 (077:222) Redox Biology and Medicine	4 s.h.
IE:3400 (056:144) Human Factors	3 s.h.
ME:5150 (058:150) Intermediate Mechanics of Deformable Bodies	3 s.h.
MPB:5153 (072:153) Graduate Physiology	4 s.h.
NSCI:4353 (132:181) Neurophysiology	3-4 s.h.
NSCI:4753 (132:184) Developmental Neurobiology	3 s.h.

NSCI:7180 (132:180) Neurobiology	4 s.h.
NSCI:7235 (132:235) Neurobiology of Disease	3 s.h.
OEH:4310 (175:190) Occupational Ergonomics I	2-3 s.h.
OEH:6310 (175:295) Clinical Ergonomics	3 s.h.
OEH:6320 (175:294) Occupational Ergonomics II	3 s.h.
PSY:5210 (031:241) Fundamentals of Behavioral Neuroscience	4 s.h.
PTRS:5210 (101:210) Kinesiology and Pathomechanics	4 s.h.
PTRS:6224 (101:224) Activity-Based Neural and Musculoskeletal Plasticity in Health Care	4 s.h.
PTRS:7812 (101:212) Biomedical Instrumentation and Measurement	3 s.h.
PTRS:7875 (101:275) Analysis of Activity-Based Neural and Musculoskeletal Plasticity	3 s.h.
PTRS:7885 (101:285) Biomechanical Analysis in Rehabilitation	3 s.h.

DISSERTATION

Students working on a dissertation register for the following course.

HHP:7900 (027:405) Thesis: Ph.D.	arr.
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Admission

Admission to the department's graduate programs is based on grade-point average and score on the Graduate Record Examination (GRE) General Test. Applicants to the M.S. program must have an undergraduate g.p.a. of at least 3.00. Applicants to the Ph.D. program must have a g.p.a. of at least 3.00 on undergraduate work and previous graduate work.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Application deadline is February 1 for admission the following fall semester.

Facilities

Classroom and research laboratories are located in the Field House and in other buildings on campus. They provide excellent facilities for instruction and research at both the undergraduate and graduate levels.

Cooperative efforts with other units facilitate specialization by allowing health and human physiology students to use additional special facilities and research equipment in other departments on campus (e.g., biology, biochemistry, molecular physiology and biophysics, orthopaedic surgery, internal medicine, pharmacology, and the College of Engineering).

Courses

Lower-Level Undergraduate

Athletic Training Program

ATEP:1000 (027:056) First Aid and CPR	2 s.h.
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American Red Cross certification: basic first aid, CPR procedures.

ATEP:1010 (027:096) Exploring Athletic Training	arr.
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Exploration of professional preparation for athletic trainers; application, career opportunities, professional organizations, awareness of basic athletic training principles.

ATEP:2010 (027:036) Practicum in Athletic Training I	2 s.h.
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Basic clinical skill instruction, evaluation, and integration for athletic trainers. Requirements: athletic training major.

ATEP:2020 (027:037) Practicum in Athletic Training II	2 s.h.
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Integration of basic physical skills and orientation to traditional settings; clinical experience for first-year students arranged through the athletic training program. Requirements: grade of C or higher in ATEP:2010 (027:036).

ATEP:2030 (027:057) Basic Athletic Training	3 s.h.
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Basic pathology, epidemiology, materials biology for prevention and immediate care of athletic injuries.

ATEP:2040 (027:172) Clinical Sciences I	2 s.h.
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Theoretical knowledge base in therapeutic modalities. Offered spring semesters. Requirements: grade of C or higher in ATEP:2010 (027:036).

ATEP:2060 (027:180) Advanced Emergency Care for Athletic Trainers	1-2 s.h.
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Coordinated initial professional emergency response certifications for athletic trainers; recertification for those holding valid certifications. Requirements: Red Cross First Aid and CPR certifications.

Health and Human Physiology

HHP:1000 (027:029) First-Year Seminar	1 s.h.
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Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

HHP:1050 (027:049) Exploring Exercise Science	1 s.h.
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Introduction to field of exercise science; employment and observation opportunities, academic and professional development.

HHP:1100 (027:053) Human Anatomy	3 s.h.
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General human anatomy covering most systems of the body. GE: Natural Sciences without Lab.

HHP:1110 (027:054) Human Anatomy Laboratory	1 s.h.
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All major systems of the human body, understood through computer-generated images, models, histological slides, anatomical specimens. GE: Natural Sciences Lab only.

HHP:1300 (027:050) Fundamentals of Human Physiology	3 s.h.
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Introduction to function and regulation of the human body. Recommendations: high school chemistry and basic biology. GE: Natural Sciences without Lab.

HHP:1310 (027:051) Human Physiology Laboratory 1 s.h.

Introductory laboratory course illustrating principles of human physiology through fundamental experimental measurements and computer simulation. Recommendations: one semester of biology.

HHP:2130 (027:044) Human Development Through the Life Span 3 s.h.

Overview of human developmental theories across the life-span; aspects of cognitive, physical, and personality development from birth to death; the role of culture, environment, health, and economic factors over the developmental process and life continuum.

HHP:2150 (027:035) Stress Management 3 s.h.

Recent theoretical concepts and scientific evidence regarding stress and its effects on body and mind; intervention methods, strategies for managing stress; opportunity for students to use intervention techniques to manage stress.

HHP:2200 (027:039) Physical Activity and Health 3 s.h.

Physical activity determinants in society; school, workplace, community-based health promotion interventions to improve activity levels. GE: Values, Society, and Diversity.

HHP:2210 (027:030) Principles of Exercise Leadership 3 s.h.

Exercise standards, guidelines for aerobic/exercise instructors; aerobic workout components, contraindicated exercises, injury prevention and treatment. Prerequisites: HHP:2200 (027:039).

HHP:2310 (027:040) Nutrition and Health 3 s.h.

Physiology, biochemistry of human nutrition; appropriate food sources; qualitative and quantitative evaluation of diets using standard references. GE: Natural Sciences without Lab.

HHP:2350 (027:095) Biomechanics of Sport and Physical Activity 3 s.h.

Principles of biomechanics, kinesiology, and anatomy; quantitative aspects of sport and physical activity; emphasis on developing a qualitative grasp on mechanical principles of human movement within sports and physical activity; how to apply these principles in a sport/exercise environment. Prerequisites: HHP:1100 (027:053).

HHP:2500 (027:076) Psychological Aspects of Sport and Physical Activity 3 s.h.

Psychological theory and research related to sport and physical activity; motivation, aggression, attribution, socialization, competitive anxiety, leadership.

Sport and Recreation Management

LEIS:1060 (169:060) Contemporary Issues in Sports 3 s.h.

Basic philosophical, historical, scientific foundations and developments; function, settings of organized recreation.

LEIS:2065 (169:065) The Experience Economy 3 s.h.

Introduction to emerging experience economy; just as manufacturing sector of economy supersedes agriculture and service economy supersedes manufacturing, how experience economy is now gaining ascendancy as the last, best hope for future economic growth; critical analysis of experience economy with discussion of ways in which experience economy may offer green, moral, and humane alternatives to previous stages of economic development; new opportunities for travel and tourism, sports settings, recreation and wellness services, possible applications in education and helping professions.

Therapeutic Recreation

LEIS:1029 (169:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, readings, visits to research facilities).

LEIS:1030 (169:030) Introduction to Critical Thinking 3 s.h.

Concepts and skills required for critical thinking about what should and should not be taken as true; analysis and evaluation of a variety of complex extended arguments. GE: Quantitative or Formal Reasoning.

LEIS:1040 (169:040) The Good Society 3 s.h.

Critiques of the existing social order, articulation of models of a good society with associated conceptions of the good life. GE: Values, Society, and Diversity.

LEIS:1045 (169:045) Health for Living 3 s.h.

Personal health strategies; focus on disease prevention, wellness. GE: Values, Society, and Diversity.

LEIS:1050 (169:050) Making Choices: Interdisciplinary Perspectives 3 s.h.

Interdisciplinary consideration of what we know, value, hope, and should do; focus on case studies of private, professional, and social decision making. GE: Values, Society, and Diversity.

LEIS:1061 (169:061) Recreation Leadership and Programming 3 s.h.

Leadership principles, techniques; programming techniques.

LEIS:1070 (169:070) Perspectives on Leisure and Play 3 s.h.

Relationships between leisure and economics, sociology, other social sciences; effect of leisure on individual and group behavior; antecedents, motives, consequences of leisure behavior. GE: Social Sciences.

LEIS:1072 (169:072) Leisure and the Liberal Arts 3 s.h.

Integration of the ideal of a liberal education with worthy, meaningful use of free time in contemporary society; classic writings in the humanities. GE: Values, Society, and Diversity.

LEIS:1077 (169:077) Introduction to Child Life 3 s.h.

Orientation to the field of child life services including services for hospitalized children and their families.

LEIS:1097 (169:097) Race, Sport, and Globalization 3 s.h.

Introduction to current discussion surrounding the link between sport, race, and globalization; critical cultural studies perspective used to examine the meaning of race and sport within a global context; labor migration of talented athletes, identity politics, and dynamics of equality in sport along such lines as race, class, and gender; examination of African American diaspora within a sport context to study political, economic, and social construction of race and sport on African and Asian continents. Same as AFAM:2610 (129:097).

LEIS:1800 (169:085) Basic Aspects of Aging 3 s.h.

Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. GE: Social Sciences. Same as ASP:1800 (153:085), NURS:1800 (096:085), SSW:1800 (042:085), CSD:1800 (003:085).

Upper-Level Undergraduate and Graduate

Athletic Training Program

ATEP:3010 (027:182) Clinical Sciences III 3 s.h.

Theoretical and practical skill development in the areas of musculoskeletal evaluation for ankle, knee, shoulder, and upper extremity. Offered fall semesters. Prerequisites: ATEP:2040 (027:172). Requirements: athletic training major.

ATEP:3020 (027:185) Clinical Sciences V: Rehabilitation 2 s.h.

Rehabilitation for athletic trainers based on the theory and principles of therapeutic exercise; application of current research concepts. Prerequisites: ATEP:2040 (027:172). Corequisites: ATEP:3010 (027:182). Requirements: athletic training major.

ATEP:3030 (027:186) Practicum in Athletic Training III 3 s.h.

Advanced clinical skill instruction, evaluation, and integration for athletic trainers. Requirements: grade of C or higher in ATEP:2020 (027:037).

ATEP:3040 (027:183) Clinical Sciences IV 3 s.h.

Continuation of musculoskeletal evaluation, completion of EENT, chest, abdomen, and dermatologic evaluation; integration of rehabilitation programs. Offered spring semesters. Requirements: grade of C or higher in ATEP:3010 (027:182).

ATEP:4010 (027:171) Administration of Athletic Training Programs 2 s.h.

Health care supervision, professional athletic training responsibilities, philosophies in athletic health care. Offered fall semesters. Prerequisites: ATEP:2030 (027:057).

Health and Human Physiology

HHP:3000 (027:120) Equity Issues in the Health Sciences 3 s.h.

Examination of equity issues in the health sciences, including a review of the historical challenges that led to Human Subjects Review Boards, FDA oversight of drug development and clinical trials, inclusion of women in research; effect of situational ethics in the workplace; potential danger of making assumptions about clients/patients; importance of developing an inclusive communication style; assessing the effectiveness of family-friendly employment policies in providing equitable opportunities for career advancement for both women and men. Recommendations: junior or senior standing. Same as INTD:3020 (145:120).

HHP:3005 (027:109) Scientific Reasoning 3 s.h.

Patterns of reasoning useful for understanding and evaluating scientific evidence, theory, controversy; historical and contemporary examples from the physical, biological, behavioral, biomedical sciences. GE: Quantitative or Formal Reasoning.

HHP:3010 (027:125) Contemporary Nutrition 3 s.h.

Introduction to nutrition; importance of understanding food choices and diet to fit individual needs. Same as INTD:3025 (145:125).

HHP:3020 (027:127) Nutrition for Health, Fitness, and Sport 3 s.h.

Effects of exercise and nutrition on health- and sports-related fitness; for professionals in health and physical education. Same as INTD:3027 (145:127).

HHP:3030 (027:131) Coaching for Health and Wellness 3 s.h.

Opportunities to expand knowledge and develop skills to help individuals change behavior and meet health-related goals; general health and wellness principles; principles and techniques for change; experience providing health-coaching services to clients. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040). Same as INTD:3030 (145:130).

HHP:3050 (027:128) Obesity: Causes, Consequences, Prevention, and Treatment 3 s.h.

In-depth overview of biological, behavioral, and societal causes and consequences of obesity epidemic; potential solutions from primary and secondary prevention standpoints; causes of obesity, available treatments, and global impact that obesity epidemic presents to society. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040).

HHP:3060 (027:118) Advanced Human Anatomy for Athletic Trainers 4 s.h.

Extremities and relevant body cavity anatomy; anatomical terminology, anatomical relationships of human body, 3-D view of anatomy, clinical relevance of anatomy; basic science lectures, radiologic imaging discussions, introduction to clinically relevant anatomy, dissection laboratories, small group learning and teaching, faculty interaction, and computer-assisted resources. Offered summer sessions. Prerequisites: HHP:1100 (027:053).

- HHP:3100 (027:110) Health Literacy** 3 s.h.
Community and clinical issues related to health literacy; focus on understanding individual and systemic factors that influence health literacy, including education, context, culture, and health care systems. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040).
- HHP:3110 (027:154) Advanced Anatomy Laboratory** 3 s.h.
Detailed gross anatomy of all major systems of the body; structure of the human body at organ, tissue, and cellular levels; examination of various human and other mammalian specimens. Prerequisites: HHP:1100 (027:053) and HHP:1110 (027:054).
- HHP:3200 (027:136) Health Behavior and Health Promotion** 3 s.h.
Principles of epidemiology and health behavior theories applied to multilevel frameworks for health promotion. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040).
- HHP:3300 (027:117) Human Growth and Motor Development** 3 s.h.
Human growth and biological maturation; focus on motor development from birth through puberty. Offered fall semesters. Recommendations: prior course in anatomy, human physiology, or biology.
- HHP:3400 (027:140) Applied Exercise Physiology** 3 s.h.
Effects of acute exercise and chronic exercise training on different physiological systems (energy, neuromuscular, circulatory, respiratory, endocrine); overview of physiological principles necessary for more advanced study of fitness evaluation and exercise prescription; preparation for ACSM certification. Prerequisites: HHP:1300 (027:050) or HHP:3500 (027:130). Recommendations: at least one prior human physiology course.
- HHP:3420 (027:144) College Health Education** 3 s.h.
Foundation of theories and models that guide health behavior change in college settings; how health issues apply to individuals and to communities to which they belong; practical experience in planning, implementing, and evaluating health programs. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040).
- HHP:3430 (027:137) Community and Worksite Health Promotion** 3 s.h.
Management and organizational theories; assessment, planning, implementation, and evaluation of clinical and work-setting (targeted) health promotion programs. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040).
- HHP:3440 (027:147) Physical Activity and Healthy Communities** 3 s.h.
Development, implementation, evaluation of effective health communication interventions; identification of health education resources for targeted groups. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040).
- HHP:3450 (027:177) Immunology in Health and Disease** 3 s.h.
Overview of immunology, beginning at the molecular level and ending with the role of the immune system in disease; fundamental concepts of the immune system; innate and adaptive immunity, focusing on cell-mediated and humoral immune responses, in addition to effector mechanisms in both of these responses; concepts of immunologic tolerance; autoimmune disease; immunodeficiency syndromes; the inflammatory process in disease. Prerequisites: HHP:3500 (027:130).
- HHP:3500 (027:130) Human Physiology** 3 s.h.
Organ system approach to physiology; focus on normal function of human body; information on all levels of integration from submolecular to whole organism; emphasis on how intact organism functions. Prerequisites: HHP:1300 (027:050) or BIOL:1141 (002:002) or BIOL:1140 (002:021) or BIOL:1411 (002:031), and CHEM:1070 (004:007) or CHEM:1110 (004:011).
- HHP:3510 (027:132) Advanced Human Physiology Laboratory** 3 s.h.
Fundamental laboratory measurements; major physiological systems, experimental design, presentation of experimental data. Corequisites: HHP:3500 (027:130), if not taken as a prerequisite.
- HHP:3650 (027:174) Advanced Sport and Exercise Psychology** 3 s.h.
Application of sport and exercise psychological theory; theoretical and practical experience using psychological skills training for sport and exercise. Corequisites: HHP:2500 (027:076).
- HHP:3655 (027:175) Emotional and Psychological Aspects of Health** 3 s.h.
Interfaces among emotional, psychological, and physical aspects of health; examination of how individuals with healthy psychological profiles engage in health behaviors; health-related implications of negative emotional and psychological states; strategies for promoting healthy psychological patterns; designed for health promotion, health studies students, and others interested in health-related careers. Prerequisites: HHP:2200 (027:039).
- HHP:3850 (027:176) Promoting Health Globally** 3 s.h.
Major global health threats in the United States and abroad; impact of culture, history, economics on health disparities; approaches, programs, policies to remedy them. Requirements: junior or senior standing, or certificate student. Same as GHS:3850 (152:158).
- HHP:3860 (027:170) Leadership Theory for Health and Fitness** 3 s.h.
Theories and applications of current scholarship in group and individual leadership relevant for health, sport, fitness, and exercise leadership; areas of study include group dynamics, humanist leadership, leader-member exchange theory, transformational leadership, contingency/reinforcement leadership models, path-goal leadership, and multi-dimensional leadership models; approaches to leadership contextualized to build skills in cultural competence and ethics of leadership.

- HHP:3900 (027:123) Writing for Health and Human Physiology** 3 s.h.
Effective written communication specific to health sciences; planning, drafting, revising, and peer-editing materials (e.g., personal statements, professional communications, general articles of interest, scientific papers); practicum experience. Requirements: HHP:3500 (027:130).
- HHP:4130 (027:155) Skeletal Muscle Physiology** 3 s.h.
Skeletal muscle structure, contractile mechanisms, production of movement, biomechanical properties; adaptation to increased use, disuse, injury. Offered spring semesters.
- HHP:4150 (027:150) Clinical Exercise Physiology** 3 s.h.
Recent advances in exercise physiology for clinical populations; emphasis on acute and chronic responses to exercise in healthy aged adults and in patients with cardiac, vascular, pulmonary, and metabolic diseases; basic and intermediate electrocardiography (ECG), pathophysiology of disease process, clinical assessment of disease severity, diagnostic testing, acute exercise responses, and exercise rehabilitation. Prerequisites: HHP:3500 (027:130) and HHP:4410 (027:141). Recommendations: HHP:4460 (027:145).
- HHP:4190 (027:159) Scientific Basis of Training for Elite Performance** 3 s.h.
Application of scientific principles to goal of improving strength, speed, endurance, and overall human function; general overview of structure and function of muscular, nervous, cardiovascular, and respiratory systems; bioenergetics of exercise; endocrine response to exercise; biomechanics of resistance exercise; adaptations to anaerobic and aerobic training programs; age and sex related considerations on training; nutrition and ergogenic aids. Prerequisites: HHP:1100 (027:053), and HHP:1300 (027:050) or HHP:3500 (027:130).
- HHP:4195 (027:124) Exercise Programming for Special Populations** 3 s.h.
Measurement of health-related fitness and exercise capacity in special populations (e.g., children, older adults, obesity, orthopedic problems, cerebral palsy, intellectual disabilities). Prerequisites: HHP:2200 (027:039).
- HHP:4200 (027:138) Metabolic Exercise Testing and Prescription** 3 s.h.
Basic techniques in physical fitness assessment, prescription of exercise for healthy and unhealthy adults, promotion of physical activity within communities; provides knowledge and skill competencies required for certification as American College of Sports Medicine health fitness instructor. Prerequisites: HHP:2200 (027:039). Corequisites: HHP:3400 (027:140) or HHP:4410 (027:141). Requirements: health promotion, exercise science, or human physiology major.
- HHP:4210 (027:139) Musculoskeletal Exercise Testing and Prescription** 3 s.h.
Educational and practical experience for designing resistance training and flexibility programs; competencies for certification with National Strength and Conditioning Association. Prerequisites: HHP:2200 (027:039). Corequisites: HHP:3400 (027:140) or HHP:4410 (027:141), if not taken as a prerequisite. Requirements: health promotion, exercise science, or human physiology major.
- HHP:4220 (027:197) Biomechanics of Human Motion** 3 s.h.
Application of the principles of mechanics to investigation of human motion in two dimensions; system modeling, force system and equilibrium analysis, particle and rigid body kinematics, Newton's and Euler's equations of motion, work-energy and impulse-momentum integral principles. Offered spring semesters.
- HHP:4230 (027:158) Motor Learning: Theory and Application** 3 s.h.
How skilled motor behavior is acquired; behavioral changes that occur during skill acquisition; structural and physiological changes that occur in central nervous system; principles of training and practice that yield efficient and effective motor learning; how this information is helpful to health professionals involved in motor rehabilitation, physical educators and coaches, music instructors and musicians, strength and conditioning professionals, fitness professionals, and athletes, among others. Prerequisites: HHP:1300 (027:050). Recommendations: familiarity with basic neuroscience (neurons, synaptic transmission, basic anatomical organization of sensory and motor systems).
- HHP:4250 (027:161) Human Pathophysiology** 3 s.h.
In-depth study of human pathological processes and their effects on homeostasis; etiology, symptoms, and risk factors of various diseases; emphasis on major diseases impacting worldwide disability and death; how pathological processes are manifested and progress in the body. Prerequisites: HHP:1100 (027:053) and HHP:3500 (027:130).
- HHP:4300 (027:160) Neural Control of Posture and Movement** 3 s.h.
Neuroanatomical and neurophysiological bases of human motor control; mechanisms for locomotion and posture, control of arm and hand movements, role of sensory information. Offered spring semesters. Requirements: anatomy or human physiology course.
- HHP:4310 (027:133) Sport and Exercise Nutrition** 3 s.h.
Relationship between nutrition, fitness and sport performance; basic nutrition, physiology, chemistry, psychology, food preparation. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040).
- HHP:4320 (027:134) Nutrition Interventions** 3 s.h.
Strategies that assist in assessment and evaluation of nutrition behaviors of individuals and groups; interventions to meet nutritional needs of individuals and groups with a variety of health issues. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040). Requirements: admission to health promotion track.

- HHP:4340 (027:135) Global Health and Global Food** 3 s.h.
Practices, patterns, and policies that contribute to the epidemics of obesity, diabetes, and heart disease in wealthy populations; environmental degradation, hunger, and malnutrition among impoverished populations; strategies to meet food and agricultural needs for the world; local/global aspects or perspectives on food/health concerns for Iowa and the international community. Same as GHS:4340 (152:135).
- HHP:4350 (027:163) Practicum in Personal Training** 2 s.h.
Opportunity to observe personal trainers in a fitness setting; participation in process of helping clients achieve health/fitness goals. Prerequisites: HHP:1100 (027:053), HHP:1300 (027:050) or HHP:3500 (027:130), HHP:2310 (027:040), and HHP:3400 (027:140) or HHP:4410 (027:141). Requirements: CPR/AED or CPT (ACSM, ACE, NSCA, NASM, NCSF, NFPT, AFAA) certification.
- HHP:4360 (027:164) Practicum in Group Fitness Instruction** 2 s.h.
Opportunity to observe group-fitness instructors in an applied setting; help organize and execute a group-fitness class. Prerequisites: HHP:1100 (027:053), HHP:1300 (027:050) or HHP:3500 (027:130), HHP:2310 (027:040), and HHP:3400 (027:140) or HHP:4410 (027:141). Requirements: CPR/AED or Group Fitness Instructor (ACSM, ACE, AFAA) or specific fitness (yoga, indoor cycling, crossfit) certification.
- HHP:4370 (027:166) Practicum in Strength and Conditioning** 2 s.h.
Opportunity to observe strength and conditioning professionals in an applied setting; participation in process of helping athletes reach performance goals. Prerequisites: HHP:1100 (027:053), HHP:1300 (027:050) or HHP:3500 (027:130), HHP:2310 (027:040), and HHP:3400 (027:140) or HHP:4410 (027:141). Requirements: CPR/AED certification.
- HHP:4380 (027:294) Practicum: Athletics Administration** arr.
Structure and function of cardiovascular system; heart, microcirculation, hemodynamics, regional circulation, reflex integration, regulation during physical stress. Prerequisites: HHP:3500 (027:130). Recommendations: calculus and physics.
- HHP:4390 (027:151) Understanding Human Disease** 3 s.h.
Introduction to process of human disease at cell, organ, and whole body level throughout the lifespan; pathophysiological changes occurring with disease, including risk factors, disease development, and overall effects of disease on the body; cancer, diabetes, obesity, cardiovascular, neurodegenerative diseases, and aging. Prerequisites: HHP:1300 (027:050) or HHP:3500 (027:130).
- HHP:4400 (027:152) Health Promotion Clinical Practicum** 1 s.h.
Experience in planning and implementing clinical health promotion programs focusing on nutrition, physical fitness, cardiac rehabilitation, and respiratory rehabilitation. Prerequisites: HHP:3200 (027:136) and HHP:4200 (027:138).
- HHP:4405 (027:153) Health Promotion Community and Worksite Practicum** 1 s.h.
Planning and implementing community and worksite health promotion programs. Prerequisites: HHP:3200 (027:136) and HHP:4200 (027:138).
- HHP:4410 (027:141) Exercise Physiology** 3 s.h.
Mechanisms responsible for the acute and chronic effects of exercise on the different organ systems of the body. Offered fall semesters. Prerequisites: HHP:1300 (027:050) or HHP:3500 (027:130).
- HHP:4415 (027:162) Exercise Science Practicum** 1 s.h.
Experience in planning and implementing exercise programs related to physical fitness, including strength and conditioning in healthy and diseased/injured populations, and in elite athletes. Prerequisites: HHP:4200 (027:138) and HHP:4210 (027:139).
- HHP:4420 (027:156) Planning and Evaluating Health Interventions** 3 s.h.
Assessment, planning, implementation, and evaluation of health promotion programs. Prerequisites: HHP:3200 (027:136). Requirements: admission to health promotion program.
- HHP:4440 (027:143) Physiology of Nutrition** 3 s.h.
Metabolic and biological aspects of human energy production, relationship to energy consumption; systems or integrative approach.
- HHP:4450 (027:146) Genetic Basis of Disease** 3 s.h.
Changes in single molecules that lead to systemic physiological alterations in mammals; relationship of these changes to development, aging, exercise, and specific diseases; current methodologies for studying mammalian genetics and physiology. Prerequisites: HHP:3500 (027:130).
- HHP:4460 (027:145) Cardiovascular Physiology** 3 s.h.
Structure and function of cardiovascular system; heart, microcirculation, hemodynamics, regional circulation, reflex integration, regulation during physical stress. Prerequisites: HHP:3500 (027:130). Recommendations: calculus and physics.
- HHP:4470 (027:148) Physiology of Aging** 3 s.h.
Aging's effects on cells, tissues, and organs; how aging influences function of major body organ systems and the whole organism; physiological mechanisms that underlie age-related changes in body function and performance; integrative approach with focus on human aging. Prerequisites: HHP:1100 (027:053) or HHP:3500 (027:130).
- HHP:4480 (027:165) Introduction to Human Pharmacology** 3 s.h.

General pharmacology (e.g., administration, distribution, and elimination of drugs, dose response curves, adverse effects, placebos, homeopathy); pharmacotherapy of selected human diseases, pathophysiologic aspects of the disease, how different classes of drugs modify pathophysiologic effects to restore health or reduce disease's impact; focus on mechanisms of drug actions in humans; adverse effects, pharmacokinetic considerations, drug interactions; how to write prescriptions. Prerequisites: HHP:3500 (027:130).

HHP:4490 (027:192) Diagnosing Diseases: Patient History and Physical Examination 3 s.h.

Different diseases studied by interacting with patients at Meenakshi Mission Hospital and Research Center in Madurai, India; formal lectures in mornings followed by bedside teaching in afternoons and grand rounds in evenings; for pre-health professional students.

HHP:4500 (027:195) Undergraduate Independent Study arr.

Library or laboratory research related to a specific topic in human physiology, normally culminating with a written manuscript; work directed by a faculty member.

HHP:4510 (027:168) Energy Metabolism in Health and Disease 3 s.h.

Comprehensive and molecular-driven approach to energy metabolism during exercise and calorie restriction regimens in skeletal muscle, adipose tissue, liver, heart, brain; special emphasis on muscle metabolism and its interaction with other organ systems in treatment and prevention of metabolic diseases (e.g., obesity, diabetes, cardiovascular diseases, cancer). Prerequisites: HHP:3500 (027:130). Recommendations: HHP:4410 (027:141) and BIOL:2723 (002:114).

HHP:4600 (027:194) Senior Seminar in Creative Problem Solving 1 s.h.

Use of design thinking values and principles; collaborative work to uncover innovative solutions related to undergraduate health and human physiology experience and targeted health behaviors; interactive presentation of content, experimentation of ideas and processes, student-led projects. Requirements: senior standing, health and human physiology or human physiology major, and UI g.p.a. of 3.00 or higher.

HHP:4800 (027:198) Honors Research I 2 s.h.

Research for honors thesis; selection of faculty mentor, preparation of research proposal, written and oral presentations of research proposal, literature review, participation in experiments designed to develop laboratory skills for research, work with an active research tenure-track faculty member in a laboratory; first of a two-semester sequence. Requirements: honors standing.

HHP:4900 (027:199) Honors Research II 3 s.h.

Completion of honors research begun in HHP:4800 (027:198); analysis of data, writing and oral presentation of honors thesis, work with an active research tenure-track faculty member in a laboratory; second of a two-semester sequence. Requirements: honors standing and grade of B or higher in HHP:4800 (027:198).

HHP:4920 (027:190) Health Promotion Preinternship Seminar 1 s.h.

Preparation for internship experience.

HHP:4930 (027:191) Health Promotion Internship 3,6 s.h.

Directed practical field experience; program planning, implementation, evaluation, administrative procedures. Prerequisites: HHP:4200 (027:138), HHP:4210 (027:139), HHP:4320 (027:134), HHP:4420 (027:156), and HHP:4920 (027:190).

HHP:4935 (027:193) Clinical Exercise Physiology Internship 1-6 s.h.

Directed practical field experience; program planning, implementation, evaluation, and administrative procedures.

HHP:4940 (027:187) Health Promotion Honors Readings 1-2 s.h.

First step to complete an honors thesis; work with health and human physiology faculty member; comprehensive readings in a specific area (e.g., obesity in children, disabilities and sport); readings include primarily research reviews, popular press, and editorials; production of an annotated bibliography summarizing readings and presentation to faculty member at end of semester; brief research proposal summarizing background, research questions, and methods of selected area.

HHP:4950 (027:188) Health Promotion Honors Problems 3-4 s.h.

Continuation of HHP:4940 (027:187); original research or creative project supervised by a faculty member.

Sport and Recreation Management

LEIS:3147 (169:147) Sport Event Management 3 s.h.

Current status, challenges, and opportunities in sporting event industry; sporting event planning, budgeting, marketing, sponsorship, and evaluation; development of event timelines and event management skills; introduction to networking and interaction with sporting events. Recommendations: LEIS:3154 (169:154).

LEIS:3148 (169:148) Introduction to Personal Training 3 s.h.

Basics of personal training, including establishing a personal training business, screening, and assessing clients; current issues and certifications.

LEIS:3149 (169:149) Coaching Interscholastic Athletics 3 s.h.

Techniques and theories of coaching interscholastic athletes; ethics and legal responsibilities of coaching; coaching youth sports; leadership principles and techniques, organizational theories, assessment and implementation of coaching styles; trends, foundations, and principles related to basic philosophies of organized coaching; capstone course for certification of youth sports programs; credit and documentation for advanced coaching certification.

<p>LEIS:3150 (169:150) Recreation Administration 3 s.h. Personnel, finance, budgets, liability, marketing.</p>	<p>Capital funding and revenue acquisition for funding public and private sport and leisure service organizations; contemporary sport and leisure service; financial and economic issues.</p>
<p>LEIS:3151 (169:151) Liability in Recreation and Sport 3 s.h. Unintentional torts (negligence), civil liability, and criminal liability in recreation and sport settings; focus on community/commercial recreation and campus recreation settings. Requirements: completion of 30 s.h.</p>	<p>LEIS:3175 (169:177) Business Development and Sales in Sport 3 s.h. Fundamentals of business development and sales management; incentivizing sports consumers, direct and indirect sales strategies, brand communications, atmospherics, technology in sports sales, ticket sales, licensing products, negotiating sports sponsorships, and brand building. Recommendations: health and human physiology major.</p>
<p>LEIS:3152 (169:152) Recreation and Sport Facility Management 3 s.h. Facilities management, personnel assignment and evaluation, fee structures, maintenance, programming, compliance with regulations and standards. Requirements: completion of 30 s.h.</p>	<p>LEIS:3176 (169:179) Sports Analytics for Coaches, Managers, and Other Decision Makers 3 s.h.</p>
<p>LEIS:3153 (169:153) Sport Business Practices 3 s.h. Basic management skills for profit-based recreation and sport businesses; operations, business plans, organizational behavior, risk management, inventory, purchasing, marketing. Requirements: completion of 30 s.h.</p>	<p>Data management, analytic models, and information systems; how sports analytics are used to make decisions for structuring athletic departments, develop in-game competitive strategies, and improve player performance; analytic examples applied to professional sports, college sports, high school sports, and fantasy sports; experience with statistics or computer science not required.</p>
<p>LEIS:3154 (169:154) Foundations of Event Management 3 s.h. Large, major special events, professional meetings, and conferences; development and planning, implementation of events, management and evaluation of events; development requirements of planning events, development strategies, budgeting, staffing requirements, resource allocation, site planning, basic risk management requirements, emergency procedures; event implementation policy and procedures; relationship to elements within development stages; event management and evaluation procedures.</p>	<p>LEIS:3178 (169:178) Communications and Public Relations in Sport 3 s.h. How public relations is used to promote service products, demonstrate social responsibility, and communicate with consumers and investors; campaigns, customer service, legal and ethical considerations in promoting service products, media events, information services, public relations in strategic management, atmospherics, critical service moment, social media. Recommendations: health and human physiology major.</p>
<p>LEIS:3156 (169:156) Design of Recreation Facilities 3 s.h. Horticulture, floriculture, landscape design, agronomy, turf management; their relation to planning and design of recreation and park areas and facilities. Requirements: completion of 30 s.h.</p>	<p>LEIS:3300 (169:124) Writing for Sport and Recreation Managers 3 s.h. Development of effective writing skills that apply to diverse professional situations; proper mechanics of effective writing, persuasive writing, informative writing, factual writing; writing styles applied to document formats (e.g., press releases, emails, memos, marketing messages, interviews, fundraising requests, digital newsletters); student-centered activities in a workshop format.</p>
<p>LEIS:3157 (169:157) Managerial Operations in Sport 3 s.h. Introduction to the operation of a private or nonprofit sport-related business.</p>	<p>LEIS:4196 (169:196) Recreation Sport Business Internship 9 s.h. Capstone course for the recreation sport business track; 360 contact hours of practical experience with a private or nonprofit recreation or sport-related enterprise; supervision by an agency mentor and a university representative. Requirements: completion of all recreation sport business core courses, foundation courses, and elective concentration courses.</p>
<p>LEIS:3158 (169:158) Recreation and Sport Promotion 3 s.h. Foundations and principles of recreation sport promotion and sales operation; application of foundations and principles to sport and recreation industries; historical aspects; current and future trends of sport and recreation management as it relates to sales and promotions; sales management, marketing, financial/economic, legal, and ethical principles related to sport management. Requirements: completion of 30 s.h.</p>	<p>LEIS:4197 (169:197) Recreation and Sport Business Practicum 1-3 s.h.</p>
<p>LEIS:3172 (169:172) Finance in Sport and Recreation 3 s.h.</p>	

Educational opportunity involving a small group of students in a unique sport business experience; students serve as consultants for a sport or recreation organization; in-class preparation prior to off-campus work with designated agency; sport or recreation enterprise vary according to faculty expertise and agency availability. Prerequisites: LEIS:1060 (169:060), PSQF:1020 (07P:025), PSY:1001 (031:001), and SOC:1010 (034:001).

LEIS:4198 (169:198) NCAA Rules Compliance and Enforcement 3 s.h.

Rules that govern NCAA athletics, rules compliance function on campuses of member institutions, and enforcement of rules by NCAA; essential legislation in NCAA Manual, including bylaws covering recruiting, eligibility, and amateurism; history of NCAA as related to organization's current structure and activities; capstone experience includes attendance at NCAA Regional Rules Seminar in Indiana and participation in educational sessions conducted by NCAA staff.

Therapeutic Recreation

LEIS:3160 (169:160) Introduction to Therapeutic Recreation 3 s.h.

Lifestyles and barriers faced by persons with disabilities; basic aspects of the therapeutic recreation profession; skills used to establish therapeutic relationship; techniques used with patients; theoretical and conceptual bases for practice.

LEIS:3161 (169:161) Assessment and Evaluation in Therapeutic Recreation 3 s.h.

Basic assessment psychometrics (e.g., reliability), standardized instrumentation and data collection (e.g., observation, self-report), construction of instruments, data reduction. Prerequisites: LEIS:3160 (169:160).

LEIS:3162 (169:162) Therapeutic Recreation: Clientele 3 s.h.

Developmental patterns of special populations; examination of specific interventions and research applied to specific cognitive, emotional, and physical impairments. Prerequisites: LEIS:3160 (169:160).

LEIS:3163 (169:163) Concepts and Issues in Therapeutic Recreation: Advancement of the Profession 3 s.h.

Ethical, professional, and theoretical issues in delivery of therapeutic recreation services; impact of legislation, standards of practice, health care reform; application of research to practice and marketing services. Prerequisites: LEIS:3160 (169:160).

LEIS:3164 (169:164) Therapeutic Recreation: Rehabilitation 3 s.h.

In-depth review of therapeutic recreation techniques used in clinical and community rehabilitation; opportunities to use techniques with patients. Prerequisites: LEIS:3160 (169:160).

LEIS:3165 (169:165) Child Life: Methods and Materials 3 s.h.

Interventions unique to child life practice (e.g., pain management, coping, preoperative play, terminal illness). Prerequisites: LEIS:1077 (169:077).

LEIS:3166 (169:166) Child Life: Seminar 3 s.h.
Current issues and research in child life, expanding scope of service in child life. Prerequisites: LEIS:1077 (169:077).

LEIS:3168 (169:168) Aging and Leisure 3 s.h.

Status of the well elderly in relation to retirement issues, use of free time, and factors that support leisure activity; leisure services in long-term care. Same as ASP:3168 (153:168).

LEIS:3170 (169:170) Children and Health Care 3 s.h.

Broad overview of issues and systemic approaches to working with children in a health care setting; practical and clinically-based experiences for pediatric population; provision of health care services to patients and issues that affect them; models of intervention, ethical issues, case studies, and impact of cultural diversity on health care; for undergraduates who are interested in working with children in a health care setting.

LEIS:3171 (169:171) Child Life Practical Application 3 s.h.

Overview of medical conditions and treatments commonly encountered by children and adolescents in health care settings; common pediatric sedation medications; sequence of medical procedures to understand how to provide procedural preparation and support; facilitate medical play with pediatric population.

LEIS:3173 (169:173) Work and Leisure in American Culture 3 s.h.

Methods and insights of American studies and leisure studies applied to work/leisure relationship in American life; patterns and perceptions of work and leisure, leisure's share and potential; changing American values.

LEIS:3174 (169:174) Cultural Perspectives in Health Care 3 s.h.

Health care beliefs related to various cultures and religions; focus on illness, hospitalization, treatment, death.

LEIS:3260 (169:175) Play and Childhood arr.

Multiple levels of theories and current research on importance of play in child development; advocacy for importance and necessity of play in childhood that leads to well being and healthy lifestyles; practical- and theoretically-based experiences; for students interested in working with children in health care, clinical, school, community, and family life settings. Prerequisites: LEIS:1077 (169:077).

LEIS:3261 (169:176) Inclusive Recreation 3 s.h.

Laws pertaining to access to recreation and leisure opportunities for disabled persons in a community; evaluation of physical access to built environment; how social construction of disability can be a barrier to integrated leisure involvement; practical aspects of how to include disabled persons in community recreation and sport activities.

LEIS:4167 (169:167) Child Life Practicum 1-2 s.h.

Experience observing and assisting child life staff members providing services to hospitalized children, under Certified Child Life Specialist supervision.

LEIS:4169 (169:169) Spring Break Child Life Experience 1 s.h.

Practical experience with ill children, including a trip to the Give Kids the World village in Florida; documentation and engagement of course materials, experience working with ill children; students are assigned a specific diagnosis and present the diagnosis (appropriate statistics, effects of hospitalization, treatment, etc.) on child and family; coping strategies, appropriate methods of talking to and interacting with children and families, overview of child life in hospitals.

LEIS:4190 (169:190) Preinternship Seminar 1 s.h.

Orientation to internship process.

LEIS:4191 (169:191) Therapeutic Recreation Internship arr.

Practical field experience; direct leadership, program planning, administrative procedures. Prerequisites: LEIS:4190 (169:190).

LEIS:4192 (169:192) Child Life Internship 12 s.h.

Minimum twelve-week, 480-contact-hour, field experience under the supervision of a Certified Child Life Specialist. Prerequisites: LEIS:1061 (169:061), LEIS:1077 (169:077), LEIS:3160 (169:160), LEIS:3162 (169:162), LEIS:3165 (169:165), LEIS:3166 (169:166), and LEIS:4167 (169:167).

LEIS:4193 (169:193) Independent Study arr.

Problem in a specific area.

LEIS:4194 (169:194) Honors Readings arr.**LEIS:4195 (169:195) Honors Problems** arr.

Graduate

Athletic Training Program

ATEP:5010 (027:184) Seminar in Athletic Training 1-4 s.h.

Educational issues faced by approved clinical instructors in athletic training education programs. Offered fall semesters.

Health and Human Physiology

HHP:5000 (027:200) Problems arr.**HHP:5500 (027:270) Social Psychology of Sport and Physical Activity** 3 s.h.

Theoretical and applied bases of social psychology of sport and exercise; motivation, arousal, group processes related to sport, physical activity.

HHP:6000 (027:201) Research arr.**HHP:6010 (027:301) Non-Thesis Seminar** 2 s.h.

For candidates for the M.S. without thesis. Offered spring semesters.

HHP:6130 (027:255) Advanced Skeletal Muscle Physiology 1,3 s.h.

Skeletal muscle structure, contractile mechanisms, production of movement, biomechanical properties; adaptation to increased use, disuse, injury. Offered spring semesters. Prerequisites: HHP:3500 (027:130).

HHP:6150 (027:250) Advanced Clinical Exercise Physiology 1,3 s.h.

Recent advances in exercise physiology for clinical populations; emphasis on acute and chronic responses to exercise in healthy aged adults and in patients with cardiac, vascular, pulmonary, and metabolic diseases; basic and intermediate electrocardiography (ECG), pathophysiology of disease process, clinical assessment of disease severity, diagnostic testing, acute exercise responses, and exercise rehabilitation. Prerequisites: HHP:3500 (027:130) and HHP:4410 (027:141). Recommendations: HHP:4460 (027:145).

HHP:6200 (027:238) Advanced Metabolic Exercise Testing and Prescription 1,3 s.h.

Basic techniques in physical fitness assessment; prescription of exercise for healthy and unhealthy adults; promotion of physical activity within communities; knowledge and skill competencies required for certification as American College of Sports Medicine health fitness instructor. Prerequisites: HHP:2200 (027:039), and HHP:1300 (027:050) or HHP:3500 (027:130).

HHP:6210 (027:249) Epidemiology of Physical Activity 3 s.h.

Physical activity/disease relationships examined through application of epidemiologic methods, including research design, interpretation of studies, selection of measures to fit research questions. Same as EPID:6245 (173:245).

HHP:6220 (027:244) Seminar in Health and Physical Activity Behavior 3 s.h.

Health behavior theories and their relevance to individual, interpersonal, and community-wide health promotion interventions.

HHP:6300 (027:314) Seminar in Motor Control 1 s.h.

Current topics in neural control of movement, biomechanics, and rehabilitation sciences.

HHP:6400 (027:241) Integrative Physiology Seminar 1 s.h.

Current topics in cardiovascular physiology, vascular biology, free radical biology.

HHP:6410 (027:240) Advanced Exercise Physiology 1,3 s.h.

Mechanisms responsible for acute and chronic effects of exercise on different organ systems of the body. Offered fall semesters. Prerequisites: HHP:1300 (027:050) or HHP:3500 (027:130).

HHP:6460 (027:245) Advanced Cardiovascular Physiology 1,3 s.h.

Structure and function of cardiovascular system; heart, microcirculation, hemodynamics, regional circulation, reflex integration, and regulation during physical stress. Prerequisites: HHP:3500 (027:130). Recommendations: calculus and physics.

- HHP:6470 (027:248) Advanced Physiology of Aging** 1,3 s.h.
Effects of aging on cells, tissues, and organs; how aging influences function of major body organ systems and the whole organism; physiological mechanisms that underlie age-related changes in body function and performance; integrative approach with focus on human aging. Prerequisites: HHP:1100 (027:053) and HHP:3500 (027:130).
- HHP:6480 (027:265) Advanced Human Pharmacology** 1,3 s.h.
General pharmacology (administration, distribution, elimination of drugs, dose response curves, adverse effects, placebos, homeopathy); pharmacotherapy of selected human diseases, pathophysiological aspects of disease, how different classes of drugs modify pathophysiological effects to restore health or reduce impact of disease; focus on mechanisms of drug actions in humans; adverse effects, pharmacokinetic considerations, drug interactions; how to write prescriptions. Prerequisites: HHP:3500 (027:130).
- HHP:6500 (027:296) Seminar in Health Promotion** 1 s.h.
Peer and faculty response to graduate student work addressing health promotion, physical activity and health outcomes, clinical exercise physiology; review and critique current literature; presentation of published work or in-process projects; critical thinking, scientific writing, and oral communication skill development pertaining to health promotion.
- HHP:6510 (027:268) Advanced Energy Metabolism in Health & Disease** 1,3 s.h.
Discussions of recent published, and/or seminal, state-of-the-art papers on energy metabolism related to exercise and diet interventions in context of cardiovascular diseases, obesity, diabetes, and cancer. Prerequisites: HHP:3500 (027:130). Recommendations: HHP:4410 (027:141) and BIOL:2723 (002:114).
- HHP:7000 (027:202) Practicum in College Teaching** arr.
- HHP:7300 (027:260) Advanced Neural Control of Posture and Movement** 1,3 s.h.
Neuroanatomical and neurophysiological bases of human motor control; mechanisms for locomotion and posture, control of arm and hand movements, role of sensory information. Offered spring semesters. Prerequisites: HHP:3500 (027:130). Requirements: anatomy or human physiology course.
- HHP:7500 (027:404) Thesis: M.S.** 0-4 s.h.
- HHP:7900 (027:405) Thesis: Ph.D.** arr.
- Sport and Recreation Management**
- LEIS:5065 (169:265) The Economy of Experience** 3 s.h.
In-depth analysis of emerging experience economy; just as manufacturing sector of economy supersedes agriculture and service economy supersedes manufacturing, how experience economy is gaining ascendancy as the last, best hope for future economic growth; exploration of current research in positive psychology and sociologist findings on evolution of post-materialist values as related to experience economy; evaluation of current trends; critical analysis and theory development; case studies; original research and investigation of novel marketing possibilities and experience design.
- LEIS:5200 (169:200) Historical and Philosophical Perspectives on Leisure** 3 s.h.
Historical and philosophical origins of leisure studies; historical issues related to leisure ideas, such as shorter hours, share-the-work, utopian vision of a better society.
- LEIS:6251 (169:251) Risk Management** 3 s.h.
Legal knowledge necessary for effective management of sport, recreation, and physical activity programs, avoidance of legal problems; strategies for addressing issues such as right to participate, liability for injuries, risk management; legal statutes that govern sport, health, recreation organizations.
- LEIS:6252 (169:252) Economics and Financing** 3 s.h.
Economic issues for sport/leisure services in nonprofit, private/commercial, and public sectors; strategic financial analysis for the nonfinancial manager; principles, issues in financing sport/leisure organizations.
- LEIS:6253 (169:253) Sport Administration** 3 s.h.
Overview of various segments that constitutes the role and function of a sport administrator (i.e., planning, organizing, leading, controlling); focus on ways in which sport administrators and their subsequent organizations influence and are influenced by the link between sport and globalization; sport administration encompassing services provided within an organizational context; administration viewed as the coordination of production and distribution of those services.
- LEIS:6254 (169:254) Marketing and Sport Promotion** 3 s.h.
Overview of varied segments that constitutes sports business practice, including marketing, data-based marketing, sales, promotion, sponsorship; varied segments that make up the sport industry, including the mass media, infrastructure, stadium building, consumer behavior; readings and discussions consider the development and structure of each segment, interactions between segments, planning, policy implications; focus on the United States, professional team sports, comparisons to other sports.
- LEIS:7290 (169:290) Graduate Internship** 3-9 s.h.
Requirements: recreational sports management emphasis.
- TR:3281 (169:181) Special Projects in Child Life Practice** 2 s.h.

Student directed and student led hospital camping experience for patients at the University of Iowa Children's Hospital; planning and preparing for a large function, planning and leading therapeutic activities, working directly with patients and their families, processing and discussion of experiences and concerns; practical and clinical-based experiences for students interested in working with pediatric population in health care setting. Requirements: hospital orientation, patient confidentiality (HIPAA) training, and health screening.

Therapeutic Recreation

LEIS:5205 (169:205) Research Methods and Leisure Behavior 3 s.h.

The scientific process: research designs for experiments and surveys, questionnaire construction, sampling theory, basic data analysis.

LEIS:6262 (169:262) Procedures in Therapeutic Recreation 3 s.h.

Current issues in the field; application of business and research principles to therapeutic recreation practice and program administration.

LEIS:7289 (169:289) Graduate Practicum in Therapeutic Recreation 3 s.h.

Field placement with a therapeutic recreation service delivery agency; meets NCTRC certification standards. Prerequisites: LEIS:3160 (169:160). Corequisites: LEIS:3163 (169:163) and LEIS:3164 (169:164).

LEIS:7291 (169:291) Problems arr.

LEIS:7299 (169:299) Graduate Research Problems arr.

LEIS:7398 (169:398) M.A. Thesis 1-6 s.h.

Health and Physical Activity Skills

HPAS:1001 (28S:085) Alcohol and Your College Experience 1 s.h.

Patterns of alcohol, drug use focused on college years; strategies for monitoring use, behavioral change plans for implementing lower-risk drinking practices; for drinkers and non-drinkers.

HPAS:1002 (28S:086) Tobacco and Your College Experience 1 s.h.

Current behavior change theories related to tobacco use, cessation; nicotine replacement therapies (NRT), non-NRT methods; triggers, relapse prevention, cognitive behavioral skills, support systems; for smokers and non-smokers.

HPAS:1003 (28S:087) Resiliency and Your College Experience 1 s.h.

Resiliency and psychological hardiness theories relevant to college life; resiliency and ability to cope with challenges; components of psychological fitness; skills for personal growth and emotional well-being.

HPAS:1004 (28S:088) Food and Your College Experience 1 s.h.

Sociocultural perspective on the forces that facilitate "junk" diets, particularly during young adulthood; basic components of nutrition; opportunity to develop skills in diet planning and healthy eating.

HPAS:1010 (28S:042) Personal Fitness 1 s.h.

HPAS:1020 (28S:006) Core Strengthening 1 s.h.

HPAS:1030 (28S:007) Aerobics 1 s.h.

HPAS:1040 (28S:043) Pilates 1 s.h.

HPAS:1060 (28S:061) Resistance Training 1 s.h.

HPAS:1070 (28S:081) Weight Training I 1 s.h.

HPAS:1075 (28S:082) Weight Training II 1 s.h.
Prerequisites: HPAS:1070 (28S:081).

HPAS:1080 (28S:080) Olympic Weightlifting 1 s.h.

Introduction to Olympic weightlifting exercises including snatch, clean and jerk, power snatch, and power clean. Prerequisites: HPAS:1070 (28S:081).

HPAS:1110 (28S:020) Fitness Walking 1 s.h.

HPAS:1130 (28S:029) Jogging I: Beginners 1 s.h.

HPAS:1135 (28S:030) Jogging II 1 s.h.

HPAS:1210 (28S:047) Relaxation Techniques 1 s.h.

HPAS:1220 (28S:021) Flexibility 1 s.h.

HPAS:1230 (28S:025) Hatha Yoga 1 s.h.

HPAS:1320 (28S:037) Lap Swimming I 1 s.h.

HPAS:1325 (28S:038) Lap Swimming II 1 s.h.
Prerequisites: HPAS:1320 (28S:037).

HPAS:1410 (28S:011) Badminton 1 s.h.

HPAS:1430 (28S:045) Racquetball 1 s.h.

HPAS:1440 (28S:066) Table Tennis 1 s.h.

HPAS:1450 (28S:071) Tennis 1 s.h.

HPAS:1530 (28S:077) Volleyball I 1 s.h.

HPAS:1535 (28S:078) Volleyball II 1 s.h.
Prerequisites: HPAS:1530 (28S:077).

HPAS:1549 (28S:049) Sand Volleyball 1 s.h.

HPAS:1550 (28S:053) Slow-Pitch Softball 1 s.h.

HPAS:1560 (28S:075) Ultimate Frisbee 1 s.h.

HPAS:1610 (28S:052) Self Defense 1 s.h.

HPAS:1620 (28S:031) Karate 1 s.h.

HPAS:1630 (28S:033) Kick Boxing 1 s.h.

History

Chair

- Elizabeth Heineman

Professors

- Constance A. Berman, Jeffrey L. Cox, James L. Giblin, Colin Gordon, Paul Greenough, Elizabeth Heineman (History/Gender, Women's, and Sexuality Studies), H. Glenn Penny, Leslie A. Schwalm (History/Gender, Women's, and Sexuality Studies), Katherine Tachau, Stephen Vlastos

Associate professors

- Douglas Baynton (History/Communication Sciences and Disorders), Mariola Espinosa, Michel Gobat, Catherine Komisaruk, Tom Arne Midtrød, Michael E. Moore, Michaela Hoenicke Moore, Richard Tyler Priest (History/Geographical and Sustainability Sciences), Jacki Rand, Jennifer E. Sessions, Landon Storrs, Omar Valerio-Jiménez, Stephen Warren (History/American Studies)

Assistant professors

- Mériam Belli, Shuang Chen, Alyssa Park

Lecturers

- Kathleen Kamerick, Rosemary Moore (Classics/History), Michael Žmolek

Professors emeriti

- R. David Arkush, T. Dwight Bozeman, Sarah Hanley, Ellis W. Hawley, Henry G. Horwitz, Linda K. Kerber, Jaroslaw Pelenski, Malcolm J. Rohrbough, David Schoenbaum, Alan B. Spitzer, H. Shelton Stromquist

Associate professor emeritus

- Allen Steinberg

Undergraduate major: history (B.A.)

Undergraduate minors: history; Latina/o studies

Graduate degrees: M.A. in history; Ph.D. in history

Web site: <http://clas.uiowa.edu/history/>

The Department of History's purpose is to increase knowledge of human experience and provide students with opportunities to gain information about and learn methods for understanding their world in light of its past. In addition to offering these essential elements of a liberal education, the department trains professional historians and teachers of history and serves those who require knowledge of a period or aspect of history as background for their own specialized interests in other fields.

Faculty and students in the department participate in many of the University's interdisciplinary departments and programs, including American studies, African American studies, ancient civilizations, Asian studies, international studies, Latin American studies, and gender, women's, and sexuality studies.

Undergraduate Programs of Study

- Major in history (Bachelor of Arts)
- Minor in history
- Minor in Latina/o studies

Students who major in history work in a variety of positions in business, education, public service, advertising, and journalism after graduation. Many go on to graduate study in history, law, religion, library and information science, or social work.

History majors are encouraged to take courses in other fields that illuminate and expand the meaning of history courses and that introduce information and a variety of approaches to understanding how societies and cultures work.

For example, students majoring in history are encouraged to complete the College of Liberal Arts and Sciences General Education Program (p. 323) foreign language requirement by choosing a language that fits their interests in history. The department's faculty members particularly encourage study abroad programs that complement students' foreign area interests. Majors also are encouraged to improve their writing and speaking skills.

Bachelor of Arts

The Bachelor of Arts with a major in history requires a minimum of 120 s.h., including 36 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major is designed for students with a general interest in history. Requirements include an introductory course and a history portfolio in addition to a range of course work in history. Of the 36 s.h. in history courses required for the major, students must earn 30 s.h. in courses numbered 2050 or above.

College Level Equivalency Program (CLEP) and Advanced Placement Program (APP) credit does not count toward the history major. Transfer work that is equivalent to University of Iowa course work may be accepted toward the major, but at least 18 s.h. of work for the major, including the introductory course, must be taken at The University of Iowa.

Undergraduate courses in history are divided into four areas: American history, European history, non-Western world history, and courses that have no specific area designation.

Students may count a maximum of 18 s.h. earned in American history courses (numbered 2200-2299, 3200-3299, and 4200-4299) toward the major.

Students also may count a maximum of 6 s.h. earned in the following courses toward the major. Courses on this list that are approved for General Education may be counted toward fulfillment of General Education Program requirements as well as toward requirements for the history major.

HIST:2401 (016:001) Western Civilization I	3-4 s.h.
HIST:2402 (016:002) Western Civilization II	3-4 s.h.
HIST:2403 (016:003) Western Civilization III	3-4 s.h.
HIST:2602 (016:005) Civilizations of Asia: China	3 s.h.
HIST:2604 (016:006) Civilizations of Asia: Japan	3-4 s.h.
HIST:2606 (016:007) Civilizations of Asia: South Asia	3-4 s.h.

HIST:2609 (016:009) India Now! A Survey from Bollywood Films to Global Terror	3-4 s.h.
HIST:2708 (016:008) Civilizations of Africa	3 s.h.

The major in history requires the following course work.

INTRODUCTORY COURSE

Students enroll in the following course as soon as possible after declaring the major in history. Each section of the course covers a different area of history, as indicated by the section subtitle. The course includes assigned papers; students must include at least one of the papers in their history portfolio (see "Portfolio" below).

HIST:2151 (16W:051) Introduction to the History Major	3 s.h.
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HISTORY COURSES

In addition to completing HIST:2151 (16W:051), students must earn a minimum of 33 s.h. in history courses, including geographical area and era courses (American, European, non-Western world, and pre-1700 history). Students may count a maximum of 18 s.h. earned in American history courses toward the major.

Work for the major must include the following geographical area and era courses.

Two American history courses (numbered 2200-2299, 3200-3299, or 4200-4299) including at least one numbered 3000 or above	6 s.h.
Two European history courses (numbered 2400-2499, 3400-3499, or 4400-4499) including at least one numbered 3000 or above	6 s.h.
Two non-Western world history courses (numbered 2100-2199, 2500-2899, 3100-3199, 3500-3899, 4100-4199, 4500-4999) including at least one numbered 3000 or above	6 s.h.
One pre-1700 history course (see the following list)	3 s.h.

A course taken to fulfill the pre-1700 history course requirement also may be counted toward the requirement in American, European, or non-Western world history.

These courses fulfill the pre-1700 history course requirement:

HIST:2401 (016:001) Western Civilization I	3-4 s.h.
HIST:2402 (016:002) Western Civilization II	3-4 s.h.
HIST:2461 (016:045) Middle East and Mediterranean: Alexander to Suleiman	3 s.h.
HIST:2602 (016:005) Civilizations of Asia: China	3 s.h.
HIST:2604 (016:006) Civilizations of Asia: Japan	3-4 s.h.
HIST:2606 (016:007) Civilizations of Asia: South Asia	3-4 s.h.
HIST:3211 (16A:115) Native North America I: Precontact-1789	3 s.h.
HIST:3405 (16E:105) Engineering and Technology in the Ancient Mediterranean	3 s.h.
HIST:3409 (16E:109) Medieval Civilization I	3 s.h.
HIST:3410 (16E:110) Medieval Civilization II	3 s.h.

HIST:4220 (16A:131) The Frontier in American History to 1840	3 s.h.
HIST:4270 (16A:161) Colonial North America, ca. 1600-1775	3 s.h.
HIST:4289 (16W:160) The Atlantic World c. 1450-1850	3 s.h.
HIST:4400 (16E:100) The Roman Empire	3 s.h.
HIST:4401 (16E:101) Ancient Egypt and the Ancient Near East	3 s.h.
HIST:4404 (16E:104) The World of Ancient Greece	3 s.h.
HIST:4406 (16E:106) Warfare in Ancient Mediterranean Society	3 s.h.
HIST:4407 (16E:107) The Hellenistic World and Rome	3 s.h.
HIST:4411 (16E:113) Economic and Social History of Medieval Europe	3 s.h.
HIST:4412 (16E:117) History of the Medieval Church	3 s.h.
HIST:4417 (16E:111) Medieval Intellectual History 300-1150	3 s.h.
HIST:4418 (16E:112) Medieval Intellectual History 1150-1500	3 s.h.
HIST:4419 (16E:139) Ancient and Medieval Science	3 s.h.
HIST:4423 (16E:116) Ireland in the Early Middle Ages	3 s.h.
HIST:4426 (16E:119) Women, Power, and Society in Medieval Europe	3 s.h.
HIST:4427 (16E:125) Society and Gender in Europe 1200-1789	3 s.h.
HIST:4431 (16E:131) Early Modern England	3 s.h.
HIST:4510 (16W:111) Colonial Latin America	3 s.h.
HIST:4610 (16W:172) Japan—Age of the Samurai	3 s.h.
HIST:4710 (16W:120) Pre-Colonial African History	3 s.h.
HIST:4724 (16W:124) Crossing the Indian Ocean	3 s.h.
HIST:4910 (16E:120) The Book in the Middle Ages	3 s.h.
HIST:4920 (16E:118) The Transition from Manuscript to Print	3 s.h.

PORTFOLIO

All history majors must complete a portfolio, enrolling in the following course during their final semester or summer session.

HIST:3193 (016:193) Undergraduate History Portfolio	0 s.h.
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The portfolio must include at least three graded papers written for history courses the student has completed; one of the papers should be from HIST:2151 (16W:051) Introduction to the History Major. The papers in the portfolio should show the development of the student's skills.

Students should submit their portfolios on the University of Iowa ICON page for HIST:3193 (016:193) early during the semester in which they plan to graduate.

B.A. with Teacher Licensure

History majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Course work required for licensure to teach social studies in secondary schools includes a minimum of 15 s.h. in American history (numbered 2200-2299, 3200-3299, and 4200-4299); a minimum of 15 s.h. in non-U.S. history (numbered 2100-2199, 2400-2899, 3100-3199, 3400-3899, 4100-4199, and 4400-4999); and 15 s.h. in a related area outside of history chosen from economics, geography, anthropology, psychology, sociology, or American government. Courses taken as part of the history major, including HIST:2151 (16W:051) Introduction to the History Major, may be counted toward the 15 s.h. in American history and 15 s.h. in non-U.S. history required for certification.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the fifth semester begins: three courses in the major, including HIST:2151 (16W:051) Introduction to the History Major

Before the seventh semester begins: four more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: three more courses in the major and submission of the portfolio of written work to the student's advisor

During the eighth semester: enrollment in all remaining course work in the major (two courses), all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in history have the opportunity to graduate with honors in the major. Departmental honors students must maintain a cumulative University of Iowa g.p.a. of at least 3.33. Students write an honors thesis, which is an extended research paper (30-40 pages). They usually complete the thesis during the spring semester of their junior year or fall semester of their senior year. Research for the thesis is done under the supervision of a faculty member who specializes in the field that the student chooses for his or her research. Students register for 3 s.h. of HIST:3995 (016:091) Honors Seminar and HIST:3996 (016:092) Honors Thesis in each of two semesters. The 6 s.h. of credit counts toward the credit required for the history major.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of

Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor: History

The minor in history requires a minimum of 15 s.h. in history courses, including 12 s.h. earned in courses considered advanced for the minor taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. All Department of History courses numbered 3000 or above plus HIST:2115 (016:085) History and Science of Oil and HIST:2195 (016:088) Making Historical Documentaries on the Internet are considered advanced for the minor.

Minor: Latina/o Studies

The minor in Latina/o studies requires a minimum of 15 s.h. Additionally, 12 s.h. of course work must be taken at The University of Iowa, with a maximum of 3 s.h. accepted as transfer credit from another institution. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. A maximum of 6 s.h. of work for another University of Iowa major, minor, or certificate may be counted toward the minor.

The minor in Latina/o studies requires the following course work.

Foundational course:

HIST:2280 (016:070) Introduction to Latina/o Studies	3 s.h.
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Historical and cultural approaches—at least 6 s.h. from these:

HIST:4216 (16A:112) Mexican American History	3 s.h.
HIST:4217 (16A:113) Latina/o Immigration	3 s.h.
POLI:3104 (030:108) Immigration Politics	3 s.h.
SPAN:2040 (035:102) Spanish for Heritage Speakers	3 s.h.
SPAN:2050 (035:108) Spanish in the U.S.	3 s.h.
SPAN:3000 (035:139) Writing Skills for Heritage Speakers	3 s.h.
SPAN:3020 (035:119) Journalistic Writing in Spanish	3 s.h.
SPAN:3420 (035:143)/CL:3396 (218:196) Cuban American Literature and Culture	3 s.h.
SPAN:3440 (035:135) Topics in Latino/a Literature and Culture	3 s.h.
SPAN:4800 (035:190)/CINE:4690 (048:190) Chicano Cinema	3 s.h.
SPAN:4940 (035:169) Journalistic Narrative	3 s.h.

Comparative and transnational topics—at least 3 s.h. from these:

HIST:4221 (16A:132) The Frontier in American History 1840-Present	3 s.h.
HIST:4334 (16W:134) Topics in American Borderlands History	3 s.h.
ANTH:3111 (113:119)/GHS:3040 (152:119) Health in Mexico	3 s.h.
ANTH:3142 (113:128) American Cultures	3 s.h.
ENGL:3535 (008:133) Inter-American Studies	3 s.h.

And:

One course from the historical and cultural approaches list or the comparative and transnational topics list 3 s.h.

Graduate Programs of Study

- Master of Arts in history
- Doctor of Philosophy in history

Graduate study in history prepares students for occupations such as high school or college teaching, publishing, commercial research, foundations and nongovernmental organizations, and government or other public service. With additional specialized training, students may become qualified for careers in archival work, library work, museum work, or historical site preparation and display. Some choose to pursue the joint Master of Arts/Juris Doctor program, which leads to degrees in both law and history (see the College of Law (p. 1005) section of the Catalog for information about the J.D. degree).

Students interested in graduate work should obtain a copy of the current *Guide to Graduate Study at The University of Iowa* from the Department of History office. The guide is revised every summer to include the latest faculty listing, research interests of faculty members, detailed regulations on study toward advanced degrees, and other information for students.

Master of Arts

The Master of Arts program in history requires a minimum of 30 s.h. of graduate credit and is offered with two options: one for students who plan to work toward the Ph.D., the other for students who do not. The two plans differ mainly in their concentration in fields: the Ph.D. track emphasizes development of research capabilities culminating in the essay; the non-Ph.D. track stresses breadth of learning.

The M.A. with Ph.D. track requires completion of a research essay. Students must earn at least 24 s.h. of the minimum of 30 s.h. required for the degree in Department of History courses numbered 3000 or above, including at least two seminars, or one seminar and one readings course numbered 6000 or above. One seminar or readings course must be taken in each of the first two semesters of residence. Students must earn 12 s.h. in the area of their essay topic and at least 6 s.h. in a second division, including either a seminar or a readings course.

The essay in the major division must be based on original research and should be approximately 10,000 to 15,000 words long. It usually begins as a term paper for the seminar in the major division and is completed the following semester under the supervisor's guidance. The finished product should emulate the character of articles in learned journals, just as the Ph.D. dissertation takes the form of a full-length scholarly monograph.

Requirements for the M.A. with non-Ph.D. track are similar to those for the Ph.D. track program. Students must earn 24 s.h. of the minimum of 30 s.h. required for the degree in Department of History courses numbered 3000-4999 and 6000 or above. They earn 12 s.h. in one major division of history and must include at least one readings or seminar course. They earn an additional 12 s.h. in history by taking 6 s.h. in each of two other divisions of history, or

by taking 6 s.h. in one other division of history plus 6 s.h. in a related department; the additional 12 s.h. in history must include at least one readings or seminar course.

After completing these requirements, or during the semester in which they will complete them, M.A. students must take an oral and written comprehensive examination in their major division.

Doctor of Philosophy

The Doctor of Philosophy program in history requires at least 72 s.h. of graduate credit, including credit for work done for the master's degree.

Students who earn the M.A. with research essay at Iowa are admitted to the Ph.D. program on the favorable recommendation of the examining committee. Students who earn an M.A. at another university must meet the admission requirements of the Graduate College and the Department of History (see "Admission" below). They must submit a writing sample, such as a seminar paper or an M.A. thesis. They also must take a research seminar during their first two semesters in residence at Iowa.

Ph.D. students must complete at least eight graduate-level Department of History courses numbered 6000 or above, earning 3 or 4 s.h. of credit for each course. The courses must be research seminars (minimum of three) and graduate readings courses (minimum of five). At least five of the eight courses must be completed before the student takes the comprehensive examination. Courses taken at the M.A. level may be counted toward this requirement. The student also must take a graduate course in the philosophy of history, historiography, or methods of historical research.

The department has no general language requirement for the Ph.D., but the supervising faculty member may require the student to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of other study tools. Students may not complete the comprehensive examination until these requirements have been met.

The comprehensive written and oral examination covers three distinct fields. Two of the fields must be in a major division chosen from the following divisions.

- Africa
- China
- Europe, early modern
- Europe, modern
- India
- Japan
- Latin America
- Medieval Europe
- Russia and the former Soviet Union
- The ancient world
- The Middle East
- The United States

Students may construct another field, subject to approval by the comprehensive exam committee.

The third field must be a division outside the student's major division or a field from a related department outside history. The committee may define and delimit the individual fields for examination. It also may set, separately for each field, the character of the written portion of the comprehensive examination, which may take the form of a syllabus, a critical bibliography, a

topical paper, or any other form or combination of forms that the committee deems suitable. The oral portion of the comprehensive examination focuses on issues and problems arising from the examination papers.

The candidate must submit to the dissertation committee a written prospectus for the dissertation no later than the semester following completion of the comprehensive exams. The committee consists of at least five members, including at least one member from outside the department. It considers the prospectus and may approve it, reject it, or require its revision. When the dissertation is completed in final form, the committee administers the final examination for the doctorate, a formal oral defense of the dissertation that usually lasts two hours.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants must submit academic transcripts and Graduate Record Examination (GRE) General Test scores. They also must submit examples of original writing to the history department, such as a term paper, a seminar paper, an honors thesis, or a master's essay (applicants to the Ph.D. program); letters of recommendation from three persons familiar with the student's past academic work; and a one- or two-page personal statement of the applicant's purpose for doing graduate work. All application materials are due by January 15 for entry the following August.

Facilities

University of Iowa Libraries has unusual strength in all aspects of U.S. history. The Main Library houses the Henry A. Wallace papers and related collections, the Iowa Women's Archives, and other unique materials. In European history, special strengths include the fine collections of French and English materials. The State Historical Society of Iowa in Iowa City and the Herbert Hoover Presidential Library and Museum in West Branch also hold valuable research materials.

Courses

Many Department of History courses are approved for the CLAS General Education Program. Look for courses with prefix HIST under "Historical Perspectives," "International and Global Issues," and "Values, Society, and Diversity" in the General Education Program (p. 323) section of the Catalog. History courses approved for General Education may not be taken pass/nonpass, even when they are taken as electives.

History majors should take HIST:2151 (16W:051) Introduction to the History Major during their sophomore year or the first semester after they declare the major.

Department of History courses numbered below 6000 are open to first-year students who already have fulfilled the General Education Program Historical Perspectives requirement.

Courses numbered 6000 or above are offered as occasion demands.

Lower-Level Undergraduate

HIST:1000 (016:049) First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

HIST:1002 (016:020) Issues in Medieval Society 3 s.h.

GE: Historical Perspectives.

HIST:1004 (016:012) Issues in Human History: Communities and Society in History 3 s.h.

GE: Historical Perspectives.

HIST:1006 (016:022) Issues: Nature and Society in Historical Perspective 3 s.h.

GE: Historical Perspectives.

HIST:1008 (016:023) Issues in European Politics and Society 3 s.h.

GE: Historical Perspectives.

HIST:1010 (016:015) Issues in Human History: Gender in Historical Perspective 3 s.h.

GE: Historical Perspectives.

HIST:1012 (016:014) Issues in Human History: Europe's Expansion Overseas 3 s.h.

GE: Historical Perspectives.

HIST:1014 (016:017) Issues: Twentieth-Century Crisis 3 s.h.

GE: Historical Perspectives.

HIST:1016 (016:011) Issues in Human History: The Vietnam War in Historical Perspective 3 s.h.

GE: Historical Perspectives; International and Global Issues.

HIST:1040 (016:040) Perspectives: Diversity in American History 3 s.h.

People, cultures, behaviors, and values that have shaped American society and its past. GE: Values, Society, and Diversity.

HIST:1130 (016:031) Introduction to Islamic Civilization 3 s.h.

Major areas of Islamic religious tradition: Qur'an, traditions of the Prophet, development and character of Islamic law, theology. GE: International and Global Issues; Values, Society, and Diversity. Same as RELS:1130 (032:030).

HIST:1225 (016:035) Medieval Religion and Culture 3 s.h.

Religion in Europe from classical antiquity to dawn of the Reformation; the religious element in traditions such as art, architecture, literature. GE: Historical Perspectives. Same as RELS:1225 (032:025).

HIST:1250 (016:036) Modern Religion and Culture 3 s.h.

European and American religious life from Renaissance to 21st century; focus on specific themes, such as secularism, regionalism, pluralism. GE: Historical Perspectives. Same as RELS:1250 (032:026).

HIST:2050 (16E:058) Liturgy and Devotion in Christian Tradition 3 s.h.

Liturgical traditions and devotional practices in western Christianity; Medieval Christian tradition, changes in liturgy and devotion that occurred with reformations of the 16th and 17th centuries; overview of modern developments. Same as RELS:2050 (032:058).

HIST:2115 (016:085) History and Science of Oil 3 s.h.

History, politics, and science of oil and oil industry. Same as ENVS:2115 (159:015), EES:2115 (012:015), GEOG:2115 (044:016).

HIST:2151 (16W:051) Introduction to the History Major 3 s.h.

Requirements: history major.

HIST:2195 (016:088) Making Historical Documentaries on the Internet 4 s.h.

Use of New Media software in research, presentation, and instruction; includes HTML editors (Dreamweaver), wikis (Confluence), blogs (WordPress), collaborative mark-up programs (CommentPress), graphics editors (Illustrator), map editors (MapPoint, ArcView), photographic editors (Photoshop), audio editors (Garage Band, Soundbooth, Audio Hijack Pro), video editors (iMovie, Premiere Pro, Photo-To-Movie), and animation editors (Flash); projects.

HIST:2280 (016:070) Introduction to Latina/o Studies 3 s.h.

Introduction to field of Latina/o studies through interdisciplinary readings from literature, history, sociology, political science, urban studies, and anthropology; commonalities and differences among long-standing Latina/o populations (Mexican Americans, Puerto Ricans, Cuban Americans); challenges faced by newer arrivals (Dominican Americans, Salvadoran Americans, Guatemalan Americans, Central and South American immigrants).

HIST:2401 (016:001) Western Civilization I 3-4 s.h.

Ancient and medieval. GE: Historical Perspectives.

HIST:2402 (016:002) Western Civilization II 3-4 s.h.

Early modern world. GE: Historical Perspectives.

HIST:2403 (016:003) Western Civilization III 3-4 s.h.

The modern world. GE: Historical Perspectives; International and Global Issues.

HIST:2461 (016:045) Middle East and Mediterranean: Alexander to Suleiman 3 s.h.

GE: Historical Perspectives. Same as CLSA:2461 (20E:071), RELS:2361 (032:061).

HIST:2462 (016:046) Middle East and Mediterranean: Saladin to Napoleon 3 s.h.

Complement to HIST:2461 (016:045); Mediterranean world from the age of Saladin (12th century) to Napoleon (early 19th century); history and imaginaries of the relationship between Europe and the Middle East.

HIST:2602 (016:005) Civilizations of Asia: China 3 s.h.

GE: Historical Perspectives; International and Global Issues. Same as ASIA:2602 (039:055).

HIST:2604 (016:006) Civilizations of Asia: Japan 3-4 s.h.

GE: Historical Perspectives; International and Global Issues. Same as ASIA:2604 (039:056).

HIST:2606 (016:007) Civilizations of Asia: South Asia 3-4 s.h.

GE: Historical Perspectives; International and Global Issues. Same as ASIA:2606 (039:057).

HIST:2607 (016:004) Civilizations of Asia: Korea 3-4 s.h.

Introduction to Korean history and culture; how meanings of "Korea" and "Koreans" changed from ancient times to present; relevant issues of politics, society, and culture; events that shaped ancient Korean states—Koryô state (918-1392), the Chosôn dynasty (1392-1910), Japanese colonization (1910-1945), and the two Koreas (1945-present); how present perspectives on Korea have influenced understandings of its past. GE: Historical Perspectives; International and Global Issues.

HIST:2609 (016:009) India Now! A Survey from Bollywood Films to Global Terror 3-4 s.h.

Experience of change on adaptations made by India to global conditions in the last 50 years, and on contemporary Indian contributions to global conditions and culture; India environmentalism, Bollywood films and world music, celebrity culture and Nobel prizes, Gandhian activism, economic performance, the explosion of cricket, the place of English language, social movements among women and Untouchables, the Indian diaspora abroad, internal dissent, and the Indian war on terror. GE: Values, Society, and Diversity.

HIST:2687 (16W:087) Perspectives on Korea 3 s.h.

History of Korea from earliest times to present; changing meanings of Korea and Koreans; relevant issues of politics, society, and culture; events that shaped ancient Korean kingdoms, the Choson dynasty (1392-1910), Japanese occupation, and divided Korean peninsula; how present perspectives on Korea have influenced understandings of its past; placement of Korea within a regional and global context to examine Korea's relationship with the world. Same as ASIA:2887 (039:087).

HIST:2708 (016:008) Civilizations of Africa 3 s.h.

Introduction to the study of Africa; brief survey of African history; aspects of modern African life, including political and social issues, economic and health problems (including HIV-AIDS); classroom discussion of selected African films shown in class and selected African novels included in course reading. GE: Values, Society, and Diversity.

Upper-Level Undergraduate and Graduate

HIST:3101 (016:089) History Internship 3-6 s.h.

Internship involving historical work. Requirements: consent of director of undergraduate studies and Pomerantz Career Center.

HIST:3191 (016:090) Individual Study: Undergraduate arr.

HIST:3255 (016:082) The World Since 1945 3 s.h.

GE: International and Global Issues.

HIST:3385 (16E:085) Early Modern Catholicism 3 s.h.

Same as RELS:3385 (032:085).

HIST:3995 (016:091) Honors Seminar 0-3 s.h.

HIST:3996 (016:092) Honors Thesis 3 s.h.

Individual research and writing under supervision of faculty member; occasional group sessions with other students in the course.

HIST:4148 (016:148) Global History as Local History: European Immigration in Iowa 3-4 s.h.

Opportunity to use skills developed in other courses to pursue global history locally; waves of immigration that flowed across Iowa during 19th century; ways in which national and international shifts in economics and geopolitics affected this population and state from mid-19th century through World War II; research project based on a local community of student's choice; capstone course. Recommendations: junior or senior standing.

World and General History, Upper-Level Undergraduate and Graduate

HIST:3115 (016:115) Policy Matters: Perspective on Contemporary Problems 3 s.h.

Public policy issues in scholarly perspective; UI experts provide background introduction to weekly issues; presentations of new policy initiatives, roundtable on policy options; panels representing local, state, and national options and experience involving policy practitioners, legislators, and advocates. Same as POLI:3119 (030:129).

HIST:3126 (016:126) History of Globalization 3 s.h.

Broad overview of globalization in modern world history; focus on evolution of international business, world economy, interstate system, and cultural interchange in 19th and 20th centuries; long-distance trade and exchange; global economy under British Empire; globalization after 1945 following a 30-year period of nationalism, war, and depression; global market integration in late 20th century under American supremacy.

HIST:3140 (16W:168) Cooperation in World History 3 s.h.

Origins and role of human cooperation in world history, from human evolution to present; basic evolutionary theory, origins of humans, character of human nature, emergence of human cooperation, human cooperation in comparative zoological perspective; evolution of cooperative institutions such as family, tribe, market, state, mass religion, science, Internet.

HIST:3143 (016:143) International Politics: The History of the Present 3-4 s.h.

Historical approach to international relations; comprehensive overview of key developments and concepts in history of international politics.

HIST:3145 (16W:155) Europe and the U.S. in the Twentieth Century 3 s.h.

United States-European transatlantic relationship over 20th century in historical perspective; sense of common heritage transformed into program of political purpose; alliances in defense of a shared civilization (the West) challenged by nations and ideologies from Wilhelmine Empire to Nazi Germany and from U.S.S.R. to Islamist groups; reluctant American involvement in Europe, East European claims of inclusion, mutual frustrations and suspicions, differences in interpreting shared tradition; diverging concepts of security, legitimacy, sovereignty, and history lessons underscored by U.S. role as sole superpower and European Union experiment in integration.

HIST:3157 (016:157) Gender, Sexuality, and Human Rights 3 s.h.

History of gender and sexuality as components in international human rights activism and law; current debates, representative topics. Same as GWSS:3157 (131:157).

HIST:3190 (016:192) Traditions of Religious Reform 3 s.h.

Same as RELS:3190 (032:192).

HIST:3193 (016:193) Undergraduate History Portfolio 0 s.h.

Submission of required history portfolio. Requirements: history major and senior standing.

HIST:4100 (016:100) Historical Background of Contemporary Issues arr.

HIST:4101 (016:101) History of Human Rights 3 s.h.

Survey of human rights literature, authored by historian Kenneth Cmiel; examination of legal-philosophical origins and changing meanings of human rights, human rights activism and social justice movements, creation of international human rights organizations and law; study of historically significant and unremembered cases of human rights violations; consideration of the question posed by Professor Cmiel: What, if anything, has been accomplished in the name of universal rights?

HIST:4105 (16W:105) World Events in Historical Context 3 s.h.

Examination of current international news stories and their historical background; daily reading of *The New York Times* international news section and online international news stories in U.S. and international news outlets; creating informed world citizens.

HIST:4107 (16W:167) World History I 3-4 s.h.

World history from antiquity to 16th century; political, economic, and environmental forces contributing to social transformations.

HIST:4109 (16W:169) World History II 3-4 s.h.

World history from 16th century to globalization; colonialism, capitalism, and industrialization as forces of global social transformation.

HIST:4125 (016:144) War and Peace in the Twentieth Century 3 s.h.

HIST:4130 (016:120) Museum Literacy and Historical Memory 3 s.h.

Concepts and methods for understanding the role of museums in shaping knowledge and collective memory of history; institutionally based exhibits and collections, historical markers and public monuments, public holidays and events, media and artistic works that interpret the past; how events, people, and civic ambitions are memorialized and how memories of them are shaped; appearance of museums and related practices in the non-Western world after 1850. Same as MUSM:4130 (024:115).

HIST:4131 (016:127) Origins of Western Science 3 s.h.

Exploration of philosophical, cultural and religious factors behind birth and growth of natural philosophy (science) from prehistory to High Middle Ages. Prerequisites: HIST:2401 (016:001) or HIST:2402 (016:002) or HIST:2403 (016:003). Recommendations: junior or senior standing.

HIST:4133 (016:130) The Rise of Modern Science 3 s.h.

Natural philosophy and science from Italian Renaissance through Scientific Revolution and into modern era, up to and potentially including the 20th century; scientific ideas, cultural and institutional contexts of science. Recommendations: junior or senior standing, and HIST:2401 (016:001) or HIST:2402 (016:002) or HIST:2403 (016:003).

HIST:4135 (016:135) History of Medicine in Film 3 s.h.

Examination of how American films depicted physicians and health care from the 1930s to the present; attention to what popular films tell us about cultural images of physicians and medicine in American society. Requirements: honors standing.

HIST:4145 (016:185) The Internet in Historical Context 3 s.h.

History of media technologies (e.g., speech, writing, print, A/V devices, the Internet) from the evolution of speech to the present; ways in which technologies molded social groups and guided beliefs; impact of the Internet on contemporary society and culture.

HIST:4146 (016:186) The History of Warfare 3 s.h.

World military history from evolution of human kind to present; development of weapons, tactics, and strategies.

HIST:4160 (16W:137) History of Public Health 3 s.h.

State-endorsed measures to avert or control disease in society. Same as GHS:4160 (152:137).

HIST:4162 (16W:138) History of Global Health 3 s.h.

Foremost problems of health and disease in colonial and postcolonial societies; topical approach. Same as GHS:4162 (152:138).

HIST:4176 (16W:183) Vietnam War on Film 3-4 s.h.

HIST:4289 (16W:160) The Atlantic World c. 1450-1850 3 s.h.

Interactions between peoples of Europe, Africa, and the Americas between the 15th and mid-19th centuries, interconnected system of exchange that defied national and imperial boundaries; encounters between Native Americans, Africans, and Europeans in different parts of the Americas; forced and voluntary resettlement of Africans and Europeans overseas; development of plantation slave societies; biological consequences of transatlantic contact; circulation of people, goods, and ideas; development of creole societies; era of revolutions; abolition of slavery. Same as AINS:4289 (149:160).

HIST:4334 (16W:134) Topics in American Borderlands History 3 s.h.

Broad historical overview of the American Borderlands, a region that has been the site of conflict, cultural exchange, and economic interdependence.

HIST:4501 (16W:106) Society and Revolution in Cuba 3 s.h.

Cuban society and revolutionary movements since the late colonial period, including the years since 1959.

HIST:4502 (16W:107) History of Mexico 3 s.h.

Mexican history since the eve of the Spanish invasion, with focus on the national period; may include ethnic groups, conquest and demographic disaster, native survival, labor and migration, social protest and rebellions, nationhood, regional differences, religions, popular culture, economic growth and distribution, state building, international relations; survey. Same as AINS:4502 (149:107).

HIST:4504 (16W:109) Latin American Studies Seminar 3 s.h.

Interdisciplinary approach. Taught in English. Recommendations: Spanish or Portuguese sufficient for background readings. Same as ANTH:4700 (113:132), SPAN:4900 (035:176), PORT:4700 (038:176), LAS:4700 (130:176), CL:4700 (218:153).

HIST:4505 (16W:110) Topics in Latin American History 3 s.h.

HIST:4508 (16W:108) Medicine and Public Health in Latin America, 1820-2000 3 s.h.

Survey of major topics in modern Latin American history in relation to development of medicine and public health. Same as GHS:4508 (152:109).

HIST:4510 (16W:111) Colonial Latin America 3 s.h.

Cultural, institutional continuity from 16th century to independence.

HIST:4515 (16W:112) Introduction to Modern Latin America 3 s.h.

Cultural, institutional continuity from independence to present.

HIST:4520 (16W:114) Latin America and the U.S.: The Historical Perspective 3 s.h.

HIST:4525 (16W:115) Latin American Revolution 3 s.h.

HIST:4526 (16W:116) Dictatorships of Latin America 3 s.h.

Dictatorships, truth commissions, politics of memory in modern Latin America; the political and socio-economic origins of authoritarian regimes as well as their forms of rule, sources of support, uses of violence, and eventual downfall; the experience of specific sectors of society under authoritarian regimes, forms of resistance to authoritarianism, memories of terror, efforts to forge peace and justice in the aftermath of horror; includes personal testimony, film, human rights, reports, historical studies.

HIST:4605 (16W:140) Disease, Politics, and Health in South Asia 2-4 s.h.

South Asia's long-term success lengthening lives and stopping disease, weighed against its continuing burden of infection, violence, pollution, and class-based suffering. Same as GHS:4605 (152:140).

HIST:4610 (16W:172) Japan—Age of the Samurai 3 s.h.

Society, culture, and politics of feudal Japan; social class, gender, norms, and political and economic developments explored through cinema and literature. Same as JPNS:4610 (39J:172).

HIST:4615 (16W:173) Modern Japan 3 s.h.

Political, social, and cultural developments of Japanese feudalism; feature films, fiction. Same as JPNS:4615 (39J:173).

HIST:4617 (16W:174) History, Memory, and Pacific War 3 s.h.

Contemporary meanings of the Pacific War in collective memory of Americans and Japanese.

HIST:4620 (16W:175) Japan-US Relations 3 s.h.

Political, social, economic, and cultural developments in Japan mid-19th to late-20th century. Same as JPNS:4620 (39J:175).

HIST:4640 (16W:194) Imperialism and Modern India 3 s.h.

Introduction to the political, economic, social, and cultural history of India from 1700 to present; historically India included the territories of present-day Pakistan and Bangladesh; at present India extends through diasporic Indian communities to East Africa, North America, Europe, and the Caribbean.

HIST:4650 (16W:197) Chinese History from 1600 to 1927 3 s.h.

Chinese history from the 17th to early 20th century, history of the Qing dynasty (1644-1911); Qing's role in shaping aspects of today's politics in China and the mentality of Chinese people; foundation of Manchu state in early 17th century, Ming-Qing transition in 1644, politics and society during the high Qing era, decline of the empire under foreign invasion and inner rebellions in the 19th century, collapse of the dynasty in 1911. Same as ASIA:4657 (039:197).

HIST:4655 (16W:198) China Since 1927 3 s.h.

Communist revolution from 1920s to founding of People's Republic of China in 1949; Mao Zedong's radical policies, Cultural Revolution; Deng Xiaoping's economic reforms; China today. GE: International and Global Issues. Same as ASIA:4655 (039:196).

HIST:4666 (16W:178) Topics in Asian History 3 s.h.

Same as ASIA:4166 (039:175).

HIST:4685 (16W:185) Modern Korean History 3 s.h.

Transformation of Choson Korea to North and South Korea; local, regional, and global transformations in Korea from the late 19th century to present, including the severing of its historic ties with China; encounters with the West and Japan; new ideas of civilization and political community; the erasure of Choson as a country in 1910; the colonial experience; civil war; industrialization; creation of North Korea; democratic movement in South Korea and spread of diasporic communities abroad; Korean peninsula as a laboratory for analyzing compressed communist and capitalist modernities of the 20th century.

HIST:4710 (16W:120) Pre-Colonial African History 3 s.h.

Africa to 1880; oral tradition, other sources; political development, ecological change, slavery and slave trade. GE: Historical Perspectives. Same as AFAM:4310 (129:163).

HIST:4715 (16W:121) African History Since 1880 3 s.h.

Africa in colonial, post-colonial period; economics, political structures of colonialism; social change, political life in the 20th century. GE: International and Global Issues. Same as AFAM:4715 (129:164).

HIST:4723 (16W:123) Slavery, Gender, and Identity in East Africa 3 s.h.

Forms of slavery in East African societies; focus on 18th to 20th centuries; primary source readings (i.e., life histories of former slaves); slavery outside the United States; women as important historical actors; processes of enslavement; integration of slaves into East African societies; and perpetuation of social and economic ties between former masters and slaves into the present.

HIST:4724 (16W:124) Crossing the Indian Ocean 2-3 s.h.

Transnational history of Western Indian Ocean; explore cultural and economic networks in the Indian Ocean World; how Islam and colonization are common experiences of peoples in this region; Indian Ocean World historical diversity; analytical concepts such as migration, Islam, globalization.

HIST:4725 (16W:125) Women and Gender in African History 3 s.h.

Importance of female agency in African history; African women's history in historiographical framework of women's history, challenges historians face in exploring African women's past; varied sources (e.g., novels, films, court records) from sub-Saharan Africa, urban and rural settings; current literature on African women, African women's experiences in a comparative context. Same as GWSS:4725 (131:125).

HIST:4728 (16W:128) Identity, Trade, and Diaspora 3 s.h.

Identity of Swahili people on East African coast; trade networks and diaspora in Arabia and Persian Gulf over the centuries; Swahili civilization marked by urbanity, literacy, Islam, and cosmopolitanism; how scholars' views have changed (scholars originally could not reconcile their conception of Africa, the Dark Continent, with characteristics of this sophisticated culture). Same as SWAH:4000 (211:124).

HIST:4730 (16W:126) Slavery, Jihads, and Saints in Islamic Africa 3 s.h.

Islamization of sub-Saharan Africa; source material on Islam in sub-Saharan Africa; *jihad*; slavery; colonial rule; Muslim women; Muslim minorities.

HIST:4810 (16W:152) History of the Modern Middle East 3 s.h.

HIST:4815 (16W:153) Topics in the Modern Middle East 3 s.h.

American History, Lower-Level Undergraduate

HIST:2261 (16A:061) American History 1492-1877 3 s.h.

Discovery through Civil War, Reconstruction; emphasis on social history of colonial era and social, economic, political developments of Revolutionary, antebellum periods.

HIST:2262 (16A:062) American History 1877-Present 3 s.h.

Emphasis on social, political developments of Gilded Age, Progressive Era, Great Depression; the United States as a world power.

HIST:2265 (16A:065) Introduction to African American History 3 s.h.

GE: Values, Society, and Diversity. Same as AFAM:2265 (129:065).

HIST:2266 (16A:066) Civil War and Reconstruction 3 s.h.

HIST:2288 (16A:069) Introduction to Mexican American History 3 s.h.

Introduction to major themes in Mexican American history from the 18th century to the present; settlement of Mexico's Far North by Spanish Mexican residents, their incorporation into the United States after a war of conquest, and the growth of Mexican Americans into the nation's largest Latino group.

HIST:2290 (16A:087) Food and Culture in Indian Country 3 s.h.

Native Americans as original farmers of 46% of the world's table vegetables; examination of food as a cultural artifact (e.g., chocolate, tobacco); food as a primary way in which human beings express their identities; environmental, material, and linguistic differences that shape unique food cultures among Native peoples across the Western Hemisphere; close analysis of indigenous foods, rituals, and gender roles associated with them; how colonization transformed Native American, European, and African American cultures. Same as AINS:2290 (149:087), AMST:2290 (045:087).

American History, Upper-Level Undergraduate and Graduate

HIST:3002 (16A:110) Introduction to American Indian History and Policy 3 s.h.

Same as AINS:3002 (149:102).

HIST:3105 (16A:105) International Events in Historical Context 3 s.h.

Current world events in themselves and as they enter into 2012 U.S. elections; daily readings of the *New York Times*; selective utilization of other news media, including daily newspapers (*Wall Street Journal*, *Washington Post*), major foreign newspapers, periodicals (*Foreign Affairs*, *Foreign Policy*), and electronic news media, including network and cable television news programs; gain understanding of the historical background of world events and how these events shape U.S. party politics.

HIST:3211 (16A:115) Native North America I: Precontact-1789 3 s.h.

Same as AINS:3211 (149:115).

HIST:3212 (16A:116) Native North America II: 1789-Present 3 s.h.

Same as AINS:3212 (149:116).

HIST:3219 (16A:119) Indian Wars: History and Poetics of Violence in the United States 3 s.h.

Cultural role of frontier violence, real and imagined, in settler society formations; use of historical accounts, art, literature, museum exhibitions, film, captivity tales, and discursive modes; historical and contemporary portrayals of Indian and settler violence, how these representations functioned, and how imagined violence compared to actual incidents of violence; exploration of violence involving other subalterns that speak to perceptions of the U.S. as a violent nation, often portrayed as a nation of laws; whether these competing legacies can be reconciled.

HIST:3230 (16A:130) American Environmental History 3 s.h.

Introduction to environmental change in American history; human-nature interactions from colonial period to recent past; food and agriculture, industrial technologies and transportation, energy production and consumption, urbanization and sprawl, public lands and public works, environmental politics and law, toxic pollution and health, natural disasters, climate change.

HIST:3254 (16A:154) Sexuality in the United States 3 s.h.

Same as GWSS:3154 (131:158).

HIST:3360 (16A:144) American Economic History 3 s.h.

Requirements: ECON:1100 (06E:001) and ECON:1200 (06E:002) for economics majors; ECON:1100 (06E:001) and HIST:2261 (16A:061) for nonmajors. Same as ECON:3250 (06E:158).

HIST:4201 (16A:104) History of the American Deaf Community 3-4 s.h.

Creation of a distinct language and culture of deaf people in America during the 19th and 20th centuries. Taught in English and/or American Sign Language. Requirements: or 4 s.h. option - concurrent enrollment in ASL:2002 (158:014), if not taken as a prerequisite. Same as ASL:4201 (158:100).

HIST:4202 (16A:102) Society and Health Care in American History 3 s.h.

Social and cultural history of health care in the United States from colonial period; social relationships between care providers and patients, disease theories and therapeutic procedures, historical understandings of ethics and health care frameworks.

HIST:4203 (16A:106) Disability in American History 3 s.h.

HIST:4205 (16A:107) American Cultural History 1820-1920 3 s.h.

Culture as contested terrain; creation of cultural hierarchy (high and popular culture); struggles over the cultural construction of meaning; competing stories of America; advent and significance of mass culture.

HIST:4209 (16A:117) U.S. Indian Policy in the American Indian Family 3 s.h.

HIST:4216 (16A:112) Mexican American History 3 s.h.

Survey of Chicana/o (Mexican American) history from 18th century to present; Mexican American society's diverse nature, explored through class, ethnic, gender, and regional divisions. GE: Values, Society, and Diversity.

HIST:4217 (16A:113) Latina/o Immigration 3 s.h.

Immigration experiences of people arriving in the United States from other regions of the Americas (e.g., Mexico, Central America, the Caribbean, South America); what has fueled immigration—social, political, and economic developments in the United States and other nations; territorial conquest, colonialism, real and imagined borders, chain migration, formation of immigrant communities, acculturation, circular migration, social networks; how migration restructures gender relations; immigrant communities and pan-Latino identity in the United States.

HIST:4220 (16A:131) The Frontier in American History to 1840 3 s.h.

HIST:4221 (16A:132) The Frontier in American History 1840-Present 3 s.h.

HIST:4228 (16A:129) Cold War America 3 s.h.

Key historical developments of the Cold War; examination of how the war shaped ideological, political, economic, and cultural aspects of American society.

HIST:4229 (16A:150) The United States as Empire 3 s.h.

The U.S. rise to world power; continental empire-building in the 19th century; industrial, military and colonial power in the early 20th century; global hegemony from the mid-20th century to the present; white settler colonialism; overseas rule of Philippines and Puerto Rico; cultural Americanization; Cold War interventionism; post-9/11 unilateralism; meanings of American exceptionalism, intersections of U.S. nationalism with race and gender, remaking of domestic U.S. society within a changing global and imperial context.

HIST:4230 (16A:155) The Political Culture of U.S. Foreign Policy 3 s.h.

Political culture of U.S. foreign policy in historical perspective; connections and interactions between the domestic scene and international realities, from time of manifest destiny to national security state; domestic foundations of American power and its projection abroad, including constitutional framework, economic developments, rise of the state, role of media, public opinion, civilian-military relations; concepts of race, ethnic identifications, and religious and political beliefs have shaped understandings of patriotism, national interest, international responsibility; great debates in which American national identity and purpose are renegotiated.

HIST:4231 (16A:151) United States in World Affairs to 1900 3 s.h.

Origins of modern diplomatic practices; security, territorial and commercial expansion; legal, constitutional problems.

HIST:4232 (16A:152) United States in World Affairs 3-4 s.h.

America's emergence as leader in world affairs; imperialism, international collaboration, participation in world wars, the Cold War.

HIST:4234 (16A:149) Transnational America 1880-1939 arr.

The United States as a society increasingly embedded in global history during the late 19th- and early 20th-centuries; approaches for thinking about history in transnational ways; intensification of European, Asian, and Latin American immigration; cross-national dimensions of American reform; emergence of diasporic social movements; international scale of the corporate state; politics of colonialism and world war.

HIST:4236 (16A:156) Major Topics in U.S. Foreign Policy 3 s.h.

Continuation of HIST:4232 (16A:152); select themes in the history of U.S. foreign policy studied in greater detail; examination of major conflicts (i.e., World War Two, the Cold War or the Vietnam War, and recent engagements in the Middle East), drawing from a wide range of primary sources, film material, and secondary material.

HIST:4241 (16A:122) Varieties of American Religion 3 s.h.

Examination of varied 20th- and 21st-century American religious individuals and groups; understand and analyze unique communities. Same as RELS:4741 (032:141).

HIST:4245 (16A:139) The Social History of American Baseball 3 s.h.

History of baseball in the United States from its beginnings as a working-class recreation through the present; history of the game and the people who have played it, how the history of American society is viewed through the lens of baseball, how the game has contributed to social change; social class, race, urbanization, crime and political corruption, public health, big business and professionalism, spectatorship, entertainment and mass culture, national mythology, the exercise of legitimate authority (umpires!).

HIST:4249 (16A:137) History of Iowa 3 s.h.

HIST:4250 (16A:141) Work and Society in Industrializing America 3 s.h.

Industrialization, formation of an American working class; changing patterns of labor organization, strike activity, politics; impact of ethnic, racial, gender divisions on working class communities, culture.

HIST:4252 (16A:142) American Labor in the Twentieth Century 3-4 s.h.

Competing philosophies and organizational strategies of workers in a maturing industrial economy; impact of world wars and Great Depression on American workers and their unions; rise of service sector, deindustrialization.

HIST:4254 (16A:146) Immigrant America 1845-1925 3 s.h.

Era of mass immigration in world context; formation, organization of immigrant communities; diverse processes of adaptation, assimilation; rural, urban contrasts; coercive Americanization, immigration restriction.

HIST:4255 (16A:165) The Gilded Age in America 3 s.h.

Emergence of industrial, urban America, from Civil War through 1890s; emphasis on social, political developments.

HIST:4256 (16A:166) The Progressive Era in America 3 s.h.

Protest and reform, imperialism, World War I, from 1890s to 1920.

HIST:4260 (16A:180) The Sixties in America 3 s.h.

The 1960s as a moment in American politics and culture, pivotal and romanticized; major events and conflicts, including the election and assassination of President Kennedy, LBJ and the Great Society, civil rights movement and Black Power, counterculture and the urban crisis, sexual revolution and second wave feminism, anti-war protest and silent majority; changing conceptions of the sixties and development of a fresh interpretation.

HIST:4264 (16A:153) U.S.A. in a World at War 1931-1945 3 s.h.

Significance of World War II to the United States.

HIST:4266 (16A:167) The New Deal: Political Response to Economic Crisis in the United States, 1920-1940 3 s.h.

United States between the wars; emphasis on New Era system, impact of the Great Depression and response by the Hoover administration, the New Deal.

HIST:4268 (16A:168) The Contemporary U.S. 1940-Present 3 s.h.

United States as a global power; emphasis on World War II and Cold War, recent patterns of social and economic change, politics of 1950s, 1960s.

HIST:4270 (16A:161) Colonial North America, ca. 1600-1775 3 s.h.

Introduction to major themes in colonial American history prior to the American Revolution. Same as AINS:4270 (149:161).

HIST:4271 (16A:162) American Revolutionary Period 1740-1789 3 s.h.

Political, military history of colonies 1754-1776; imperial upheaval; building a new nation; creation of federal system.

HIST:4272 (16A:163) Native Americans in the Age of Empires, ca. 1500-1815 3 s.h.

Overview of major issues in Native American history during the period of European Imperialism in North America. Recommendations: junior or senior standing. Same as AINS:4272 (149:163).

HIST:4273 (16A:159) War and Violence in Early American Societies and Culture 3 s.h.

Introduction to role of warfare and violence in shaping early American society.

HIST:4275 (16A:147) History of Slavery in the U.S.A. 3-4 s.h.

Origins, development; focus on labor, family, gender, community, culture, resistance; South's defense of slavery; wartime collapse, destruction of slavery. Same as AFAM:4275 (129:137).

HIST:4280 (16A:171) Women and Power in U.S. History Through the Civil War 3 s.h.

American history through women's eyes; emphasis on interaction of biology, economics, politics, ideology; how traditional historical generalizations change when women's experience is considered; legal history, women's education. Same as GWSS:4280 (131:171).

HIST:4282 (16A:178) Women and Power in U.S. History Since the Civil War 3 s.h.

Major events and themes in U.S. women's history from late 19th century to present; how women's experiences have differed from men's; exploration of distinct, but interconnected histories of different groups of women; changing ideals of femininity; women's experience of industrialization, immigration, depression, war, and sexual revolution; women's activism for social reform, women's rights, labor, civil rights, peace, and the New Right. Same as GWSS:4282 (131:178).

HIST:4283 (16A:173) U.S. Women's History as the History of Human Rights 3-4 s.h.

History of human rights in the United States traced through the perspective of women; aspects of women's experience (social, political, intellectual) related to fundamental human rights—right to a nationality, right to life, liberty and personal security, right to freedom of movement, right to take part in the government of their country, right to own property; these and other rights specified by the United Nations in the Universal Declaration of Human Rights, 1948; different history of men and women enjoying these rights; how human rights have been constructed and experienced in the United States from the era of colonial settlement to present. Same as AMST:4283 (045:173), GWSS:4283 (131:173), HRTS:4283 (216:173).

HIST:4285 (16A:175) Family, Gender, and Constitutional History 3 s.h.

Same as LAW:8551 (091:252).

HIST:4286 (16A:176) U.S. Legal History 3 s.h.

History of the law in the United States, as it developed from era of the Revolution to present; interaction of courts and legislatures with social movements; readings on court decisions, social histories, fiction (film and prose).

HIST:4287 (16A:179) The American Legal Experience 3-4 s.h.

Historical role of law in American society and its engagement with politics, social and biological science, economics. Same as LAW:8167 (091:382).

HIST:4295 (16A:187) African American History 1619-1865 3 s.h.

Race and African American history, from the rise of racial slavery to the Civil War; advanced course. Same as AFAM:4195 (129:170).

HIST:4296 (16A:188) African American History 1865-Present 3 s.h.

African American history since Reconstruction; survey of African American politics and society from Reconstruction to present. Same as AFAM:4298 (129:187).

European History, Lower-Level Undergraduate

HIST:2465 (16E:065) Europe Since 1945 3 s.h.

Europe since World War II: recovery, cold war, social and economic change, global perspectives.

HIST:2920 (16E:090) Germany in the World 3-4 s.h.

The Federal Republic of Germany's increasing prominence in post-Cold War international affairs, against backdrop of 20th-century history. Taught in English. GE: International and Global Issues. Same as GRMN:2720 (13E:120).

European History, Upper-Level Undergraduate and Graduate

HIST:3112 (16E:114) Medieval Philosophy 3 s.h.

Main trends and major figures, such as Augustine and Aquinas. Requirements: sophomore or higher standing. Same as PHIL:3112 (026:112).

HIST:3151 (16E:115) Roman Law 3 s.h.

Case-based introduction to Roman law; principles of Roman law ranging from standards of evidence to trial procedures to various topics in civil and criminal law, including family law and the law of delict. Recommendations: some background in Roman history. Same as CLSA:3151 (20E:151).

HIST:3405 (16E:105) Engineering and Technology in the Ancient Mediterranean 3 s.h.

Technologies developed and used in the ancient Mediterranean—primarily in Greece and Rome, also in Egypt and the Ancient Near East; agriculture and food preparation; construction and architecture; technologies related to warfare. Same as CLSA:3144 (20E:144).

HIST:3409 (16E:109) Medieval Civilization I 3 s.h.

Europe from the decline of Roman empire to the eleventh century; cultural, political, economic, artistic and architectural foundations of Western civilization. Same as MDVL:3409 (162:109).

HIST:3410 (16E:110) Medieval Civilization II 3 s.h.

Europe from the eleventh century to the Italian Renaissance; cultural, political, economic, artistic, and architectural foundations of Western civilization. GE: Historical Perspectives. Same as MDVL:3410 (162:110).

HIST:3436 (16E:102) Food in Ancient Mediterranean Society 3 s.h.

Practices and values influenced by consumption and production of food in ancient Mediterranean societies; varied topics, including methods of food production and distribution, hierarchies of status as associated with food, food and ethnic identity, food and health, food and religion; focus on classical Greek and Roman society, Egypt, the ancient Near East, and Persia. Recommendations: familiarity with Greek and Roman civilization and history. Same as CLSA:3836 (20E:136).

- HIST:4400 (16E:100) The Roman Empire** 3 s.h.
History of Roman empire from assassination of Julius Caesar through 5th century A.D.; political, economic, cultural, and social developments from the transition to imperial power to the shift of power from west to east. Same as CLSA:4400 (20E:100).
- HIST:4401 (16E:101) Ancient Egypt and the Ancient Near East** 3 s.h.
Same as CLSA:4101 (20E:101).
- HIST:4403 (16E:103) Alexander the Great** 3 s.h.
History of Alexander the Great and the generals who succeeded him in ruling the lands he conquered; military, political, and social history. Same as CLSA:4403 (20E:132).
- HIST:4404 (16E:104) The World of Ancient Greece** 3 s.h.
- HIST:4406 (16E:106) Warfare in Ancient Mediterranean Society** 3 s.h.
Same as CLSA:4106 (20E:106).
- HIST:4407 (16E:107) The Hellenistic World and Rome** 3 s.h.
Social, economic, political, intellectual history of Graeco-Roman world, from fourth century B.C.E. to Justinian's reign. GE: Historical Perspectives.
- HIST:4408 (16E:108) The Twelfth-Century Renaissance** 3 s.h.
Social, economic, intellectual, and cultural rebirth of Europe in the 12th century; Latin learning and education; developments in vernacular literature, art, architecture, new religious orders and institutions, pilgrimage and Crusade. Same as MDVL:4408 (162:108).
- HIST:4411 (16E:113) Economic and Social History of Medieval Europe** 3 s.h.
Changes in western Europe from 300 to 1500 A.D.; feudalism, manorialism, revival of towns, heresy, women, monasticism, agricultural and commercial revolutions, Black Death. GE: Historical Perspectives. Same as MDVL:4411 (162:113).
- HIST:4412 (16E:117) History of the Medieval Church** 3 s.h.
Development of Christianity to end of great schism; rise of Roman primacy, development of monasticism, orthodox and heterodox groups. GE: Historical Perspectives. Same as MDVL:4412 (162:117).
- HIST:4414 (16E:129) Christianity and Empire (35-450 AD)** 2-3 s.h.
Introduction to major topics in history of Europe and the church; relationship between Christian message and political power as evidenced in Christian writings from Paul to St. Augustine; examination of key historical moments.
- HIST:4417 (16E:111) Medieval Intellectual History 300-1150** 3 s.h.
Philosophy, art, literature, religious culture of Europe from waning of classical intellectual modes of culture in late antiquity, to their recovery in 12th century. Same as MDVL:4417 (162:111).
- HIST:4418 (16E:112) Medieval Intellectual History 1150-1500** 3 s.h.
European philosophy, religion, literature, art from 12th-century rise of scholasticism; their transformation in period of Copernicus, Luther. Same as MDVL:4418 (162:112).
- HIST:4419 (16E:139) Ancient and Medieval Science** 3 s.h.
Greeks' initiation of scientific inquiry; developments in astronomy, cosmology, optics, mathematics, physics, medicine, psychology in ancient and medieval societies of Middle East, Europe. Same as MDVL:4419 (162:139).
- HIST:4421 (16E:121) The Middle Ages in Film** 3 s.h.
How films that represent medieval events and literature may be analyzed to reveal the culture and times in which the films were made; Middle Ages and European nationalistic mythmaking as represented in film. Same as MDVL:4421 (162:121).
- HIST:4423 (16E:116) Ireland in the Early Middle Ages** 3 s.h.
Ireland and the northern British islands 400-1000 CE, a region of small kingdoms and thin population, lacking natural resources, far from Rome and ancient centers of Mediterranean culture; development of civilization, including monastic, legal, theological, and scholarly traditions that had a major impact on continental Europe; early medieval Irish history; introduction to the world of historical scholarship. Same as MDVL:4423 (162:116).
- HIST:4426 (16E:119) Women, Power, and Society in Medieval Europe** 3 s.h.
Same as MDVL:4426 (162:119).
- HIST:4427 (16E:125) Society and Gender in Europe 1200-1789** 3 s.h.
Social and gender ideologies as inscribed in patterns of authority (household, church, state); ranges of human endeavor (intellectual, psychological, biological); community organization (social, economic, legal, sexual); their influence on concept of community. GE: Historical Perspectives. Same as GWSS:4427 (131:181).
- HIST:4428 (16E:134) Nineteenth-Century Europe** 3 s.h.
Political, social, economic, and cultural factors.
- HIST:4431 (16E:131) Early Modern England** 3 s.h.
History of England from the Wars of the Roses in the 15th century to the beginning of the 18th century; religious changes of the 16th and 17th centuries, evolution of the monarchy and other political institutions during the Tudor and Stuart dynasties and the English civil war, and the transformation of England into one of the wealthiest and most powerful nations in the world.
- HIST:4435 (16E:132) War and Society in Modern Europe** 3 s.h.
Impact of war on European societies since the French Revolution.
- HIST:4438 (16E:130) Modern European Imperialism** 3 s.h.

Introduction to the history of European imperialism since the 18th century; major shifts in the nature of European empire examined through the Haitian Revolution, India, Australia, Congo, Algeria.

HIST:4441 (16E:141) Special Topics in European History arr.

European history topics of current interest (i.e., food, environment, climate, water use). Recommendations: advanced history major or beginning graduate student.

HIST:4455 (16E:123) Religious Conflict: Early-Modern Period 3 s.h.

Reformation of 16th century—Lutheran, Calvinist, Radical, English; readings from major representatives of each. Same as RELS:4155 (032:154).

HIST:4460 (16E:135) Twentieth-Century Europe: The Nazi Era 3 s.h.

HIST:4461 (16E:136) Twentieth-Century Europe: The Cold War and After 3 s.h.

HIST:4464 (16E:143) Modern France 1789-1871 3 s.h.

HIST:4465 (16E:144) Modern France 1870-Present 3 s.h.

HIST:4466 (16E:145) France and Algeria from Pirates to Terrorism 3 s.h.

Long, complex history of relationship between France and Algeria since 18th century; early modern conflicts over Barbary piracy, French invasion, and colonization of Algeria in 19th century; brutal Algerian War of Independence, postcolonial migration, and ongoing war of memory over shared Franco-Algerian history of colonization and decolonization. Taught in English. Same as FREN:4466 (009:145).

HIST:4470 (16E:146) France from 1815-Present 3 s.h.

HIST:4473 (16E:155) German History 1648-1914 3 s.h.

History of German speaking lands 1648-1918.

HIST:4475 (16E:156) Germany Since 1914: Weimar, Hitler, and After 3-4 s.h.

Continuity, change in 20th-century German politics, society, culture; creation, collapse of Weimar Republic; Nazism and Third Reich; East and West Germany since 1945; unification and its discontents. GE: International and Global Issues. Same as GRMN:4475 (13E:126).

HIST:4477 (16E:147) Napoleon and His Afterlives 3 s.h.

Life and influence of Napoleon Bonaparte in France; Napoleon's personal background, his career during French Revolution, rise and fall of his European and global empire; examination of Emperor's global legacy, from post-Napoleonic diplomatic settlement to spread of Napoleonic administrative and legal codes; Napoleonic legend that arose after his final defeat in 1815; weekly readings and discussions, individual research project, and participation in events being planned across campus to mark the bicentennial of Napoleon's invasion of Russia.

HIST:4484 (16E:150) Modern Britain: The Eighteenth Century 3 s.h.

Great Britain from Glorious Revolution of 1688 to end of the Napoleonic Wars in 1815; post-revolution political settlement, political conflict, growth of British empire, religious dissent, evangelical revival, Industrial Revolution, American Revolution, British response to the French Revolution.

HIST:4485 (16E:151) Modern Britain: The Nineteenth Century 3-4 s.h.

Great Britain 1780-1914; evangelical revival, Industrial Revolution, growth of modern political parties, progress of political reform, scientific developments, influence of Darwin and Mill, growth of secularism, British Empire, Boer War, advent of World War I.

HIST:4486 (16E:152) Modern Britain: The Twentieth Century 3 s.h.

Great Britain from Boer War to Tony Blair's political triumph; liberal revival, World War I, rise of the Labour Party, the Depression, appeasement, World War II, Labour's triumph after the war, rise of consensus politics, 1960s cultural changes, Margaret Thatcher's political ascendancy, transformation of the Labour Party under Blair.

HIST:4493 (16E:178) Soviet Union 1917-1945 3-4 s.h.

Revolution, foundation of Soviet Union; Leninism; major political, social, ideological developments during Stalinist period—collectivization, industrialization, terror; nationalities, foreign policy; World War II; Cold War; socialist state system. GE: Historical Perspectives.

HIST:4499 (16E:185) First World War 3-4 s.h.

Social, economic, political, technological, military aspects of causes, conduct, consequences of war of 1914-1918; fiction, contemporary documents, historical works, films.

HIST:4910 (16E:120) The Book in the Middle Ages 3 s.h.

Relation of text, decoration, function, creators, and audience in different genres of medieval manuscript books 400-1500 A.D. Same as UICB:4910 (108:182), SLIS:4910 (021:182).

HIST:4920 (16E:118) The Transition from Manuscript to Print 3 s.h.

Western manuscripts and books 1200-1600; changes in production and distribution methods and in how texts were used, in cultural context. Same as UICB:4920 (108:183), SLIS:4920 (021:258).

HIST:4978 (16E:158) Holocaust in History and Memory 3 s.h.

Origins and implementation of the Holocaust; perpetrators, victims, and bystanders; impact of the Holocaust on the post-World War II world.

Graduate

- HIST:6001 (016:201) First-Year Graduate Colloquium** 3 s.h.
Introduction to history graduate program.
- HIST:6002 (016:200) History Research Methods** 3 s.h.
Introduction to historical research methods. Prerequisites: HIST:6001 (016:201). Requirements: first-year history graduate standing.
- HIST:6003 (016:203) History Theory and Interpretation** 3 s.h.
Introduction to basic theoretical approaches to historical research.
- HIST:6110 (016:202) Introduction to New Media in the Humanities and Social Sciences** arr.
Use of New Media software in research, presentation, and instruction; includes HTML editors (Dreamweaver), wikis (Confluence), blogs (WordPress), collaborative mark-up programs (CommentPress), graphics editors (Illustrator), map editors (MapPoint, ArcView), photographic editors (Photoshop), audio editors (Garage Band, Soundbooth, Audio Hijack Pro), video editors (iMovie, Premiere Pro, Photo-To-Movie), and animation editors (Flash); projects.
- HIST:6120 (016:249) Teaching Seminar: Graduate Instructors** 2-3 s.h.
Issues and methods for effective history teaching at the college level.
- HIST:6158 (016:258) Approaches to Teaching Global History** arr.
Approaching history from a global or international perspective; introduction to issues; preparation for teaching courses at college level; historiographies and methodologies, problems of periodization and area divisions, syllabi on world and global history.
- HIST:6410 (016:254) Teaching Proseminar** 2-4 s.h.
Preparation for leading undergraduate discussion sections for HIST:2401 (016:001) - HIST:2403 (016:003) Western Civilization I-III; specific subject matter preparation similar to that offered in graduate readings courses; for first-time graduate teaching assistants.
- HIST:6475 (016:223) Seminar: Reformation Culture and Theology** arr.
Culture and theology of 16th-century Europe. Same as RELS:6475 (032:223).
- HIST:6632 (016:244) Crossing Borders Proseminar** arr.
Same as POLI:6632 (030:243), GEOG:6632 (044:287), ANTH:6632 (113:248), GRMN:6632 (013:260), SPAN:6903 (035:271), CINE:6632 (048:244).
- HIST:6635 (016:247) Crossing Borders Seminar** 2-3 s.h.
- Same as ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).
- HIST:7020 (016:277) Feminist Research Seminar** arr.
Feminist research methodologies; how to conduct original research, write a research proposal and research paper, and read and criticize others' work. Same as GWSS:7020 (131:204).
- HIST:7101 (016:220) Research Seminar** arr.
Research for students in all areas of history.
- HIST:7126 (016:226) Readings on the History of Human Rights** arr.
Survey of recent literature on history of human rights; development of bibliographies; readings from individual areas of interest (e.g., transitional justice, migration, gender and sexuality, labor).
- HIST:7150 (016:260) Readings: Comparative Labor History** arr.
- HIST:7155 (016:221) Theories of Diaspora, Immigration, and Migration** arr.
Vexed notion of diaspora(s); challenge of understanding and writing histories of immigration and migration during modern era; exploration of central questions including difficulty of tracking things in motion—individuals, families, groups, and ever-elusive cultural traits as they flow through local, national, and international contexts that are themselves in flux.
- HIST:7160 (016:250) Global Medical History: Colonial South Asia, Latin America, and the Caribbean** arr.
How relations of power between countries affect responses to disease, delivery of public health, and development of medical understanding; focus on South Asia, Latin America, and the Caribbean; global perspectives; medical colonial interactions, environmental issues and tropical medicine, indigenous systems of health; translation, co-optation, and appropriation of medical knowledge; biomedicine and nationalism.
- HIST:7175 (016:256) Theories of World History** arr.
Macrohistorical theories of world history; can a prominent theory or combination of theories explain the social evolution of humankind over hundreds of thousands of years; how to periodize world history; does history have a direction, and if so, what direction; the future of humankind.
- HIST:7190 (016:296) Individual Study: Graduate** arr.
- HIST:7192 (016:298) Predissertation Seminar** arr.

Preparing for dissertation work for students in all areas of history; thesis topic, relevant literature in the topic field, potential sources, primary research strategy, sources of research funding, research proposal; preparation for submitting applications for dissertation research fellowships and beginning of completing the thesis prospectus.

HIST:7193 (016:297) Thesis arr.

HIST:7197 (016:263) The Art and Craft of Historical Writing arr.

Focus on improving students' skills in historical writing; readings from exemplary texts, ancient to contemporary; all aspects of historical writing, from sentence composition and paragraph structure to evidence and narrative voice.

HIST:7199 (016:299) History Workshop: Theory and Interpretation arr.

HIST:7205 (016:205) Gender and Race in Nineteenth-Century U.S. arr.

Same as AFAM:7205 (129:205), GWSS:7205 (131:206).

HIST:7208 (016:207) The American Civil War in History and Memory arr.

HIST:7212 (016:248) Seminar: Research in Race and Ethnicity arr.

HIST:7214 (016:287) Readings: African American Women's History arr.

Same as AFAM:7214 (129:287), GWSS:7214 (131:287).

HIST:7215 (016:224) Seminar: History of Disability arr.

HIST:7219 (016:219) Seminar: Gender in Nineteenth-Century United States arr.

HIST:7220 (016:225) Readings: History of Sexuality arr.

History of sexuality within the family, its move into the marketplace; social customs and taboos, methods of birth control and abortion, religion, medical and psychological writings, state policies. Same as GWSS:7220 (131:225).

HIST:7227 (016:227) Readings in American Environmental History arr.

Introduction to historiography—classic texts and recent work—in American environmental history; topics from colonial period to recent past.

HIST:7236 (016:281) Readings in Borderlands History arr.

Comparative borderlands; articles on diverse topics from borderland regions worldwide (main focus on U.S.-Mexico borderlands, with inclusion of European, Asian, African, and Latin American borderlands); analysis of each article for its thesis, research questions, methodology, primary sources, and weaknesses; seminar.

HIST:7241 (016:241) Readings in U.S. Social Policy arr.

History and historiography of social welfare policy, chiefly in the United States; proceeds chronologically with analysis of private and public efforts to address

problems including poverty, unemployment, sickness, homelessness, and family violence.

HIST:7246 (016:246) United States in the World arr.

Historiographies that situate modern U.S. history in a global context; how historians study the American past beyond traditional, nation-centered frames; transnational histories of migration, nativism and exclusion; social movements; colonial empire-building; commercial and cultural Americanization; transfer of policy ideas; military occupations; decolonization; Cold War's impact on social reform; post-9/11 moment.

HIST:7251 (016:264) Seminar: Social History of the American Working Class arr.

HIST:7253 (016:265) Seminar: American Social History arr.

HIST:7254 (016:273) Readings in American Social History arr.

HIST:7255 (016:266) Readings: The Gilded Age and the Progressive Era arr.

HIST:7256 (016:216) Topics in 19th-Century American Legal History arr.

Exploration of selected focus topics, may include developments in the law of the home and the law of the workplace (free labor, worker immigration, apprenticeship, indentured labor, slavery); women's legal history; land issues and various Homestead Acts; Blackstone in America; Reconstruction of the Constitution after the Civil War; The National Archives—which houses American legal historical documents—displays the phrase, "What is past is prologue;" legal history that explains how we got to the legal present and to understand what is the law, you have to know how something got to be the law. Same as LAW:9656 (091:625).

HIST:7260 (016:261) Seminar: American Colonial History arr.

HIST:7261 (016:262) Readings: Early American History arr.

HIST:7265 (016:267) Seminar: Contemporary United States arr.

HIST:7271 (016:278) Seminar: Research in Transnational U.S. History arr.

Experience framing, organizing, and carrying out an original investigation on a theme in U.S. transnational history, followed by review and discussion of drafts; opportunity to explore transnational methodologies while developing professional skills of literature review, source interpretation, and collegial critique.

HIST:7275 (016:270) Readings in the History of Women and Gender in the U.S.A. arr.
Same as GWSS:7275 (131:270).

HIST:7287 (016:284) Seminar: History of Women and Gender arr.

Opportunity to pursue research for a single paper, M.A. thesis, or doctoral dissertation in the history of women and gender in the United States; interdisciplinary and internationally comparative projects; meetings and evaluations with attention to the craft of writing.

HIST:7293 (016:253) Graduate Readings in Public History arr.

Overview of public history with attention to ways in which historians have engaged various publics; major theoretical constructs (memory, heritage, commemoration); public history methodologies (oral history, material culture, archival documentation); legal ethics; how history is communicated to the public; how public history sites contribute to public memory; how and why controversies emerge in public history settings; relationship between academic history and public history.

HIST:7410 (016:209) Seminar: Medieval Social and Economic History arr.

HIST:7411 (016:210) Readings: Medieval Women arr.

HIST:7412 (016:217) Source Criticism for Medieval Studies arr.

HIST:7415 (016:215) Graduate Readings: Monastic History arr.

History of Christian monasticism in the medieval west; the developing monastic and religious orders, nuns of those groups; tertiary, beguines, other orthodox penitent movements from the development of Christianity to the Reformation.

HIST:7418 (016:211) Seminar: Medieval Intellectual History arr.

HIST:7419 (016:212) Readings: Medieval Intellectual History arr.

HIST:7420 (016:213) Seminar: History of Science arr.

HIST:7421 (016:214) Readings: Medieval and Early Modern Universities arr.

HIST:7422 (016:218) Medieval Latin Paleography arr.

HIST:7428 (016:228) Seminar: Medieval Philosophy arr.

Investigation of theories of knowledge developed by medieval philosophers including Augustine, Boethius, Duns Scotus, Ockham, and Auriol.

HIST:7435 (016:233) Readings: Women, Men, and Gender in Modern Europe arr.

Same as GWSS:7435 (131:233).

HIST:7440 (016:240) Readings in Modern German History arr.

Major problems in modern German history; historiographic debates organized thematically and proceeds chronologically from the French Revolution to the present; oral presentations and comparative essays.

HIST:7445 (016:234) Readings: Colonialism and Empire in European History 3-4 s.h.

Engagement of Europeans in an immense outward expansion of people, goods, and ideas, as well as more than a few germs since 1492; exploration of some of the implications of this expansion by focusing on a selection of different colonial encounters and some legacies of European empires.

HIST:7455 (016:235) Seminar: Modern Europe arr.

HIST:7456 (016:236) Readings: Modern European History arr.

HIST:7458 (016:239) Readings: War and Society in Modern Europe arr.

Preparation, conduct, and aftermath of war; social-historical examination; conflicts on European territory, colonial wars, and wars of decolonization, from French Revolution through late 20th century.

HIST:7460 (016:238) Readings in the History of Modern France arr.

HIST:7505 (016:288) Readings: Latin American History arr.

Same as SPAN:6400 (035:247).

HIST:7535 (016:280) Readings in Latina/o History arr.

Introduction to major works and recent scholarship in Latina/Latino history.

HIST:7551 (016:251) Readings: Globalizing Latin American Science and Medicine arr.

Recent trends in Latin American history of science and medicine.

HIST:7589 (016:285) Readings: Gender in Latin American History arr.

Same as GWSS:7289 (131:285).

HIST:7606 (016:292) Readings in Chinese History arr.

Same as ASIA:7606 (039:258).

HIST:7622 (016:222) Readings in Modern Korean History arr.

Introduction to English-language scholarly works on modern Korean history; focus on nationalist discourse, social and cultural history, and complex interactions among Koreans and Japanese within space of empire; major historiographical issues in Korean and East Asian history.

HIST:7630 (016:294) Readings: Japanese History arr.

Same as JPNS:7630 (39):257).

HIST:7660 (016:295) Readings in Modern India arr.

HIST:7705 (016:231) Seminar: African History arr.

Themes in African precolonial and modern history.

HIST:7706 (016:232) Readings in African History arr.

HIST:7710 (016:259) Seminar: Interpreting Oral Histories arr.

Interpretations and methods applied by historians in various world regions to different forms of oral history, from old oral traditions to contemporary autobiographical testimony. Same as AFAM:7710 (129:259).

HIST:7805 (016:230) Readings in Middle East History arr.

Interdepartmental Studies

Coordinator

- Andrew Tinkham

Undergraduate major: interdepartmental studies (B.A.)

Web site: <http://www.uiowa.edu/~indepart/>

The Interdepartmental Studies Program (ISP) provides an alternative to traditional undergraduate majors. It gives students the opportunity to design an individualized plan of study or to choose a preapproved plan in applied human services, business studies, or health science. Each track includes course work from a variety of departments.

Since the major in interdepartmental studies affords opportunities outside the traditional degree pattern, students must create or choose study programs that meet their individual educational and career objectives. Those who plan to seek employment immediately after graduation should familiarize themselves with the educational background and qualifications required by employers and should include appropriate courses in their study programs.

Students preparing for advanced study should become familiar with the admissions requirements of graduate or professional schools that interest them. The earlier students decide to pursue graduate or professional study, the easier it is to complete necessary prerequisites.

Undergraduate Program of Study

- Major in interdepartmental studies (Bachelor of Arts)

Bachelor of Arts

The Bachelor of Arts with a major in interdepartmental studies requires a minimum of 120 s.h., including at least 36-38 s.h. of work for the major (total credit depends on the track). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Students choose one of five tracks for the major: applied human services, business studies, engaged social innovation, health science, or an individualized plan of study. The engaged social innovation and the individualized plan of study tracks are selective; students must apply and be admitted to these tracks before they may declare them. The other three tracks are open; students may declare them without an application.

Students who choose the individualized plan of study track design their own major. Those admitted to the engaged social innovation track complete a common core, plan and complete an internship, and design their remaining course work to support the internship. Students who choose the applied human services track, business studies track, or health science track follow a preapproved study plan, which includes foundation courses and a selection of emphasis areas. The applied human services track offers three emphasis areas: aging services, community-based services, and corrections services. The business studies track offers three emphasis areas: workplace practices and perspectives, values and ethics, and arts management. The health science track offers six emphasis areas: multidisciplinary science, entrepreneurship, aging,

global health, cultures of healing, and writing for the sciences.

Interdepartmental studies students who earn a second major may count a maximum of two courses from the second major toward the interdepartmental studies major. This policy applies no matter what degree is earned with the second major (Bachelor of Arts, Bachelor of Science, and so forth).

Students majoring in interdepartmental studies who earn minors in other departments or programs may not count courses from the minors toward the interdepartmental studies major.

The major in interdepartmental studies requires the following course work.

Applied Human Services Track

The applied human services track requires 37-38 s.h. of work for the major. It provides a preapproved plan of study that combines a generalized psychology background with a choice of three emphasis areas: aging services, community-based services, and corrections services. Students who choose this track also have the option of proposing their own human services-related emphasis area to the faculty advisory committee.

Applied human services track students must complete foundation course work (25-26 s.h.) and one emphasis area (12 s.h.). They must complete a minimum of 15 s.h. of work for the major at The University of Iowa. The Academic Advising Center advises applied human services track students; contact the center for more information about requirements.

FOUNDATION COURSES

Psychology core—both of these:

PSY:1001 (031:001) Elementary Psychology	3 s.h.
PSY:2810 (031:010) Research Methods in Psychology	4 s.h.

Human relations core—both of these:

RCE:4195 (07C:195) Ethics in Human Relations and Counseling	3 s.h.
RCE:4199 (07C:199) Counseling for Related Professions	3 s.h.

Human relations core—one of these:

CCCC:2220 (208:120) Foundations of Critical Cultural Competence	3 s.h.
RCE:4197 (07C:197) Citizenship in a Multicultural Society	3 s.h.

Psychology electives—three of these:

PSY:2301 (031:013) Introduction to Clinical Psychology	3 s.h.
PSY:2401 (031:014) Introduction to Developmental Science	3 s.h.
PSY:2501 (031:015) Introduction to Social Psychology	3 s.h.
PSY:2601 (031:016) Introduction to Cognitive Psychology	3 s.h.
PSY:2701 (031:002) Biological Psychology	4 s.h.

AGING SERVICES EMPHASIS

Students must earn 12 s.h. in their chosen emphasis area. Students who choose the aging services emphasis must complete the foundation component (3 s.h.), the elective component (9 s.h.), and the internship (0 s.h.).

Foundation Component

ASP:1800 (153:085)/SSW:1800 (042:085)/ NURS:1800 (096:085)/LEIS:1800 (169:085) Basic Aspects of Aging	3 s.h.
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Elective Component

Students complete 9 s.h. of electives from the following lists.

ASP:3135 (153:135)/SSW:3135 (042:135)/ GHS:3050 (152:153) Global Aging	3 s.h.
ASP:3150 (153:150)/PSY:2915 (031:050) Psychology of Aging	3 s.h.
ASP:3160 (153:160) Biology of Aging	3 s.h.
ASP:3168 (153:168)/LEIS:3168 (169:168) Aging and Leisure	3 s.h.
ASP:3501 (153:195)/SSW:3501 (042:195) Introduction to Nursing Homes	3 s.h.
ASP:3753 (153:153)/SSW:3753 (042:153) Programs and Services for Aging Adults	3 s.h.
ASP:3786 (153:186)/SSW:3786 (042:186) Death/Dying: Issues Across the Life Span	3 s.h.
CW:3107 (08C:107)/INTD:3107 (145:107) Creative Writing for the Health Professions	3 s.h.
HHP:4470 (027:148) Physiology of Aging	3 s.h.
PSY:2930 (031:063) Abnormal Psychology: Health Professions	3 s.h.
RHET:3610 (010:161)/ASP:3610 (153:161) Rhetorical Issues in Health Care	3 s.h.

May include one of these:

INTD:4098 (145:198) Independent Study	arr.
INTD:4099 (145:199) Interdepartmental Studies Practicum	arr.

Internship

CCP:1145 (409:145) Internship in Interdepartmental Studies	0 s.h.
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COMMUNITY-BASED SERVICES EMPHASIS

Students must earn 12 s.h. in their chosen emphasis area. Students who choose the community-based services emphasis complete the elective component (12 s.h.) and the internship (0 s.h.).

Elective Component

Students complete 12 s.h. of electives from the following lists.

PSQF:1027 (07P:027) Mindfulness Foundations in the Helping Professions	3 s.h.
PSY:2930 (031:063) Abnormal Psychology: Health Professions	3 s.h.
RCE:4130 (07C:130) Human Sexuality	3 s.h.
RCE:4132 (07C:132) Introduction to Addictions and Impulse Control Disorders	3 s.h.
RCE:4145 (07C:145) Marriage and Family Interaction	3 s.h.

RCE:4162 (07C:162) Introduction to Couple and Family Therapy	3 s.h.
RCE:4173 (07C:173) Trauma Across the Lifespan	3 s.h.
RCE:4174 (07C:174) Positive Psychology	3 s.h.
RCE:4175 (07C:175) Motivational Interviewing	3 s.h.
RCE:4178 (07C:178) Microcounseling	1-3 s.h.
RCE:4179 (07C:179) Sexuality Within the Helping Profession	3 s.h.
RCE:4185 (07C:185) Introduction to Substance Abuse	3 s.h.
RCE:4187 (07C:187)/EDTL:4987 (07U:187) Introduction to Assistive Technology	3 s.h.
RCE:4190 (07C:190) Group Processes for Related Professions	3 s.h.
RCE:4192 (07C:192) Group Leadership in Human Sexuality	0-3 s.h.
RCE:4193 (07C:193) Individual Instruction— Undergraduate	arr.
SSW:3712 (042:112) Human Sexuality, Diversity, and Society	1-3 s.h.
SSW:3729 (042:129) Substance Use and Abuse	3 s.h.

May include one of these:

INTD:4098 (145:198) Independent Study	arr.
INTD:4099 (145:199) Interdepartmental Studies Practicum	arr.

Internship

CCP:1145 (409:145) Internship in Interdepartmental Studies	0 s.h.
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CORRECTIONS SERVICES EMPHASIS

Students must earn 12 s.h. from their chosen emphasis area. Students who chose the corrections services emphasis must complete the foundation component (3-4 s.h.), the elective component (9 s.h.), and the internship (0 s.h.). The elective component must include 6 s.h. earned in courses numbered 3000 or above.

Foundation Component

One of these:

SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
SOC:1020 (034:002) Social Problems	3-4 s.h.

Elective Component

Students complete 9 s.h. of electives from the following lists of lower-level and advanced courses, with a minimum of 6 s.h. from the advanced courses list.

Lower-level courses—maximum of 3 s.h. from these:

ANTH:1003 (113:062) Anthropology of Violence	3 s.h.
ANTH:1101 (113:003) Cultural Anthropology	3 s.h.
ANTH:1305 (113:060) Forensic Anthropology and CSI	3 s.h.
ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.
MGMT:2000 (06J:047) Introduction to Law	3 s.h.
PSY:2930 (031:063) Abnormal Psychology: Health Professions	3 s.h.

SOC:1410 (034:040) Introduction to Criminology	3 s.h.
SOC:2810 (034:066) Social Inequality	3 s.h.
SOC:3415 (034:045) Global Criminology	3 s.h.

Advanced courses—at least 6 s.h. from these:

ANTH:3101 (113:112)/GWSS:3101 (131:112) Anthropology of Sexuality	3 s.h.
GWSS:3005 (131:105) Gender, Women's, and Sexuality Studies Practicum	3-4 s.h.
SOC:3220 (034:128) Sociology of Mental Illness	3 s.h.
SOC:3420 (034:141) Juvenile Delinquency	3 s.h.
SOC:3425 (034:146) Deviance and Control	3 s.h.
SOC:3450 (034:186) Criminal Legal System	3 s.h.
SOC:4420 (034:149) Sociology of Criminal Punishment	3 s.h.
SOC:4461 (034:143)/GWSS:4461 (131:161) Gender and Violence	3 s.h.
SSW:3796 (042:196) Family Violence	2-3 s.h.

Advanced courses may include one of these:

INTD:4098 (145:198) Independent Study	arr.
INTD:4099 (145:199) Interdepartmental Studies Practicum	arr.

Internship

CCP:1145 (409:145) Internship in Interdepartmental Studies	0 s.h.
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Business Studies Track

The business studies track requires a minimum of 37 s.h. of work for the major. It provides a preapproved plan of study that combines a generalized business background with a choice of three emphasis areas: workplace practices and perspectives, values and ethics, and arts management. Students who choose this track also have the option of proposing their own business-related emphasis area to the faculty advisory committee.

Business studies track students must complete foundation course work (at least 17 s.h.), business electives (at least 5 s.h.), and one emphasis area (15 s.h.). They must complete a minimum of 15 s.h. of work for the major at The University of Iowa. The Academic Advising Center advises business studies track students; contact the center for more information about requirements.

FOUNDATION COURSES

Foundational math—one of these:

MATH:1340 (22M:013) Mathematics for Business	4 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.

Foundational math—and one of these:

STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.

Foundational economics—both of these:

ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.

Foundational accounting—one of these:

ACCT:2100 (06A:001) Introduction to Financial Accounting	3 s.h.
ENTR:1350 (06T:050) Foundations in Entrepreneurship (if not used as business elective)	2 s.h.

BUSINESS ELECTIVES

Students complete two electives from the following lists.

ACCT:2200 (06A:002) Managerial Accounting	3 s.h.
ECON:2800 (06E:071) Statistics for Strategy Problems	3 s.h.
FIN:3000 (06F:100) Introductory Financial Management	3 s.h.
MGMT:2000 (06J:047) Introduction to Law	3 s.h.
MGMT:2100 (06J:048) Introduction to Management	3 s.h.
MSCI:3000 (06K:100) Operations Management	3 s.h.

May include one of these:

ENTR:1350 (06T:050) Foundations in Entrepreneurship (if not used for foundational accounting requirement)	2 s.h.
MKTG:3000 (06M:100) Introduction to Marketing Strategy	3 s.h.

May include one of these:

CS:1020 (22C:001) Principles of Computing	3 s.h.
MSCI:1500 (06K:050) Business Computing Essentials	2 s.h.

WORKPLACE PRACTICES AND PERSPECTIVES EMPHASIS

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the workplace practices and perspectives emphasis must complete at least one course from each of four components (speaking and writing, foundations and practices, cultural diversity, and entrepreneurship). The required 15 s.h. must include 9 s.h. earned in advanced courses. Advanced courses for each component are listed below.

Speaking and Writing Component

At least one course from these or from the advanced courses:

CNW:1620 (08N:020) Introduction to Creative Nonfiction	3 s.h.
COMM:1112 (036:012) Interpersonal Communication	3 s.h.
COMM:1117 (036:017) Theory and Practice of Argument	4 s.h.
COMM:1130 (036:030) The Art of Persuading Others	3 s.h.
COMM:2821 (036:021) Oral Interpretation	3 s.h.
CW:1800 (08C:001) Creative Writing Studio Workshop	3 s.h.

Advanced courses:

INTD:3005 (145:105) Professional and Creative Business Communication	3 s.h.
BUS:3800 (06B:140) Business Writing	3 s.h.
CLSA:3742 (20E:142) Word Power: Building English Vocabulary	3 s.h.
CNW:2680 (08N:080) The Art and Craft of Creative Nonfiction	3 s.h.
CNW:3630 (08N:120) Advanced Nonfiction Writing	3 s.h.
CNW:3633 (08N:104) Personal Writing	3 s.h.
CNW:3640 (08N:113) Writing for Business and Industry	3 s.h.
CNW:4642 (08N:133) Team Writing for Business	3 s.h.
CW:2100 (08C:023) Creative Writing	3 s.h.
CW:2870 (08C:097) Fiction Writing	3 s.h.
CW:3210 (08C:110)/INTD:3210 (145:110) Creative Writing and the Natural World	3 s.h.
CW:3215 (08C:115)/INTD:3300 (145:115) Creative Writing and Popular Culture	3 s.h.
CW:3218 (08C:108)/INTD:3200 (145:108) Creative Writing for New Media	3 s.h.
ENNM:3633 (08A:104) Personal Writing for Non-English Majors	3 s.h.
ENNM:3640 (08A:113) Writing for Business and Industry for Non-English Majors	3 s.h.
INTM:3755 (01J:115) What is Storytelling For?	4 s.h.
LING:3001 (103:100) Introduction to Linguistics	3 s.h.

Foundations and Practices Component

At least one course from these or from the advanced courses:

ANTH:1401 (113:014) Language, Culture, and Communication	3 s.h.
COMM:1301 (036:001) Core Concepts in Communication Studies	3 s.h.
COMM:1818 (036:018) Leadership and Organizational Procedures	2 s.h.
COMM:1819 (036:019) Organizational Leadership	2-3 s.h.
JMC:1100 (019:090) Media Uses and Effects	3 s.h.
JMC:1200 (019:091) Media History and Culture	3 s.h.
JMC:1500 (019:050) Social Media Today	3 s.h.

Advanced courses:

COMM:1170 (036:070) Communication Theory in Everyday Life	3 s.h.
COMM:1174 (036:074) Media and Society	3 s.h.
JMC:3125 (019:154) Media and Consumers	3 s.h.

Cultural Diversity Component

At least one course from these or from the advanced courses:

AFAM:1020 (129:061)/AMST:1030 (045:030) Introduction to African American Culture	3 s.h.
AFAM:1030 (129:060) Introduction to African American Society	3 s.h.

AFAM:1250 (129:050)/RELS:1350 (032:034) Introduction to African American Religions	3 s.h.
AINS:1049 (149:049)/AMST:1049 (045:049) Introduction to American Indian and Native Studies	3 s.h.
ENGL:1350 (08G:011) Literature and Sexualities	3 s.h.
ENGL:1355 (08G:005)/AINS:1355 (149:005) Literatures of Native American Peoples	3 s.h.
GWSS:1001 (131:010) Introduction to Gender, Women's, and Sexuality Studies	3 s.h.
GWSS:1002 (131:055) Diversity and Power in the U.S.	3 s.h.
HIST:1040 (016:040) Perspectives: Diversity in American History	3 s.h.
HIST:2265 (16A:065)/AFAM:2265 (129:065) Introduction to African American History	3 s.h.
MUS:1009 (025:080) Jazz Cultures in America and Abroad	3 s.h.
RELS:1810 (032:016) Religion and Liberation	3 s.h.
RELS:2700 (032:060)/AINS:2700 (149:060) Sacred World of Native Americans	3 s.h.
SOC:1310 (034:018)/GWSS:1310 (131:018) Gender and Society	3-4 s.h.
SOC:2810 (034:066) Social Inequality	3 s.h.
SPAN:2700 (035:070)/IS:2700 (187:070)/LAS:2700 (130:070)/PORT:2700 (038:070) Introduction to Latin American Studies	3 s.h.

Advanced courses:

ANTH:2165 (113:110)/AINS:2165 (149:110)/AMST:2165 (045:105) Native Peoples of North America	3 s.h.
EDTL:3933 (07U:133) The Culturally Different in Diverse Settings	3 s.h.
ENGL:3455 (008:118) Jewish American Literature	3 s.h.
EPLS:5154 (07B:154) Education, Race, and Ethnicity	2-3 s.h.
HIST:4201 (16A:104)/ASL:4201 (158:100) History of the American Deaf Community	3-4 s.h.
HIST:4203 (16A:106) Disability in American History	3 s.h.
HIST:4216 (16A:112) Mexican American History	3 s.h.
JMC:3165 (019:165) African Americans and the Media	3 s.h.
LING:3100 (103:150) Language and Gender	3 s.h.
MUS:3720 (025:141) History of Jazz	3 s.h.
SSW:3712 (042:112)/NURS:3712 (096:112) Human Sexuality, Diversity, and Society	1-3 s.h.

Entrepreneurship Component

At least one of these (all are advanced courses):

INTD:4098 (145:198) Independent Study	arr.
INTD:4099 (145:199) Interdepartmental Studies Practicum	arr.
ECON:3650 (06E:119) Policy Analysis	3 s.h.
ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.

ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.
ENTR:3300 (06T:145) Legal Aspects of Entrepreneurship	3 s.h.
ENTR:3400 (06T:146) Strategic Management of Technology and Innovation	3 s.h.
ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.
ENTR:3600 (06T:148) E-Commerce Strategies for Entrepreneurs	3 s.h.
ENTR:4000 (06T:190) Seminar in Entrepreneurship	2-3 s.h.
ENTR:4200 (06T:192) Entrepreneurship: Business Consulting	3 s.h.
ENTR:4300 (06T:194) Entrepreneurship: Advanced Business Planning	3 s.h.
ENTR:4400 (06T:150) Managing the Growth Business	3 s.h.
ENTR:4450 (06T:151) Professional Sports Management	3 s.h.
ENTR:4460 (06T:152) Entrepreneurship and Global Trade	3 s.h.
MGMT:3500 (06J:147)/MUSM:3500 (024:147)/RELS:3700 (032:127)/SSW:3500 (042:157)/NURS:3595 (096:168)/ENTR:3595 (06T:144) Nonprofit Organizational Effectiveness I	3 s.h.
MGMT:3600 (06J:148)/MUSM:3600 (024:148)/RELS:3701 (032:128)/SSW:3600 (042:158)/NURS:3600 (096:169) Nonprofit Organizational Effectiveness II	3 s.h.

VALUES AND ETHICS EMPHASIS

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the values and ethics emphasis must complete at least two courses from each of the two components (values and theories, institutions and policies).

Values and Theories Component

At least two of these:

JMC:3300 (019:140) Media Law and Communication	3 s.h.
PHIL:2402 (026:102) Introduction to Ethics	3 s.h.
PHIL:3435 (026:135) Philosophy of Law	3 s.h.
POLI:1200 (030:050) Introduction to Political Behavior	3 s.h.
POLI:1300 (030:030) Introduction to Political Thought and Action	3 s.h.
POLI:3400 (030:137) Introduction to Political Economy	3 s.h.
POLI:3417 (030:151) Political Leadership	3 s.h.
POLI:3700 (030:136) Strategy in Politics	3 s.h.
SOC:3520 (034:150) Political Sociology	3 s.h.

Institutions and Policies Component

At least two of these:

PHIL:2401 (026:001) Matters of Life and Death	3 s.h.
PHIL:3432 (026:132) Introduction to Political Philosophy	3 s.h.
POLI:3101 (030:116) American Constitutional Law and Politics	3 s.h.
POLI:3102 (030:152) The U.S. Congress	3 s.h.

POLI:3108 (030:118) American Political Development	3 s.h.
POLI:3116 (030:115) The Presidency	3 s.h.
POLI:3117 (030:120) Public Administration and Bureaucratic Politics	3 s.h.
POLI:3120 (030:158) The Criminal Justice System	3 s.h.
POLI:3121 (030:153) The Judicial Process	3 s.h.
SOC:1410 (034:040) Introduction to Criminology	3 s.h.
SOC:2810 (034:066) Social Inequality	3 s.h.
SOC:3450 (034:186) Criminal Legal System	3 s.h.
SOC:3840 (034:175) Community and Urban Sociology	3 s.h.

ARTS MANAGEMENT EMPHASIS

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the arts management emphasis must complete two courses from the administration component, one course from the history component, 3 s.h. from the production component, 3 s.h. from the elective component, and the internship (0 s.h.).

Administration Component

Students complete two courses from the following lists.

INTD:4510 (145:195)/ENTR:4510 (06T:155)/THTR:4510 (049:195)/DPA:4510 (188:195) Arts Leadership Seminar	3 s.h.
THTR:3510 (049:109)/INTD:3510 (145:109)/DPA:3510 (188:109) Introduction to Arts Management	3 s.h.

May include one of these:

ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
THTR:3520 (049:111)/ENTR:3520 (06T:125)/INTD:3520 (145:111)/DPA:3520 (188:111) New Ventures in the Arts	3 s.h.

History Component

Students complete one of these:

AMST:1075 (045:075) American Popular Music	3 s.h.
ARTH:1030 (01H:008) Themes in Global Art	3 s.h.
ARTH:1040 (01H:002) Arts of Africa	3 s.h.
ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I	3 s.h.
ARTH:1060 (01H:006) From Mona Lisa to Modernism: Survey of Western Art II	3 s.h.
ARTH:1070 (01H:016)/CHIN:1070 (039:016) Asian Art and Culture	3 s.h.
ARTH:1090 (01H:009) Earthly Paradises: A Global History of Gardens	3 s.h.
DANC:2060 (137:080)/DPA:2060 (188:080) Dance and Society in Global Contexts	3 s.h.
DPA:1412 (188:052)/THTR:1412 (049:052)/DANC:1412 (137:052) The Arts in Performance	3 s.h.
ENGL:2160 (008:037) Introduction to Drama	3 s.h.
MUS:1004 (025:137)/DPA:1004 (188:137) World of the Beatles	3 s.h.
MUS:1009 (025:080) Jazz Cultures in America and Abroad	3 s.h.
MUS:1302 (025:014) Great Musicians	3 s.h.

MUS:3310 (025:103) World Music	3 s.h.
MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
MUS:3720 (025:141) History of Jazz	3 s.h.
MUSM:3001 (024:102)/EDTL:3001 (075:112)/SIED:3001 (097:115)/ANTH:3001 (113:103) Introduction to Museum Studies	3 s.h.
THTR:1400 (049:002) Theatre and Society: Ancients and Moderns	3 s.h.
THTR:1401 (049:003) Theatre and Society: Romantics and Rebels	3 s.h.

Production Component

Students complete 3 s.h. from the following list.

INTD:4098 (145:198) Independent Study	arr.
INTD:4099 (145:199) Interdepartmental Studies Practicum	arr.
ARTS:1010 (01B:001) Elements of Art	3 s.h.
ARTS:1020 (01B:035) Elements of 3-D Design	3 s.h.
ARTS:1030 (01B:040) Elements of Jewelry and Metal Arts	3 s.h.
ARTS:1050 (01B:080) Elements of Printmaking	3 s.h.
ARTS:1060 (01B:075) Elements of Digital Photography	3 s.h.
ARTS:1080 (01B:090) Elements of Sculpture	3 s.h.
ARTS:1510 (01A:003) Basic Drawing	3 s.h.
ARTS:1520 (01A:004) Design Fundamentals	3 s.h.
DANC:1010 (137:001) Beginning Tap	1-2 s.h.
DANC:1020 (137:002) Beginning Jazz	1-2 s.h.
DANC:1030 (137:003) Beginning Ballet	1-2 s.h.
DANC:1040 (137:004) Beginning Modern Dance	1-2 s.h.
DANC:1050 (137:034) Beginning/Contact Improvisation	1-2 s.h.
DANC:1080 (137:060) Music Essentials for Dance	2 s.h.
DANC:1090 (137:050) Dance Production	3 s.h.
DANC:1120 (137:012) Continuing Jazz	1-2 s.h.
DANC:1130 (137:013) Continuing Ballet	1-2 s.h.
DANC:1140 (137:014) Continuing Modern Dance	1-2 s.h.
DANC:3085 (137:174)/DPA:3085 (188:174) Introduction to Afro-Cuban Dance	1 s.h.
DANC:3086 (137:175) Afro-Cuban Drum and Dance Performance	1 s.h.
MUS:1001 (025:082) Group Piano I: Non-Music Majors	1 s.h.
MUS:1020 (025:059) Performance Instruction for Nonmajors	1 s.h.
MUS:1160 (025:037) University Band	1 s.h.
MUS:1165 (025:193) Hawkeye Marching Band	1 s.h.
MUS:1166 (025:180) Large Pep Band	1 s.h.
MUS:1180 (025:162) All-University String Orchestra	1 s.h.
MUS:2020 (025:040) Lower Level Voice	arr.
MUS:2021 (025:041) Lower Level Piano	arr.
MUS:2022 (025:042) Lower Level Organ	arr.
MUS:2023 (025:044) Lower Level Violin	arr.
MUS:2024 (025:045) Lower Level Viola	arr.

MUS:2025 (025:046) Lower Level Cello	arr.
MUS:2026 (025:047) Lower Level String Bass	arr.
MUS:2027 (025:048) Lower Level Flute	arr.
MUS:2028 (025:049) Lower Level Oboe	arr.
MUS:2029 (025:050) Lower Level Clarinet	arr.
MUS:2030 (025:051) Lower Level Bassoon	arr.
MUS:2031 (025:052) Lower Level Saxophone	arr.
MUS:2032 (025:053) Lower Level Horn	arr.
MUS:2033 (025:054) Lower Level Trumpet	arr.
MUS:2034 (025:056) Lower Level Trombone	arr.
MUS:2035 (025:055) Lower Level Euphonium	arr.
MUS:2036 (025:057) Lower Level Tuba	arr.
MUS:2037 (025:058) Lower Level Percussion	arr.
MUS:2038 (025:043) Lower Level Jazz Guitar	1 s.h.
MUS:3154 (025:173)/DPA:3154 (188:173) Introduction to Afro-Cuban Drumming	1 s.h.
MUS:3160 (025:194) Symphony Band/Concert Band	1 s.h.
MUS:3163 (025:163) Steel Band	1 s.h.
MUS:3170 (025:185) Kantorei	1 s.h.
MUS:3172 (025:142) Camerata Singers	1 s.h.
MUS:3174 (025:181) University Choir	1 s.h.
MUS:3180 (025:192) Orchestra	1 s.h.
MUS:3182 (025:183) Chamber Orchestra	1 s.h.
MUS:3730 (025:197) Jazz Band	1 s.h.
MUSM:3004 (024:104) Exhibition Planning	3 s.h.
THTR:1010 (049:001) Art of the Theatre	3 s.h.
THTR:1140 (049:020) Basic Acting	3 s.h.
THTR:2200 (049:043) Elements of Design	3 s.h.
THTR:2215 (049:044) Introduction to Theatrical Production Technology	3 s.h.
THTR:3221 (049:147) Technology for the Entertainment Industry	3 s.h.

Elective Component

Students complete one of these:

INTD:3005 (145:105) Professional and Creative Business Communication	3 s.h.
ARTH:4040 (01H:182) Art, Law, and Ethics	3 s.h.
ARTS:3400 (01P:185) Grant Writing in the Arts	3 s.h.
ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.
ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.
JMC:3300 (019:140) Media Law and Communication	3 s.h.
MGMT:2100 (06J:048) Introduction to Management (if not already used to fulfill foundation course work requirement)	3 s.h.
MUSM:3500 (024:147)/RELS:3700 (032:127)/SSW:3500 (042:157)/NURS:3595 (096:168)/MGMT:3500 (06J:147)/ENTR:3595 (06T:144) Nonprofit Organizational Effectiveness I	3 s.h.
MUSM:3600 (024:148)/RELS:3701 (032:128)/SSW:3600 (042:158)/NURS:3600 (096:169)/MGMT:3600 (06J:148) Nonprofit Organizational Effectiveness II	3 s.h.

Internship

CCP:1145 (409:145) Internship in Interdepartmental Studies	0 s.h.
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Engaged Social Innovation Track

The engaged social innovation track requires 37 s.h. of work for the major. The interdepartmental studies major with the engaged social innovation track is available only as a second major for qualified students. The track combines course work and experiential learning with a capstone internship designed by the student. By focusing on course work with a strong hands-on component, the track encourages students to learn in multiple ways, both in and out of the classroom, and prepares them to bring social change and innovation to communities.

Admission to the engaged social innovation track is selective; students must apply and be admitted. Applicants must have a g.p.a. of 3.33 and must be members of the University of Iowa Honors Program when they apply to the track. They also must have declared a first major and must show evidence of commitment to community engagement and service. Their work for the engaged social innovation track constitutes a second major related to their other academic interests.

Engaged social innovation students complete core courses, upper-level course work, and a capstone internship preceded by a course or experience that prepares them for the internship.

CORE COURSES

All of these:

ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.
RHET:3153 (010:153) Networks, Strategies, and Tactics	3 s.h.

UPPER-LEVEL COURSE WORK

Students select upper-level course work that reflects and supports their internship project.

Upper-level courses (numbered 3000 or above) selected by the student	14 s.h.
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INTERNSHIP

Students complete an internship (12 s.h.) preceded by a course or experience that prepares them for it.

One course or experience in preparation for the internship	2 s.h.
INTD:4098 (145:198) Independent Study	12 s.h.

Health Science Track

The health science track requires 37 s.h. of work for the major. It provides a preapproved plan of study that combines a generalized health background with a varied choice of emphasis areas: multidisciplinary science, entrepreneurship, aging, global health, cultures of healing, and writing for the sciences. Students who choose this track also have the option of proposing their own health science-related emphasis area to the faculty advisory committee.

Health science track students must complete foundation course work (22 s.h.) and one emphasis area (15 s.h.). They must complete a minimum of 15 s.h. for the major

at The University of Iowa. The Academic Advising Center advises health science track students; contact the center for more information about requirements.

FOUNDATION COURSES

Foundational chemistry—one of these:

CHEM:1070 (004:007) General Chemistry I	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.

Foundational chemistry—and one of these:

CHEM:1080 (004:008) General Chemistry II	3 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.

Foundational biology—one of these:

BIOL:1140 (002:021) Human Biology	4 s.h.
BIOL:1141 (002:002) Introductory Animal Biology	4 s.h.
BIOL:1411 (002:031) Foundations of Biology	4 s.h.

Foundational math and statistics—one of these:

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
MATH:1020 (22M:009) Elementary Functions	4 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.
MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.
STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.

Foundational social science—one of these:

ANTH:1101 (113:003) Cultural Anthropology	3 s.h.
ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.
SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
SOC:1020 (034:002) Social Problems	3-4 s.h.

Foundational science elective—one of these:

ACB:3110 (060:110) Principles of Human Anatomy	3 s.h.
ACB:3113 (060:113) Human Anatomy Online	4 s.h.
BIOL:1412 (002:032) Diversity of Form and Function	4 s.h.
HHP:1100 (027:053) Human Anatomy	3 s.h.

Foundational elective—one of these:

HHP:1300 (027:050) Fundamentals of Human Physiology	3 s.h.
HHP:2310 (027:040) Nutrition and Health	3 s.h.
HHP:3000 (027:120)/INTD:3020 (145:120) Equity Issues in the Health Sciences	3 s.h.

HHP:3400 (027:140) Applied Exercise Physiology	3 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.
LEIS:1045 (169:045) Health for Living	3 s.h.
NURS:1030 (096:030) Human Development and Behavior	3 s.h.
PSY:2401 (031:014) Introduction to Developmental Science	3 s.h.

Foundational elective may include one of these:

HHP:3010 (027:125)/INTD:3025 (145:125) Contemporary Nutrition	3 s.h.
HHP:4440 (027:143) Physiology of Nutrition	3 s.h.

MULTIDISCIPLINARY SCIENCE EMPHASIS

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the multidisciplinary science emphasis must complete 15 s.h. from the following lists.

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) Biochemistry and Molecular Biology I	3 s.h.
BIOC:3130 (099:130) Biochemistry and Molecular Biology II	3 s.h.
BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.
CW:3107 (08C:107)/INTD:3107 (145:107) Creative Writing for the Health Professions	3 s.h.
HHP:3020 (027:127)/INTD:3027 (145:127) Nutrition for Health, Fitness, and Sport	3 s.h.
MICR:2157 (061:157) General Microbiology	5 s.h.

May include one of these:

INTD:4098 (145:198) Independent Study	arr.
INTD:4099 (145:199) Interdepartmental Studies Practicum	arr.

May include one of these:

CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
CHEM:2230 (004:123) Organic Chemistry I for Majors	3 s.h.

May include one of these:

CHEM:2220 (004:122) Organic Chemistry II	3 s.h.
CHEM:2240 (004:124) Organic Chemistry II for Majors	3 s.h.

May include one of these:

CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.
CHEM:2420 (004:142) Organic Chemistry Laboratory for Majors	3 s.h.

May include one of these:

MICR:3112 (061:112) Pharmacy Microbiology	4 s.h.
MICR:3164 (061:164) Nursing Microbiology	4 s.h.

May include one of these:

HHP:2310 (027:040) Nutrition and Health (if not used to fulfill foundation requirement)	3 s.h.
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HHP:3010 (027:125)/INTD:3025 (145:125) Contemporary Nutrition (if not used to fulfill foundation requirement)	3 s.h.
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HHP:4440 (027:143) Physiology of Nutrition (if not used to fulfill foundation requirement)	3 s.h.
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May include one of these:

PHYS:1511 (029:011) College Physics I	4 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.

May include one of these:

PHYS:1512 (029:012) College Physics II	4 s.h.
PHYS:1612 (029:082) Introductory Physics II	3-4 s.h.

ENTREPRENEURSHIP EMPHASIS

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the entrepreneurship emphasis must complete 15 s.h. from the following lists.

INTD:3001 (145:101) Creative Writing for Business	3 s.h.
ACCT:2100 (06A:001) Introduction to Financial Accounting	3 s.h.
BUS:3800 (06B:140) Business Writing	3 s.h.
CNW:3640 (08N:113) Writing for Business and Industry	3 s.h.
ECON:3650 (06E:119) Policy Analysis	3 s.h.
ECON:3760 (06E:113) Health Economics	3 s.h.
ENTR:1350 (06T:050) Foundations in Entrepreneurship	2 s.h.
ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.
ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.
ENTR:3300 (06T:145) Legal Aspects of Entrepreneurship	3 s.h.
ENTR:3400 (06T:146) Strategic Management of Technology and Innovation	3 s.h.
ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.
ENTR:3520 (06T:125) New Ventures in the Arts	3 s.h.
ENTR:3600 (06T:148) E-Commerce Strategies for Entrepreneurs	3 s.h.
ENTR:4000 (06T:190) Seminar in Entrepreneurship	2-3 s.h.
ENTR:4200 (06T:192) Entrepreneurship: Business Consulting	3 s.h.
ENTR:4300 (06T:194) Entrepreneurship: Advanced Business Planning	3 s.h.
ENTR:4400 (06T:150) Managing the Growth Business	3 s.h.
ENTR:4450 (06T:151) Professional Sports Management	3 s.h.
ENTR:4460 (06T:152) Entrepreneurship and Global Trade	3 s.h.
ENTR:4510 (06T:155) Arts Leadership Seminar	3 s.h.
MGMT:2100 (06J:048) Introduction to Management	3 s.h.
MGMT:3500 (06J:147)/MUSM:3500 (024:147)/RELS:3700 (032:127)/SSW:3500 (042:157)/NURS:3595 (096:168)/ENTR:3595 (06T:144) Nonprofit Organizational Effectiveness I	3 s.h.

MGMT:3600 (06:148)/MUSM:3600 (024:148)/ RELS:3701 (032:128)/SSW:3600 (042:158)/ NURS:3600 (096:169) Nonprofit Organizational Effectiveness II	3 s.h.
MKTG:3000 (06M:100) Introduction to Marketing Strategy	3 s.h.

May include one of these:

INTD:4098 (145:198) Independent Study	arr.
INTD:4099 (145:199) Interdepartmental Studies Practicum	arr.

AGING EMPHASIS

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the aging emphasis must complete 15 s.h. from the following lists.

ASP:1800 (153:085)/SSW:1800 (042:085)/ NURS:1800 (096:085)/LEIS:1800 (169:085) Basic Aspects of Aging	3 s.h.
ASP:2181 (153:181) The Anthropology of Aging	3 s.h.
ASP:3135 (153:135)/SSW:3135 (042:135)/ GHS:3050 (152:153) Global Aging	3 s.h.
ASP:3150 (153:150)/PSY:2915 (031:050) Psychology of Aging	3 s.h.
ASP:3151 (153:151) The Anthropology of the Beginnings and Ends of Life	3 s.h.
ASP:3152 (153:152) Anthropology of Caregiving and Health	3 s.h.
ASP:3160 (153:160) Biology of Aging	3 s.h.
ASP:3168 (153:168)/LEIS:3168 (169:168) Aging and Leisure	3 s.h.
ASP:3501 (153:195)/SSW:3501 (042:195) Introduction to Nursing Homes	3 s.h.
ASP:3753 (153:153)/SSW:3753 (042:153) Programs and Services for Aging Adults	3 s.h.
ASP:3786 (153:186)/SSW:3786 (042:186) Death/Dying: Issues Across the Life Span	3 s.h.
ASP:5750 (153:144) Medicare and Medicaid Policy	3 s.h.
CW:3107 (08C:107)/INTD:3107 (145:107) Creative Writing for the Health Professions	3 s.h.
RHET:3610 (010:161)/ASP:3610 (153:161) Rhetorical Issues in Health Care	3 s.h.

May include one of these:

INTD:4098 (145:198) Independent Study	arr.
INTD:4099 (145:199) Interdepartmental Studies Practicum	arr.

GLOBAL HEALTH EMPHASIS

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the global health emphasis must complete 15 s.h. from the following lists.

GHS:1181 (152:081) Ancient Medicine	3 s.h.
GHS:2150 (152:050) Natural Environmental Systems	3-4 s.h.
GHS:2181 (152:147) The Anthropology of Aging	3 s.h.
GHS:2320 (152:090) Anthropological Perspectives on Human Infectious Disease: Origins and Evolution	3 s.h.

GHS:3010 (152:150) Identifying and Developing a Global Health Project (only one enrollment may count toward major)	2-3 s.h.
GHS:3030 (152:152) Global Health Conference (only one enrollment may count toward major)	1 s.h.
GHS:3040 (152:119) Health in Mexico	3 s.h.
GHS:3050 (152:153) Global Aging	3 s.h.
GHS:3060 (152:154) Studies in Complementary and Alternative Medicine	3 s.h.
GHS:3070 (152:107) Hungry Planet: Global Geographies of Food	3 s.h.
GHS:3102 (152:185)/ANTH:3102 (113:185)/ CBH:5125 (172:173) Medical Anthropology	3 s.h.
GHS:3110 (152:121)/ANTH:3110 (113:121)/ AINS:3110 (149:121) Health of Indigenous Peoples	3 s.h.
GHS:3113 (152:145) Religion and Healing	3 s.h.
GHS:3131 (152:170)/SLAV:3131 (041:104) Health Care and Health Reforms in Russia	3 s.h.
GHS:3150 (152:159) Media and Health	3 s.h.
GHS:3151 (152:156) The Anthropology of the Beginnings and Ends of Life	3 s.h.
GHS:3152 (152:149) Anthropology of Caregiving and Health	3 s.h.
GHS:3191 (152:191) Sustainable Development: India and the Global Context	3 s.h.
GHS:3192 (152:192) Environment and Health in Modern India	3 s.h.
GHS:3326 (152:157) Infectious Disease and Human Evolution	3 s.h.
GHS:3555 (152:155) Understanding Health and Disease in Africa	3 s.h.
GHS:3720 (152:160) Global Health Seminar (only one enrollment may count toward major)	3 s.h.
GHS:3760 (152:180) Hazards and Society	3 s.h.
GHS:3780 (152:178) U.S. Energy Policy in Global Context	3 s.h.
GHS:3850 (152:158)/HHP:3850 (027:176) Promoting Health Globally	3 s.h.
GHS:4100 (152:125) Topics in Global Health	1-3 s.h.
GHS:4111 (152:131)/GEOG:3110 (044:131) Geography of Health	3 s.h.
GHS:4126 (152:126) International Perspectives: Xicotepec	2-3 s.h.
GHS:4141 (152:141) Design for the Developing World	3 s.h.
GHS:4150 (152:139) Health and Environment: GIS Applications	3 s.h.
GHS:4160 (152:137)/HIST:4160 (16W:137) History of Public Health	3 s.h.
GHS:4162 (152:138)/HIST:4162 (16W:138) History of Global Health	3 s.h.
GHS:4210 (152:111) International Health	3 s.h.
GHS:4220 (152:252) U.S. and Global Environmental Health Policy	3 s.h.
GHS:4230 (152:182) Health Experience of Immigrants, Migrants, and Refugees	3 s.h.
GHS:4340 (152:135)/HHP:4340 (027:135) Global Health and Global Food	3 s.h.
GHS:4508 (152:109) Medicine and Public Health in Latin America, 1820-2000	3 s.h.

GHS:4600 (152:120) Global Health and Human Rights	2-3 s.h.
GHS:4605 (152:140) Disease, Politics, and Health in South Asia	2-4 s.h.
GHS:4990 (152:199) Special Projects in Global Health (only one enrollment may count toward major)	arr.
HHP:3020 (027:127)/INTD:3027 (145:127) Nutrition for Health, Fitness, and Sport	3 s.h.

May include one of these:

INTD:4098 (145:198) Independent Study (only 3 s.h. may count toward major)	3 s.h.
INTD:4099 (145:199) Interdepartmental Studies Practicum (only 3 s.h. may count toward major)	3 s.h.

CULTURES OF HEALING EMPHASIS

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the cultures of healing emphasis must complete the foundation component (3 s.h.) and the elective component (12 s.h.). The elective component must include 6 s.h. earned in advanced courses.

Foundation Component

One of these:

CLSA:1181 (20E:081)/GHS:1181 (152:081) Ancient Medicine	3 s.h.
CLSA:4181 (20E:181) History of Western Medicine	3 s.h.

Elective Component

Students complete 12 s.h. of electives from the following lists of lower-level and advanced courses, with a minimum of 6 s.h. from the advanced courses list.

Lower-level courses—maximum of 6 s.h. from these:

RELS:2700 (032:060)/AINS:2700 (149:060) Sacred World of Native Americans	3 s.h.
RELS:2771 (032:071)/GWSS:2771 (131:071) Sexual Ethics	3 s.h.
RELS:2778 (032:078)/AINS:2078 (149:082) American Indian Women: Myth, Ritual, and Sacred Power	3 s.h.
RELS:3976 (032:076)/AINS:3276 (149:076) American Indian Environmentalism	3 s.h.

Lower-level courses may include one of these:

ANTH:1101 (113:003) Cultural Anthropology	3 s.h.
ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.

Advanced courses—at least 6 s.h. from these:

INTD:3020 (145:120)/HHP:3000 (027:120) Equity Issues in the Health Sciences	3 s.h.
INTD:3107 (145:107)/CW:3107 (08C:107) Creative Writing for the Health Professions	3 s.h.
ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
ANTH:3101 (113:112)/GWSS:3101 (131:112) Anthropology of Sexuality	3 s.h.
ANTH:3102 (113:185)/GHS:3102 (152:185)/CBH:5125 (172:173) Medical Anthropology	3 s.h.

ANTH:3103 (113:143) Environment and Culture	3 s.h.
ANTH:3110 (113:121)/AINS:3110 (149:121)/GHS:3110 (152:121) Health of Indigenous Peoples	3 s.h.
ANTH:3111 (113:119)/GHS:3040 (152:119) Health in Mexico	3 s.h.
ANTH:3141 (113:182)/GWSS:3141 (131:143) Women, Health, and Healing	3 s.h.
ANTH:3282 (113:126) Animals, Culture, and Food	3 s.h.
ANTH:3300 (113:105)/GWSS:3300 (131:142) Mothers and Motherhood	3 s.h.
ANTH:4140 (113:133)/GWSS:4140 (131:133)/CBH:5140 (172:133) The Anthropology of Women's Health	3 s.h.
CLSA:3440 (20E:104)/RELS:3340 (032:109) Recovering Eden: The Afterlife in Early Judaism and Christianity	3 s.h.
CLSA:3750 (20E:103) Medical and Technical Terminology	2 s.h.
CLSA:4181 (20E:181) History of Western Medicine (if not used to fulfill foundation requirement)	3 s.h.
HIST:4201 (16A:104)/ASL:4201 (158:100) History of the American Deaf Community	3-4 s.h.
HIST:4203 (16A:106) Disability in American History	3 s.h.
HIST:4605 (16W:140) Disease, Politics, and Health in South Asia	3 s.h.
RELS:3580 (032:180)/ANTH:3113 (113:145) Religion and Healing	3 s.h.
RELS:3666 (032:166) The History of a Religious and Spiritual Practice: Yoga in Asia and Beyond	3 s.h.

Advanced courses may include one of these:

INTD:4098 (145:198) Independent Study	arr.
INTD:4099 (145:199) Interdepartmental Studies Practicum	arr.

WRITING FOR THE SCIENCES EMPHASIS

Students must complete 15 s.h. in their emphasis area. Students who choose the writing for the sciences emphasis must complete the foundation component (6 s.h.) and the elective component (9 s.h.).

Foundation Component

One of these:

CLSA:1740 (20E:040) Writing Strategies: Word Origins and Word Choice	3 s.h.
CLSA:3742 (20E:142) Word Power: Building English Vocabulary	3 s.h.

And one of these:

CNW:3632 (08N:102) Prose Style	3 s.h.
CW:4745 (08C:145) The Sentence: Strategies for Writing	3 s.h.
RHET:2095 (010:095) Fundamental Strategies of Persuasion	3 s.h.

Elective Component

Students complete 9 s.h. from these:

CNW:2730 (08N:084) The Art and Craft of Science Writing	3 s.h.
CNW:3664 (08N:149) Writing About Science	3 s.h.
POLI:3107 (030:104) Writing in Political Science: Writing for "Science" and for "Politics"	arr.
RHET:3140 (010:140) Nature and Society: Controversies and Images	3 s.h.
RHET:3610 (010:161) Rhetorical Issues in Health Care	3 s.h.
RHET:3700 (010:170) Rhetoric of Sustainability	3 s.h.
WRIT:3200 (220:130) Writing for the Earth and Environmental Sciences	3 s.h.
WRIT:3261 (220:161) Selected Topics in Chemistry (topic must be related to writing)	1-3 s.h.

Individualized Plan of Study Track

The individualized plan of study track requires a minimum of 36 s.h. of work for the major, all taken at The University of Iowa. Students who choose this track build their own study plan, creating a unique major that speaks to interests across departments and that integrates varied approaches to a particular topic (e.g., aging studies, international business, children's studies, environmental issues, health issues).

Students must submit their study plan for approval. The plan must include an essay that provides a clear statement of the area of intellectual focus; the reasons for preferring the ISP to any departmental program; a concrete discussion of how the advanced courses relate to each other, to personal interests, and to the central focus of the study plan; a description of academic goals for the bachelor's degree; a list of advanced-level course work already completed; and a list of advanced-level course work planned for all remaining semesters.

Each study plan is approved by a faculty advisory committee. Reviews are held once a semester. Deadlines are posted on the Interdepartmental Studies Program web site.

If the advisory committee does not grant approval, the study plan may be returned to the student for revisions and resubmission at the next committee meeting. In some cases, the student may be referred to an appropriate departmental major.

Once the study plan is approved, the student is required to follow the plan, taking the courses approved for it. A limited number of substitutions may be allowed, but only if they are clearly consistent with the area of intellectual focus in the approved study plan, and only if they are approved in advance by the ISP advisor. Unauthorized substitutions may be designated as elective course work.

Significant changes in the focus of a student's study plan require the submission and approval of a revised study plan. The student's academic advisor determines whether changes warrant a revised plan.

See the Interdepartmental Studies Program web site for up-to-date information on the individualized plan of study track and rules for submission of study plans.

Students who choose the individualized plan of study track are advised by the Interdepartmental Studies Program coordinator; they work closely with the Interdepartmental Studies Program office while designing the study plan. Students who intend to submit a study plan should contact

the Interdepartmental Studies Program coordinator as early as possible.

Four-Year Graduation Plan

The Four-Year Graduation Plan is available only to ISP students in the individualized plan of study track. Students in the other ISP tracks work with their advisors to develop individual graduation plans.

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major).

Before the seventh semester begins: an approved individualized plan of study, at least six courses in the plan of study, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: a total of at least nine courses in the plan of study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in interdepartmental studies have the opportunity to graduate with honors in the major; they usually complete the honors requirements of a particular department or program appropriate to their area of study. Students should initiate inquiries about graduating with honors in the interdepartmental studies major by contacting the ISP coordinator; they should inquire early in their junior year to allow time for foundation course work. Students must submit an honors project approval form to the ISP coordinator.

Honors students in interdepartmental studies must be members of the University's honors program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University of Iowa Honors Program.

Courses

INTD:3001 (145:101) Creative Writing for Business 3 s.h.

Opportunity to broaden understanding of literature, improve writing, and enhance ability to approach business problems in a creative and inspired manner; close reading and creative writing exercises used to develop appreciation of the written word, improve ability to express thoughts and ideas, and become more conscious of the quality of students' own written work. Requirements: rhetoric. Same as CW:3001 (08C:101).

INTD:3005 (145:105) Professional and Creative Business Communication 3 s.h.

Solid foundation for creative and professional communication in today's modern work world; exploration of techniques, strategies, and craft of writing résumés, letters of interest, email and its related etiquette, and organization of ideas into presentable form; semester-long creative project that builds a bridge between office and the world using modern technology and social media; readings and discussions of literature to better understand issues of ethics, leadership, conflict, moral judgment, decision making, and human nature; how to navigate and succeed in business or any professional field. Same as CW:3005 (08C:105).

INTD:3020 (145:120) Equity Issues in the Health Sciences 3 s.h.

Examination of equity issues in the health sciences, including a review of the historical challenges that led to Human Subjects Review Boards, FDA oversight of drug development and clinical trials, inclusion of women in research; effect of situational ethics in the workplace; potential danger of making assumptions about clients/patients; importance of developing an inclusive communication style; assessing the effectiveness of family-friendly employment policies in providing equitable opportunities for career advancement for both women and men. Recommendations: junior or senior standing. Same as HHP:3000 (027:120).

INTD:3025 (145:125) Contemporary Nutrition 3 s.h.

Introduction to nutrition; importance of understanding food choices and diet to fit individual needs. Same as HHP:3010 (027:125).

INTD:3027 (145:127) Nutrition for Health, Fitness, and Sport 3 s.h.

Effects of exercise and nutrition on health- and sports-related fitness; for professionals in health and physical education. Same as HHP:3020 (027:127).

INTD:3030 (145:130) Coaching for Health and Wellness 3 s.h.

Opportunities to expand knowledge and develop skills to help individuals change behavior and meet health-related goals; general health and wellness principles; principles and techniques for change; experience providing health-coaching services to clients. Prerequisites: HHP:2200 (027:039) and HHP:2310 (027:040). Same as HHP:3030 (027:131).

INTD:3107 (145:107) Creative Writing for the Health Professions 3 s.h.

Same as CW:3107 (08C:107).

INTD:3200 (145:108) Creative Writing for New Media 3 s.h.

Prepares creative writers for evolving marketplace of electronic text, media; experience writing in varied media such as the Internet, e-books, video games, mobile devices, emergent social narratives. Same as CW:3218 (08C:108).

INTD:3210 (145:110) Creative Writing and the Natural World 3 s.h.

How humans tether to their environment through stories; students write stories and through writing explore if there is a new tie to sustainable history. Same as CW:3210 (08C:110).

INTD:3300 (145:115) Creative Writing and Popular Culture 3 s.h.

Creative writing through the lens of popular culture; topics include television, film writing, adaptations, commercials, advertising, magazines, newspapers, comic books, song lyrics, billboards, and backs of cereal boxes. Same as CW:3215 (08C:115).

INTD:3510 (145:109) Introduction to Arts Management 3 s.h.

Nonprofit performing arts management and administrative principles; practical applications, trends in the field; focus on arts organizations and their key administrative positions. Same as THTR:3510 (049:109), DPA:3510 (188:109).

INTD:3520 (145:111) New Ventures in the Arts 3 s.h.

Arts administration principles and trends as applied to creation of an arts-related enterprise; case studies; students create business plan for a new arts organization. Duplicates ENTR:2000 (06T:120) and MGMT:3100 (06J:125). Corequisites: ENTR:1350 (06T:050), or ACCT:2100 (06A:001) and MKTG:3000 (06M:100). Same as THTR:3520 (049:111), ENTR:3520 (06T:125), DPA:3520 (188:111).

INTD:4098 (145:198) Independent Study arr.

Individual study of issues or topics related to a specific interdepartmental focus chosen by the student.

INTD:4099 (145:199) Interdepartmental Studies Practicum arr.

Opportunity to relate a student's chosen area of study to practical application. Requirements: interdepartmental studies student.

INTD:4510 (145:195) Arts Leadership Seminar 3 s.h.

Performing arts management and administrative principles, practical applications, trends in arts leadership and advocacy. Requirements: for THTR:4510 (049:195) — THTR:3510 (049:109) or THTR:3520 (049:111) or graduate standing in an arts discipline. Same as ENTR:4510 (06T:155), THTR:4510 (049:195), DPA:4510 (188:195).

International Business

Coordinators

- Patricia Mason-Browne (College of Liberal Arts and Sciences), Matthew C. Edwards (Tippie College of Business)

Undergraduate certificate: international business

Web site: <http://tippie.uiowa.edu/undergraduate/programs/ibc.cfm>

Undergraduate Program of Study

- Certificate in International Business

The Tippie College of Business and the College of Liberal Arts and Sciences offer the undergraduate Certificate in International Business. The program is designed for students who intend to pursue careers in international business as well as those interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates.

Certificate

The Certificate in International Business requires 29 s.h. and satisfaction of the certificate's world language or study abroad requirement (total credit depends on the student's choice of world language or study abroad experience). In addition to a world language or study abroad, the program includes study of international business and economics, international relations and institutions, and the contemporary art, literature, culture, and/or politics of one of several geographical regions (Asia, Europe, Latin America, Middle East/Africa, or Russia/Eastern Europe). The range of courses permits students to tailor areas of specialization suited to their individual interests and to complement majors in business and in liberal arts and sciences.

The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

Students should declare their intention to earn the certificate as early as possible and talk with an advisor about certificate requirements. They must submit an individual plan of study. Tippie College of Business students should talk with the advising staff at the college's Undergraduate Program Office; College of Liberal Arts and Sciences students should talk with a Certificate in International Business advisor at the Academic Advising Center. Individuals who hold a bachelor's degree from another institution should contact the University's Office of Admissions.

A minimum of 20 s.h. of certificate course work (other than language courses) must be completed at The University of Iowa or in approved study abroad programs. Students who plan to count study abroad credit toward the certificate should consult a Certificate in International Business advisor before leaving campus. University of Iowa Guided Independent Study Courses are accepted toward the certificate.

Certificate courses may not be taken pass/nonpass. A course may not be used to satisfy more than one certificate requirement.

The Certificate in International Business requires the following course work.

INTERNATIONAL BUSINESS

These courses provide students with an essential understanding of economics, which is central to all business operation. They also help students develop knowledge of the functional areas of international business.

Both of these:

ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.

Three of these (total of 9 s.h.):

ECON:3345 (06E:125) Global Economics and Business	3 s.h.
ECON:3620 (06E:129) Economic Growth and Development	3 s.h.
ECON:4110 (06E:173) International Economics	3 s.h.
ENTR:4460 (06T:152) Entrepreneurship and Global Trade	3 s.h.
FIN:4240 (06F:130) International Finance	3 s.h.
MGMT:3450 (06J:146) International Business Environment	3 s.h.
MKTG:4300 (06M:151) International Marketing	3 s.h.
LAW:8600 (09I:282) International Business Transactions	3 s.h.
LAW:8631 (09I:287) International Trade Law: Basic Norms and Regulations	3 s.h.

One of these may be counted toward the 9 s.h. requirement above:

CHIN:3103 (039:117) Business Chinese I	3 s.h.
FREN:3410 (009:115) Business French	3 s.h.
GRMN:3214 (013:114) Business German	3 s.h.
PORT:3130 (038:108) Business Portuguese	3 s.h.
SPAN:3040 (035:118) Business Spanish	3 s.h.

INTERNATIONAL RELATIONS AND INSTITUTIONS

These courses familiarize students with comparative politics, social geography, foreign policy, and issues related to world population and the environment—topics relevant to decision making in the international business world.

Two of these (total of 6 s.h.):

ANTH:1003 (113:062) Anthropology of Violence	3 s.h.
ANTH:1008 (113:067) Anthropology of Immigration	3 s.h.
ANTH:1040 (113:045)/LING:1040 (103:045) Language Rights	3 s.h.
ANTH:1046 (113:046)/GEOG:1046 (044:046)/GWSS:1046 (131:046) People and the Environment: Technology, Culture, and Social Justice	3 s.h.

ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.	IS:4131 (187:132)/COMM:4131 (036:131) Globalization and Culture	3 s.h.
ANTH:2136 (113:116) Urban Anthropology	3 s.h.	JMC:3130 (019:156) Comparative Communication Systems	3 s.h.
ANTH:3103 (113:143) Environment and Culture	3 s.h.	LAW:8570 (091:193) Human Rights in the World Community	3 s.h.
ANTH:3112 (113:114) Environmentalisms	3 s.h.	LAW:8649 (091:195) Foundations of International Law	3 s.h.
ANTH:3130 (113:104) Cultural Politics	3 s.h.	POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
ANTH:3131 (113:117) Anthropology and Human Rights	3 s.h.	POLI:1401 (030:041) Introduction to the Politics of Russia and Eurasia	3 s.h.
ANTH:4130 (113:139)/RELS:4730 (032:130) Religion and Environmental Ethics	3 s.h.	POLI:1403 (030:043) Introduction to Politics in the Muslim World	3 s.h.
COMM:2042 (036:042)/SSW:2042 (042:042)/IS:2042 (187:042) Intercultural Communication	3 s.h.	POLI:1500 (030:060) Introduction to International Relations	3 s.h.
GEOG:1090 (044:010) Globalization and Geographic Diversity	3 s.h.	POLI:1501 (030:061) Introduction to American Foreign Policy	3 s.h.
GEOG:2110 (044:011) Population Geography	3 s.h.	POLI:3400 (030:137) Introduction to Political Economy	3 s.h.
GEOG:2130 (044:055) World Cities	3 s.h.	POLI:3401 (030:142) European Union	3 s.h.
GEOG:2410 (044:104) Environment and Development	3 s.h.	POLI:3403 (030:147) Parties and Elections Around the World	3 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.	POLI:3404 (030:150) Public Policy Around the World	3 s.h.
GEOG:3070 (044:107)/GHS:3070 (152:107) Hungry Planet: Global Geographies of Food	3 s.h.	POLI:3405 (030:159) Authoritarian Politics	3 s.h.
GEOG:3910 (044:194) Geographic Perspectives on Development	3 s.h.	POLI:3406 (030:156) Ethnic and Religious Conflict in the Muslim World	3 s.h.
HIST:3126 (016:126) History of Globalization	3 s.h.	POLI:3411 (030:196) Democracy: Global Trends and Struggles	3 s.h.
HIST:3143 (016:143) International Politics: The History of the Present	3-4 s.h.	POLI:3417 (030:151) Political Leadership	3 s.h.
HIST:3145 (16W:155) Europe and the U.S. in the Twentieth Century	3 s.h.	POLI:3450 (030:149) Problems in Comparative Politics	3 s.h.
HIST:3157 (016:157)/GWSS:3157 (131:157) Gender, Sexuality, and Human Rights	3 s.h.	POLI:3500 (030:162) American Foreign Policies	3 s.h.
HIST:3255 (016:082) The World Since 1945	3 s.h.	POLI:3501 (030:161) International Organization and World Order	3 s.h.
HIST:4101 (016:101) History of Human Rights	3 s.h.	POLI:3502 (030:167) Politics and the Multinational Enterprise	3 s.h.
HIST:4125 (016:144) War and Peace in the Twentieth Century	3 s.h.	POLI:3503 (030:168) Politics of Terrorism	3 s.h.
HIST:4162 (16W:138)/GHS:4162 (152:138) History of Global Health	3 s.h.	POLI:3504 (030:177) Globalization	3 s.h.
HIST:4232 (16A:152) United States in World Affairs	3 s.h.	POLI:3505 (030:178) Causes, Consequences, and Management of Civil War	3 s.h.
HRTS:3895 (216:174) Human Rights and Community Development	3 s.h.	POLI:3506 (030:130) Consequences of War	3 s.h.
HRTS:3900 (216:175)/IS:3900 (187:175) Child Labor and International Human Rights	3 s.h.	POLI:3507 (030:160) Women and Politics in Global Perspective	3 s.h.
HRTS:3905 (216:176)/IS:3905 (187:176) Topics in Human Rights	1-3 s.h.	POLI:3509 (030:155) International Courts: The Intersection of Law and Politics	3 s.h.
HRTS:3906 (216:177) Human Rights Systems: Institutions and Mechanisms Enforcing and Implementing Human Rights	3 s.h.	POLI:3510 (030:173) State Failure in the Developing World	3 s.h.
IS:2000 (187:020) Introduction to International Studies	3 s.h.	POLI:3511 (030:195) International Law	3 s.h.
IS:2111 (187:006) Developed and Developing Places	3 s.h.	POLI:3512 (030:165) International Conflict	3 s.h.
IS:2112 (187:007) The European Union	3 s.h.	POLI:3513 (030:197) Politics of International Human Rights Law	3 s.h.
IS:2115 (187:080)/HRTS:2115 (216:080) Introduction to Human Rights	3 s.h.	POLI:3514 (030:198) Regional Peace and Security	3 s.h.
IS:3133 (187:133)/PHIL:3139 (026:139) Introduction to Public International Law and Human Rights	3 s.h.	POLI:3515 (030:166) Global Communication and Politics	3 s.h.
IS:3910 (187:180)/HRTS:3910 (216:180) Human Rights Advocacy	3 s.h.	POLI:3516 (030:170) The Politics of International Economics	3 s.h.
		POLI:3517 (030:131) Global Justice	3 s.h.

POLI:3550 (030:169) Problems of International Politics	3 s.h.
SOC:3415 (034:045) Global Criminology	3 s.h.

WORLD LANGUAGE OR STUDY ABROAD EXPERIENCE

Certificate students gain insight into the culture of another world region and deepen their understanding of their own language and culture by learning a world language or completing a study abroad experience.

Students who choose language study are required to develop intermediate-level competence in a language that is spoken in one of several geographic regions (Asia, Europe, Latin America, Middle East/Africa, or Russia/Eastern Europe) by completing one of the approved language sequences below.

Students who choose to complete a study abroad experience are expected to coordinate it with the course work they use to fulfill the certificate's area studies requirement (see "Area Studies" below). They must earn at least 3 s.h. of graded credit for the study abroad experience.

For questions about languages not listed or about study abroad course work, see a Certificate in International Business advisor.

Arabic

All of these:

ARAB:1001 (195:101) Elementary Modern Standard Arabic I	5 s.h.
ARAB:1002 (195:102) Elementary Modern Standard Arabic II	5 s.h.
ARAB:2001 (195:111) Intermediate Modern Standard Arabic I	5 s.h.
ARAB:2002 (195:112) Intermediate Modern Standard Arabic II	5 s.h.

Chinese

All of these:

CHIN:1111 (039:008)-CHIN:1112 (039:009) First-Year Chinese: First Semester - First-Year Chinese: Second Semester	10 s.h.
CHIN:2101 (039:105)-CHIN:2102 (039:106) Second-Year Chinese: First Semester - Second-Year Chinese: Second Semester	10 s.h.

Czech

All of these:

SLAV:1211 (041:141) Conversational Czech I	3 s.h.
SLAV:1212 (041:142) Conversational Czech II	3 s.h.
SLAV:2211 (041:143) Conversational Czech III	3 s.h.
SLAV:2212 (041:144) Conversational Czech IV	3 s.h.

French

One of these sequences:

FREN:1001 (009:001)-FREN:1002 (009:002) Elementary French I-II	10 s.h.
FREN:1010 (009:010) First-Year French Review	5 s.h.

All of these:

FREN:2001 (009:011)-FREN:2002 (009:012) Intermediate French I-II	8 s.h.
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One course for which FREN:2002 (009:012) is prerequisite (may include Iowa Regents Program credit)

German

One of these:

GRMN:1001 (013:011)-GRMN:1002 (013:012) Elementary German I-II (both courses)	8 s.h.
GRMN:1010 (013:014) First-Year German Review	5 s.h.

All of these:

GRMN:2001 (013:021) Intermediate German I	4 s.h.
GRMN:2002 (013:022) Intermediate German II	4 s.h.
One course for which GRMN:2002 (013:022) is prerequisite	

Hindi

All of these:

SOAS:2101 (039:123) First-Year Hindi-Urdu: First Semester	5 s.h.
SOAS:2102 (039:124) First-Year Hindi-Urdu: Second Semester	5 s.h.
SOAS:3101 (039:126) Second-Year Hindi-Urdu: First Semester	4 s.h.
SOAS:3102 (039:127) Second-Year Hindi-Urdu: Second Semester	4 s.h.

Italian

One of these:

ITAL:1101 (018:001)-ITAL:1102 (018:002) Elementary Italian-II (both courses)	10 s.h.
ITAL:3002 (018:103) Intensive Elementary Italian	6 s.h.

All of these:

ITAL:2203 (018:011)-ITAL:2204 (018:012) Intermediate Italian-II	8 s.h.
One course for which ITAL:2204 (018:012) is prerequisite	

Japanese

All of these:

JPNS:1101 (39J:010) & JPNS:1103 (39J:012) First-Year Japanese: First Semester - First-Year Japanese: Second Semester	10 s.h.
JPNS:3101 (39J:101)-JPNS:3102 (39J:102) Second-Year Japanese: First Semester - Second-Year Japanese: Second Semester	10 s.h.

Korean

All of these:

ASIA:1101 (039:040)-ASIA:1102 (039:041) First-Year Korean: First Semester - First-Year Korean: Second Semester	8 s.h.
ASIA:2101 (039:042)-ASIA:2102 (039:043) Second-Year Korean: First Semester - Second-Year Korean: Second Semester	8 s.h.

Portuguese

One of these:

PORT:3010 (038:100) & PORT:3020 (038:101) Accelerated Elementary Portuguese - Accelerated Intermediate Portuguese (both courses)	10 s.h.
PORT:3050 (038:102) Portuguese for Spanish Speakers	3 s.h.

And:

One course for which PORT:3020 (038:101) or
PORT:3050 (038:102) is prerequisite

Russian

All of these:

SLAV:1111 (041:001)-SLAV:1112 (041:002) First-Year Russian I-II	10 s.h.
SLAV:2111 (041:003)-SLAV:2112 (041:004) Second-Year Russian I-II	8 s.h.

And:

One course for which SLAV:2112 (041:004) is
prerequisite

Spanish

SPAN:1001 (035:001)-SPAN:1002 (035:002) Elementary Spanish I-II (both courses)	10 s.h.
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One of these:

SPAN:1501 (035:011)-SPAN:1502 (035:012) Intermediate Spanish I-II (both courses)	10 s.h.
SPAN:1503 (035:013) Accelerated Intermediate Spanish	6 s.h.

And:

One course for which SPAN:1502 (035:012) is
prerequisite

Swahili

All of these:

SWAH:3001 (211:125)-SWAH:3002 (211:126) Elementary Swahili I-II	8 s.h.
SWAH:3003 (211:127)-SWAH:3004 (211:128) Intermediate Swahili I-II	8 s.h.

AREA STUDIES

Area studies topics are critical to students' understanding of how society and culture influence the people with whom they share the world—and with whom they may conduct business. The following courses help students learn about the culture, contemporary history, art, literature, and politics of a specific geographic region.

Students complete 6 s.h. from one geographic region. They should select a region that is related to their chosen world language or study abroad experience.

Asia

Appropriate for these languages: Chinese, Hindi, Japanese, or Korean

ANTH:2108 (113:107)/GWSS:2108 (131:107) Gendering India	3 s.h.
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ANTH:3108 (113:118) North Korea and Totalitarianism	3 s.h.
ANTH:3121 (113:127)/GWSS:3121 (131:127) Love and Kinship in South Asia	3 s.h.
ARTH:1070 (01H:016)/CHIN:1070 (039:016) Asian Art and Culture	3 s.h.
ARTH:2220 (01H:031)/ASIA:2231 (039:028) Introduction to the Art of China	3 s.h.
ARTH:2250 (01H:033)/JPNS:2250 (39J:033) Introduction to the Art of Japan	3 s.h.
ARTH:3220 (01H:119)/ASIA:3219 (039:159) Chinese Art and Culture	3 s.h.
ARTH:3230 (01H:120)/ASIA:3220 (039:120) Chinese Painting I: Pagodas and Palaces	3 s.h.
ARTH:3240 (01H:191) Chinese Painting II	3 s.h.
ARTH:3260 (01H:123)/JPNS:3260 (39J:123) Japanese Painting	3 s.h.
ARTH:3270 (01H:124)/ASIA:3270 (039:131) Themes in Asian Art History	3 s.h.
ASIA:1135 (039:135) Korean Language in Culture and Society	3 s.h.
ASIA:1704 (039:034) The Languages of Asia in Cultural and Historical Perspective	3 s.h.
ASIA:1706 (039:036) Understanding Korean Culture Wave	3 s.h.
ASIA:2444 (039:044) Envision India	3 s.h.
ASIA:2606 (039:057)/HIST:2606 (016:007) Civilizations of Asia: South Asia	3 s.h.
ASIA:2887 (039:087)/HIST:2687 (16W:087) Perspectives on Korea	3 s.h.
ASIA:4508 (039:199) Asian Studies	arr.
CHIN:1504 (039:019) Asian Humanities: China	3 s.h.
CHIN:1702 (039:032) Chinese Popular Culture	3 s.h.
CHIN:3202 (039:142) Chinese Literature: Prose	3 s.h.
CHIN:3341 (039:141)/CL:3341 (218:141) Chinese Literature: Poetry	3 s.h.
CHIN:4203 (039:180)/CL:4203 (218:183) Modern Chinese Writers	3 s.h.
CHIN:4204 (039:140)/RELS:4404 (032:186) The Literature of Daoism	3 s.h.
CHIN:4206 (039:173)/CINE:4674 (048:174) Transnational Chinese Cinemas	3 s.h.
CINE:2625 (048:026) Introduction to Asian Film	3 s.h.
CINE:4606 (048:106)/ASIA:4606 (039:145) Topics in Asian Cinema	3 s.h.
ENGL:3540 (008:132) Literature of the Indian Subcontinent	3 s.h.
GEOG:1060 (044:060) Geography of Asia: From Japan to Pakistan	3 s.h.
HIST:2602 (016:005)/ASIA:2602 (039:055) Civilizations of Asia: China	3 s.h.
HIST:2604 (016:006)/ASIA:2604 (039:056) Civilizations of Asia: Japan	3 s.h.
HIST:2606 (016:007)/ASIA:2606 (039:057) Civilizations of Asia: South Asia	3-4 s.h.
HIST:2609 (016:009) India Now! A Survey from Bollywood Films to Global Terror	3-4 s.h.
HIST:2687 (16W:087)/ASIA:2887 (039:087) Perspectives on Korea	3 s.h.
HIST:4176 (16W:183) Vietnam War on Film	3-4 s.h.

HIST:4605 (16W:140)/GHS:4605 (152:140) Disease, Politics, and Health in South Asia	3 s.h.	RELS:3431 (032:131)/GWSS:3131 (131:131) Gender and Sexuality in East Asia	3 s.h.
HIST:4610 (16W:172)/JPNS:4610 (39J:172) Japan—Age of the Samurai	3 s.h.	RELS:3448 (032:148)/SOAS:3448 (039:148) The Allure of Krishna: Sacred Sexuality in Indian Culture	3 s.h.
HIST:4615 (16W:173)/JPNS:4615 (39J:173) Modern Japan	3 s.h.	RELS:3655 (032:188)/ASIA:3655 (039:170) Zen Buddhism	3 s.h.
HIST:4617 (16W:174) History, Memory, and Pacific War	3 s.h.	RELS:3660 (032:116)/JPNS:3660 (39J:109) Japanese Religion and Thought	3 s.h.
HIST:4620 (16W:175)/JPNS:4620 (39J:175) Japan-US Relations	3 s.h.	RELS:3666 (032:166) The History of a Religious and Spiritual Practice: Yoga in Asia and Beyond	3 s.h.
HIST:4640 (16W:194) Imperialism and Modern India	3 s.h.	SOAS:1502 (039:018)/RELS:1502 (032:008) Asian Humanities: India	3 s.h.
HIST:4655 (16W:198)/ASIA:4655 (039:196) China Since 1927	3 s.h.		
HIST:4685 (16W:185) Modern Korean History	3 s.h.		
JPNS:1506 (039:020) Asian Humanities: Japan	3 s.h.		
JPNS:2175 (39J:125)/ANTH:2175 (113:125) Japanese Society and Culture	3 s.h.		
JPNS:3128 (39J:128) Introduction to Japanese Linguistics	3 s.h.		
JPNS:3135 (39J:135) Postmodern Aesthetics and Japanese Culture	3 s.h.		
JPNS:3202 (39J:141)/CL:3204 (218:143) Traditional Japanese Literature in Translation	3 s.h.		
JPNS:3203 (39J:142)/CL:3203 (218:142) Modern Japanese Fiction in Translation	3 s.h.		
JPNS:3205 (39J:144) Major Authors in Modern Japanese Literature	3 s.h.		
JPNS:3206 (39J:146) Warriors Dreams	3 s.h.		
JPNS:3208 (39J:147) Introduction to Japanese Film	3 s.h.		
JPNS:3401 (39J:103) Language in Japanese Society	3 s.h.		
JPNS:3402 (39J:129) Japan: Culture and Communication	3 s.h.		
JPNS:3601 (39J:155) Contemporary Japanese Culture	3 s.h.		
JPNS:3700 (39J:162)/WLLC:3700 (218:160)/ ASIA:3700 (039:164) Topics in Global Cinema	3 s.h.		
PHIL:3143 (026:143) Philosophy East and West	3 s.h.		
PHIL:3845 (026:145)/RELS:3645 (032:175) Buddhist Philosophy	3 s.h.		
POLI:3408 (030:148) Government and Politics of China	3 s.h.		
POLI:3414 (030:143)/ASIA:3414 (039:178) Government and Politics of the Far East	3 s.h.		
POLI:3420 (030:102) Southeast Asia: Democracy, Identity, and Development	arr.		
RELS:1404 (032:004)/ASIA:1040 (039:064) Living Religions of the East	3 s.h.		
RELS:1410 (032:014) Introduction to Indian Religions	3 s.h.		
RELS:1506 (032:006)/ASIA:1060 (039:006) Introduction to Buddhism	3 s.h.		
RELS:1510 (032:010)/ASIA:1110 (039:007) Gods, Buddhas, and Ghostly Officials: The Past and Present of Chinese Religions	3 s.h.		
RELS:1610 (032:017)/JPNS:1115 (39J:017) Japanese Religions	3 s.h.		
RELS:2681 (032:081) Hindu Religion and Art	3 s.h.		
		Europe	
		Appropriate for these languages: Czech, French, German, Italian, Portuguese, or Spanish	
		ARTH:3020 (01H:157)/FREN:3030 (009:130) Paris and the Art of Urban Life	3 s.h.
		CINE:2621 (048:021) Introduction to European Film	3 s.h.
		CINE:4604 (048:104) Topics in European Film	3 s.h.
		CL:3263 (218:163) Studies in 20th Century European Literature	arr.
		ENGL:2330 (008:091) Topics in Modern British Literature After 1900	3 s.h.
		ENGL:2360 (008:065) Twentieth-Century British Literature	3 s.h.
		ENGL:2361 (008:066) Twenty-first-Century British Literature	3 s.h.
		ENGL:3350 (008:110) Literature and Culture of 20th- and 21st-Century Britain	3 s.h.
		FREN:1510 (009:030) Cultural Misunderstandings: France and U.S.A.	3 s.h.
		FREN:3120 (009:114) French Civilization	3 s.h.
		FREN:3130 (009:120) French-Speaking Cultures	3 s.h.
		FREN:3225 (009:119) Studies in Modern France	3 s.h.
		FREN:3510 (009:147)/CINE:3605 (048:105) French Cinema	3 s.h.
		FREN:3540 (009:148)/CINE:3647 (048:167)/ GWSS:3540 (131:167) Gender and Sexuality in French Cinema	3 s.h.
		FREN:4015 (009:166) Francophone Cinema	3-4 s.h.
		FREN:4080 (009:168)/CL:4368 (218:168) Post- Colonial Literature in France	3 s.h.
		GRMN:2618 (13E:118)/CL:2618 (218:148) The Third Reich and Literature	3 s.h.
		GRMN:2720 (13E:120)/HIST:2920 (16E:090) Germany in the World	3 s.h.
		GRMN:2775 (13E:075) Scandinavian Crime Fiction	3 s.h.
		GRMN:3236 (013:136) German Film	3 s.h.
		GRMN:3250 (013:135) Brief Texts About Big Events	3 s.h.
		GRMN:3405 (013:105) German Cultural History	3 s.h.
		GRMN:3501 (013:101) Introduction to German Literature	3 s.h.

GRMN:3550 (013:156) The Politics of Remembrance in German Multicultural Literature and Film	3 s.h.	ANTH:3111 (113:119)/GHS:3040 (152:119) Health in Mexico	3 s.h.
GRMN:4315 (013:115) Contemporary German Civilization	3 s.h.	CINE:2624 (048:024) Introduction to Latin American Film	3 s.h.
GRMN:4540 (013:140) Literature in Film	3 s.h.	CINE:4678 (048:178)/SPAN:4810 (035:191) Topics in Latin American Cinema	3 s.h.
HIST:2465 (16E:065) Europe Since 1945	3 s.h.	CL:3396 (218:196)/SPAN:3420 (035:143) Cuban American Literature and Culture	3 s.h.
HIST:3145 (16W:155) Europe and the U.S. in the Twentieth Century	3 s.h.	ENGL:3530 (008:114) Caribbean Literature and Culture	3 s.h.
HIST:4435 (16E:132) War and Society in Modern Europe	3 s.h.	ENGL:3535 (008:133) Inter-American Studies	3 s.h.
HIST:4438 (16E:130) Modern European Imperialism	3 s.h.	HIST:2288 (16A:069) Introduction to Mexican American History	3 s.h.
HIST:4460 (16E:135) Twentieth-Century Europe: The Nazi Era	3 s.h.	HIST:4216 (16A:112) Mexican American History	3 s.h.
HIST:4461 (16E:136) Twentieth-Century Europe: The Cold War and After	3 s.h.	HIST:4217 (16A:113) Latina/o Immigration	3 s.h.
HIST:4465 (16E:144) Modern France 1870-Present	3 s.h.	HIST:4501 (16W:106) Society and Revolution in Cuba	3 s.h.
HIST:4466 (16E:145)/FREN:4466 (009:145) France and Algeria from Pirates to Terrorism	3 s.h.	HIST:4502 (16W:107)/AINS:4502 (149:107) History of Mexico	3 s.h.
HIST:4470 (16E:146) France from 1815-Present	3 s.h.	HIST:4505 (16W:110) Topics in Latin American History	3 s.h.
HIST:4475 (16E:156)/GRMN:4475 (13E:126) Germany Since 1914: Weimar, Hitler, and After	3 s.h.	HIST:4508 (16W:108)/GHS:4508 (152:109) Medicine and Public Health in Latin America, 1820-2000	3 s.h.
HIST:4486 (16E:152) Modern Britain: The Twentieth Century	3 s.h.	HIST:4515 (16W:112) Introduction to Modern Latin America	3 s.h.
HIST:4978 (16E:158) Holocaust in History and Memory	3 s.h.	HIST:4520 (16W:114) Latin America and the U.S.: The Historical Perspective	3 s.h.
ITAL:3550 (018:132) Images of Modern Italy	3 s.h.	HIST:4525 (16W:115) Latin American Revolution	3 s.h.
ITAL:4350 (018:114) Studies in Italian Language	3 s.h.	HIST:4526 (16W:116) Dictatorships of Latin America	3 s.h.
ITAL:4667 (018:105) Modern Italian Fiction	3 s.h.	LAS:2700 (130:070)/IS:2700 (187:070)/PORT:2700 (038:070)/SPAN:2700 (035:070) Introduction to Latin American Studies	3 s.h.
ITAL:4668 (018:106) Modern Italian Poetry and Drama	3 s.h.	LAS:4700 (130:176)/PORT:4700 (038:176)/CL:4700 (218:153)/ANTH:4700 (113:132)/SPAN:4900 (035:176)/HIST:4504 (16W:109) Latin American Studies Seminar	3 s.h.
POLI:3401 (030:142) European Union	3 s.h.	MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
POLI:3403 (030:147) Parties and Elections Around the World	3 s.h.	POLI:3415 (030:144) Latin American Politics	3 s.h.
POLI:3412 (030:140) Government and Politics of Europe	3 s.h.	PORT:1800 (038:020) Contemporary Brazilian Narrative	3 s.h.
POLI:3416 (030:172) France in the 21st Century	3 s.h.	PORT:2800 (038:115) Writing Brazil in the U.S.	3 s.h.
PORT:3500 (038:107) Introduction to Portuguese Literature	3 s.h.	PORT:3400 (038:106) Brazilian Literature After 1900	3 s.h.
SPAN:1900 (035:090) Diversity and Cultures in Spain	3 s.h.	PORT:3800 (038:110) Mapping Portuguese Cultures: Portugal and Africa	3 s.h.
SPAN:2400 (035:110) Readings in Spanish Literature	3 s.h.	PORT:4000 (038:112) Topics in Luso-Brazilian Literature	3 s.h.
SPAN:3600 (035:150) Cultures of Spain	3 s.h.	SPAN:1800 (035:020) Contemporary Spanish American Narrative	3 s.h.
SPAN:3620 (035:153) Madrid	3 s.h.	SPAN:2200 (035:114) Introduction to Spanish American Cultures	3 s.h.
SPAN:3820 (035:161) Modern and Contemporary Spanish Literature	3 s.h.	SPAN:2500 (035:111) Readings in Spanish American Literature	3 s.h.
SPAN:3830 (035:156) Spanish Literature of the Transition	3 s.h.	SPAN:2800 (035:113) Screening Latin America	3 s.h.
SPAN:3840 (035:157) Contemporary Spanish Short Story	3 s.h.	SPAN:2900 (035:107) Music of the Hispanic World	3 s.h.
SPAN:4860 (035:170) The Spanish Civil War	3 s.h.		
Latin America			
Appropriate for these languages: Portuguese or Spanish			
ANTH:2110 (113:131) Latin American Economy and Society	3 s.h.		

SPAN:3200 (035:130) Cultures of Spanish America	3 s.h.
SPAN:3270 (035:146)/CL:3262 (218:162) Pan-Caribbean Literary Currents	3 s.h.
SPAN:3290 (035:148) Topics in Cinema and Society	3 s.h.
SPAN:3300 (035:131) Contemporary Spanish American Fiction	3 s.h.
SPAN:3310 (035:134) Spanish American Short Story	3 s.h.
SPAN:3320 (035:132) Spanish American Poetry	3 s.h.
SPAN:3350 (035:140) Contemporary Spanish American Literature	3 s.h.
SPAN:3360 (035:144)/GWSS:3360 (131:162) Latin American Women Writers	3 s.h.
SPAN:3440 (035:135) Topics in Latino/a Literature and Culture	3 s.h.
SPAN:4310 (035:175) Cultural Identity in Caribbean Literature	3 s.h.
SPAN:4350 (035:171) Twentieth-Century Spanish American Theater and Performance	3 s.h.
SPAN:4370 (035:177) Literature and Mass Culture in Latin America	3 s.h.
SPAN:4380 (035:193) Narratives of Underdevelopment	3 s.h.
SPAN:4820 (035:174) Latino/a Popular Culture	3 s.h.
SPAN:4880 (035:195) Comic Books and Graphic Novels in the Hispanic World	3 s.h.

Middle East/Africa

Appropriate for these languages: Swahili, or proficiency in another contemporary Middle Eastern or African language

ARAB:1050 (195:050) Topics in Middle East/Muslim World Studies I	3 s.h.
ARAB:2025 (195:126) Study Abroad: Culture and Society	1 s.h.
ARAB:2050 (195:125) Topics in Middle East/Muslim World Studies II	3 s.h.
ARTH:1040 (01H:002) Arts of Africa	3 s.h.
ARTH:3150 (01H:107) Art of West Africa	3 s.h.
ARTH:3170 (01H:116) The Art of Central Africa	3 s.h.
ARTH:3325 (01H:125) Kings, Gods, and Heroes: Art of the Ancient Near East	3 s.h.
ASIA:1770 (039:017) Asian Humanities: Middle East	3 s.h.
ASIA:3120 (039:121) Autobiography in Islamic Literary Cultures	3 s.h.
ASIA:3550 (039:125) Islam, Secularity, Modernity	3 s.h.
ENGL:3550 (008:119)/AFAM:3550 (129:119) African Literature	3 s.h.
ENGL:3555 (008:157)/AFAM:3555 (129:158) Topics in African Cinema	3 s.h.
FREN:3130 (009:120) French-Speaking Cultures	3 s.h.
FREN:4015 (009:166) Francophone Cinema	3-4 s.h.
FREN:4110 (009:163) Francophone Literature of the African Diaspora	3 s.h.
FREN:4466 (009:145)/HIST:4466 (16E:145) France and Algeria from Pirates to Terrorism	3 s.h.
GEOG:2404 (044:161) African Development	3 s.h.

GEOG:4960 (044:164) The Middle East	3 s.h.
HIST:2708 (016:008) Civilizations of Africa	3 s.h.
HIST:4715 (16W:121)/AFAM:4715 (129:164) African History Since 1880	3 s.h.
HIST:4723 (16W:123) Slavery, Gender, and Identity in East Africa	3 s.h.
HIST:4724 (16W:124) Crossing the Indian Ocean	3 s.h.
HIST:4725 (16W:125)/GWSS:4725 (131:125) Women and Gender in African History	3 s.h.
HIST:4728 (16W:128)/SWAH:4000 (211:124) Identity, Trade, and Diaspora	3 s.h.
HIST:4730 (16W:126) Slavery, Jihads, and Saints in Islamic Africa	3 s.h.
HIST:4810 (16W:152) History of the Modern Middle East	3 s.h.
HIST:4815 (16W:153) Topics in the Modern Middle East	3 s.h.
POLI:1403 (030:043) Introduction to Politics in the Muslim World	3 s.h.
POLI:3406 (030:156) Ethnic and Religious Conflict in the Muslim World	3 s.h.
POLI:3418 (030:176) Governance in the Middle East	3 s.h.
POLI:3419 (030:145) War in the Muslim World	3 s.h.
POLI:3421 (030:103) The Politics of Southern Africa	3 s.h.
POLI:3423 (030:105) The Middle East: Policy and Diplomacy	3 s.h.
PORT:3800 (038:110) Mapping Portuguese Cultures: Portugal and Africa	3 s.h.
RELS:1130 (032:030) Introduction to Islamic Civilization	3 s.h.
RELS:2852 (032:052)/GWSS:2052 (131:060) Women in Islam and the Middle East	3 s.h.
RELS:3020 (032:157) Religion and Politics	3 s.h.
RELS:3855 (032:155) Human Rights and Islam	3 s.h.
RELS:4133 (032:133) Special Topics: Islamic and Middle Eastern Societies	3 s.h.
RELS:4768 (032:168) Islamic Sects	3 s.h.
RELS:4859 (032:159)/LAW:8250 (091:223) Comparative Islamic Law	3 s.h.

Russia/Eastern Europe

Appropriate for these languages: Russian, or proficiency in a modern Slavic language

HIST:4493 (16E:178) Soviet Union 1917-1945	3 s.h.
POLI:1401 (030:041) Introduction to the Politics of Russia and Eurasia	3 s.h.
POLI:3401 (030:142) European Union	3 s.h.
POLI:3405 (030:159) Authoritarian Politics	3 s.h.
POLI:3410 (030:146) Russian Foreign Policy	3 s.h.
POLI:3413 (030:141) Russian Politics	3 s.h.
SLAV:1131 (041:098) Introduction to Russian Culture	3 s.h.
SLAV:1132 (041:099) Russia Today	3 s.h.
SLAV:1450 (041:058) Diversities of Eastern Europe: Culture, Art, and Politics	3 s.h.
SLAV:1531 (041:093) Slavic Folklore	3 s.h.

SLAV:1532 (041:094) Religion and Culture of Slavs	3 s.h.
SLAV:2100 (041:150) Secrets of Russian Mentality	3 s.h.
SLAV:2131 (041:160) Women in Russian Society	3 s.h.
SLAV:2232 (041:075)/CL:2700 (218:075) Romani (Gypsy) Cultures of Eastern Europe	3 s.h.
SLAV:2531 (041:164)/CL:2531 (218:164) Topics in Russian, East European, and Eurasian Studies	3 s.h.
SLAV:3082 (041:082) Youth Subcultures After Socialism	3 s.h.
SLAV:3100 (041:165) West and East: Women in the Slavic World	3 s.h.
SLAV:3122 (041:155)/CL:3122 (218:149) Tolstoy and Dostoevsky	3-4 s.h.
SLAV:3124 (041:157) Invitation to Nabokov	3 s.h.
SLAV:3131 (041:104)/GHS:3131 (152:170) Health Care and Health Reforms in Russia	3 s.h.
SLAV:3202 (041:102)/CL:3302 (218:107) Russian Literature in Translation 1860-1917	3 s.h.
SLAV:3221 (041:168)/CL:3221 (218:154) Twentieth-Century Czech Authors	3 s.h.

International Studies

Chair

- Helena Dettmer (Classics)

Undergraduate major: international studies (B.A.)

Undergraduate minor: international studies

Web site: <http://clas.uiowa.edu/international-studies>

The International Studies major encourages students to integrate theoretical knowledge about broad global processes, and the methods used to study them, with in-depth examination of a particular geographical region or a major theme in international studies. The major affords students the opportunity to integrate the study of history, politics, economics, expressive arts, culture, beliefs, and social systems.

Undergraduate Programs of Study

- Major in international studies (Bachelor of Arts)
- Minor in international studies

The international studies major is interdisciplinary. It is designed to help students learn to appreciate world cultures, focus on themes of global significance, and master varied disciplinary approaches used to study international issues. The program complements a wide range of academic degree programs and is an appropriate choice for many students who plan to pursue a double major.

The major prepares students for careers in business, government, international development agencies, nongovernmental organizations, philanthropic agencies, and the arts. It is excellent preparation for graduate training in the social sciences, the arts, law, business, journalism, international affairs, area studies, and public health.

Bachelor of Arts

The Bachelor of Arts with a major in international studies requires a minimum of 120 s.h., including at least 42 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in international studies is flexible, drawing on courses across the humanities and social sciences. Students work closely with an academic advisor to plan their program of study.

Work for the major includes two introductory courses, three foundation courses, language study beyond that required by the General Education Program, requirements for one of the major's three program options (A, B, or C), and required course work in one of the major's tracks.

International studies students must complete course work from at least four different departments and/or programs; they may count a maximum of 12 s.h. from any department or program toward the major. Students may apply up to 12 s.h. of course work from each additional major, minor, or certificate they earn toward the international studies major. Transfer credit approved by

the International Studies Program may be applied to the major. Students must complete at least 15 s.h. of work for the major at The University of Iowa.

The major in international studies requires the following course work.

INTRODUCTORY COURSES

Both of these:

IS:1000 (187:010) Designing Your International Studies Major	1 s.h.
IS:2000 (187:020) Introduction to International Studies	3 s.h.

FOUNDATION COURSES

Students earn a minimum of 9 s.h. in foundation courses chosen from the following lists. Foundation courses provide an overview of global issues and introduce a disciplinary approach to global topics, laying the groundwork for continuing study.

ANTH:1101 (113:003) Cultural Anthropology	3 s.h.
ARTH:1030 (01H:008) Themes in Global Art	3 s.h.
ASIA:2450 (039:048) India Beat: The Aesthetics and Politics of India Today	3 s.h.
DANC:2060 (137:080) Dance and Society in Global Contexts	3 s.h.
POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
RELS:1015 (032:015) Religions in a Global Context: The Critical Role of Religion in International Affairs	3 s.h.

May include one of these:

HIST:2403 (016:003) Western Civilization III	3-4 s.h.
HIST:3255 (016:082) The World Since 1945	3 s.h.

May include one of these:

GEOG:1090 (044:010) Globalization and Geographic Diversity	3 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.

May include one of these:

CL:1240 (218:040) Major Texts of World Literature, Antiquity to 1700	3 s.h.
CL:1241 (218:041) Major Texts of World Literature, 1700 to the Present	3 s.h.

LANGUAGE REQUIREMENT

All students must complete a minimum of two semesters of language study beyond that required by the General Education Program (p. 323). This additional language requirement may be met either by completing two semesters of upper-level study in the same language used to fulfill the General Education Program's World Languages requirement or by completing two semesters, or the equivalent, of a second world language at any level.

In fulfilling the language requirement, most students are eligible to receive an additional 4 s.h. of ungraded credit under the Furthering Language Incentive Program (FLIP). This credit may be applied to the minimum 120 s.h. required for graduation, but it does not count toward requirements for the international studies major.

TRACKS

Students complete their choice of one of the major's tracks. Each track requires a minimum of 18 s.h. of course work, including at least 12 s.h. earned in upper-level courses. Students may not count their foundation courses toward track requirements.

Students may petition the International Studies Program for permission to include a course that is not on the list of courses approved for their track; they must submit their petition by the semester's specified deadline date.

With the International Studies Program's approval, students may develop other tracks for which sufficient courses exist. Students interested in developing a unique track should discuss their ideas with the international studies advisor as soon as possible.

International studies majors completing the Certificate in Global Health Studies, International Business, or Latin American Studies or the minor in global health studies or Latin American studies may not choose an international studies track that corresponds with those certificate(s) or minor(s).

Tracks are listed under "Tracks and Approved Courses" below.

PROGRAM OPTIONS

International studies students complete all of the requirements for one of the major's three program options: A, B, or C. Program option requirements are not interchangeable.

Program option A: Students complete 6 s.h. of additional upper-level course work chosen from a second international studies track.

Program option B: Students complete a senior project and must take the following two courses.

IS:3010 (187:095) Creating a Proposal for International Research	2 s.h.
IS:4990 (187:199) International Studies Senior Project	3 s.h.

Students prepare for the senior project by completing IS:3010 (187:095) Creating a Proposal for International Research, in which they learn research methodologies and prepare a project proposal. During their last year of study, they enroll in IS:4990 (187:199) International Studies Senior Project and complete a semester-long individual research project that culminates in a substantial written or creative work focusing on a topic related to course work in their track. They complete the course and project under the supervision of a faculty mentor.

Program option C: Students complete an experiential learning activity (credit or noncredit), such as study abroad or related volunteer work, and complete two writing courses, one from each list below. They also submit an international studies essay during their last year. Students interested in choosing program option C should speak with the international studies advisor about procedures for the option.

One of these:

CNW:1620 (08N:020) Introduction to Creative Nonfiction	3 s.h.
CNW:2680 (08N:080) The Art and Craft of Creative Nonfiction	3 s.h.

SPAN:2000 (035:103) Spanish Language Skills: Writing	3 s.h.
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One of these:

CNW:2690 (08N:090) The Art and Craft of Writing About Business	3 s.h.
CNW:2700 (08N:081) The Art and Craft of Personal Writing	3 s.h.
CNW:2710 (08N:082) The Art and Craft of Food Writing	3 s.h.
CNW:2720 (08N:083) The Art and Craft of Writing About Culture	3 s.h.
CNW:2740 (08N:085) The Art and Craft of Writing about the Environment	3 s.h.
CNW:2760 (08N:087) The Art and Craft of Writing for Social Change	3 s.h.
CNW:2770 (08N:088) The Art and Craft of Writing for New Media	3 s.h.
CNW:2780 (08N:089) The Art and Craft of Writing About Sports	3 s.h.
CNW:2790 (08N:091) The Art and Craft of Humor Writing	3 s.h.
CNW:2800 (08N:092) The Art and Craft of Writing Across Genres	3 s.h.
CNW:2810 (08N:093) The Art and Craft of Writing with Emotion	3 s.h.
CNW:2820 (08N:096) The Art and Craft of the Literary Essay	3 s.h.
CNW:2830 (08N:095) The Art and Craft of Immersion Journalism	3 s.h.
CNW:3630 (08N:120) Advanced Nonfiction Writing	3 s.h.
CNW:4631 (08N:150) Undergraduate Essay Workshop	3 s.h.
SPAN:3020 (035:119) Journalistic Writing in Spanish	3 s.h.
SPAN:3060 (035:120) Introductory Workshop on Creative Writing in Spanish	3 s.h.

TRACKS AND APPROVED COURSES

African Studies Track

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

IS:3555 (187:155)/GHS:3555 (152:155) Understanding Health and Disease in Africa	3 s.h.
ANTH:3275 (113:196)/CLSA:3596 (20E:196) The Archaeology of Ancient Egypt	3 s.h.
ARTH:1040 (01H:002) Arts of Africa	3 s.h.
ARTH:2130 (01H:020) Introduction to African Architecture	3 s.h.
ARTH:3150 (01H:107) Art of West Africa	3 s.h.
ARTH:3160 (01H:108) Themes in African Art	3 s.h.
ARTH:3170 (01H:116) The Art of Central Africa	3 s.h.
DANC:2060 (137:080)/DPA:2060 (188:080) Dance and Society in Global Contexts	3 s.h.
ENGL:3550 (008:119)/AFAM:3550 (129:119) African Literature	3 s.h.
ENGL:3555 (008:157)/AFAM:3555 (129:158) Topics in African Cinema	3 s.h.

FREN:3130 (009:120) French-Speaking Cultures	3 s.h.
FREN:4110 (009:163) Francophone Literature of the African Diaspora	3 s.h.
GEOG:2404 (044:161) African Development	3 s.h.
HIST:2708 (016:008) Civilizations of Africa	3 s.h.
HIST:4289 (16W:160)/AINS:4289 (149:160) The Atlantic World c. 1450-1850	3 s.h.
HIST:4438 (16E:130) Modern European Imperialism	3 s.h.
HIST:4710 (16W:120)/AFAM:4310 (129:163) Pre-Colonial African History	3 s.h.
HIST:4715 (16W:121)/AFAM:4715 (129:164) African History Since 1880	3 s.h.
HIST:4724 (16W:124) Crossing the Indian Ocean	3 s.h.
HIST:4725 (16W:125)/GWSS:4725 (131:125) Women and Gender in African History	3 s.h.
HIST:4728 (16W:128) Identity, Trade, and Diaspora	3 s.h.
HIST:4730 (16W:126) Slavery, Jihads, and Saints in Islamic Africa	3 s.h.
POLI:3421 (030:103) The Politics of Southern Africa	3 s.h.
POLI:3422 (030:135) Transnational Issues and the Horn of Africa	arr.
POLI:3423 (030:105) The Middle East: Policy and Diplomacy	3 s.h.
RELS:3808 (032:108)/AFAM:3500 (129:108) Malcolm X, King, and Human Rights	3 s.h.

Caribbean Studies Track

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

ENGL:3525 (008:113) Literature and Culture of the Americas	3 s.h.
ENGL:3530 (008:114) Caribbean Literature and Culture	3 s.h.
HIST:4289 (16W:160)/AINS:4289 (149:160) The Atlantic World c. 1450-1850	3 s.h.
HIST:4501 (16W:106) Society and Revolution in Cuba	3 s.h.
HIST:4515 (16W:112) Introduction to Modern Latin America	3 s.h.
HIST:4525 (16W:115) Latin American Revolution	3 s.h.
HIST:4710 (16W:120)/AFAM:4310 (129:163) Pre-Colonial African History	3 s.h.
HIST:4715 (16W:121)/AFAM:4715 (129:164) African History Since 1880	3 s.h.
MUS:3163 (025:163) Steel Band	1 s.h.
MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
SPAN:3270 (035:146)/CL:3262 (218:162) Pan-Caribbean Literary Currents	3 s.h.
SPAN:3420 (035:143)/CL:3396 (218:196) Cuban American Literature and Culture	3 s.h.
SPAN:4310 (035:175) Cultural Identity in Caribbean Literature	3 s.h.

SPAN:4350 (035:171) Twentieth-Century Spanish American Theater and Performance	3 s.h.
SPAN:4390 (035:178) Topics in Spanish American Literature	3 s.h.

Development Track

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

IS:2111 (187:006) Developed and Developing Places	3 s.h.
IS:3555 (187:155) Understanding Health and Disease in Africa	3 s.h.
IS:3910 (187:180)/HRTS:3910 (216:180) Human Rights Advocacy	3 s.h.
ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.
ANTH:2110 (113:131) Latin American Economy and Society	3 s.h.
ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
CEE:4141 (053:141)/GHS:4141 (152:141) Design for the Developing World	3 s.h.
ECON:3620 (06E:129) Economic Growth and Development	3 s.h.
ECON:4110 (06E:173) International Economics	3 s.h.
EPLS:5104 (07B:104) Education in the Third World	2-3 s.h.
GEOG:1060 (044:060) Geography of Asia: From Japan to Pakistan	3 s.h.
GEOG:2404 (044:161) African Development	3 s.h.
GEOG:2410 (044:104) Environment and Development	3 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.
GEOG:3070 (044:107)/GHS:3070 (152:107) Hungry Planet: Global Geographies of Food	3 s.h.
GEOG:3910 (044:194) Geographic Perspectives on Development	3 s.h.
GEOG:4750 (044:125)/URP:4750 (102:125) Environmental Impact Analysis	4 s.h.
GHS:3060 (152:154) Studies in Complementary and Alternative Medicine	3 s.h.
GHS:4230 (152:182) Health Experience of Immigrants, Migrants, and Refugees	3 s.h.
HIST:3126 (016:126) History of Globalization	3 s.h.
HIST:4107 (16W:167) World History I	3-4 s.h.
HIST:4109 (16W:169) World History II	3-4 s.h.
HIST:4605 (16W:140) Disease, Politics, and Health in South Asia	2-4 s.h.
HRTS:3895 (216:174) Human Rights and Community Development	3 s.h.
PHAR:8788 (046:126)/CEE:4788 (053:126)/GHS:4126 (152:126) International Perspectives: Xicotepec	2 s.h.
POLI:1401 (030:041) Introduction to the Politics of Russia and Eurasia	3 s.h.
POLI:3420 (030:102) Southeast Asia: Democracy, Identity, and Development	arr.
POLI:3422 (030:135) Transnational Issues and the Horn of Africa	arr.

POLI:3504 (030:177) Globalization	3 s.h.	HIST:2602 (016:005)/ASIA:2602 (039:055) Civilizations of Asia: China	3 s.h.
POLI:3510 (030:173) State Failure in the Developing World	3 s.h.	HIST:2604 (016:006)/ASIA:2604 (039:056) Civilizations of Asia: Japan	3-4 s.h.
POLI:3516 (030:170) The Politics of International Economics	3 s.h.	HIST:2687 (16W:087) Perspectives on Korea	3 s.h.
SPAN:4380 (035:193) Narratives of Underdevelopment	3 s.h.	HIST:4176 (16W:183) Vietnam War on Film	3-4 s.h.
URP:3140 (102:140) Planning for Sustainability	3 s.h.	HIST:4610 (16W:172)/JPNS:4610 (39J:172) Japan—Age of the Samurai	3 s.h.
East Asian Studies Track			
Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.			
ARTH:1070 (01H:016)/CHIN:1070 (039:016) Asian Art and Culture	3 s.h.	HIST:4615 (16W:173)/JPNS:4615 (39J:173) Modern Japan	3 s.h.
ARTH:2220 (01H:031)/ASIA:2231 (039:028) Introduction to the Art of China	3 s.h.	HIST:4617 (16W:174) History, Memory, and Pacific War	3 s.h.
ARTH:2250 (01H:033)/JPNS:2250 (39J:033) Introduction to the Art of Japan	3 s.h.	HIST:4620 (16W:175)/JPNS:4620 (39J:175) Japan-US Relations	3 s.h.
ARTH:3220 (01H:119)/ASIA:3219 (039:159) Chinese Art and Culture	3 s.h.	HIST:4650 (16W:197)/ASIA:4657 (039:197) Chinese History from 1600 to 1927	3 s.h.
ARTH:3230 (01H:120)/ASIA:3220 (039:120) Chinese Painting I: Pagodas and Palaces	3 s.h.	HIST:4655 (16W:198)/ASIA:4655 (039:196) China Since 1927	3 s.h.
ARTH:3240 (01H:191) Chinese Painting II	3 s.h.	HIST:4666 (16W:178)/ASIA:4166 (039:175) Topics in Asian History	3 s.h.
ARTH:3260 (01H:123)/JPNS:3260 (39J:123) Japanese Painting	3 s.h.	HIST:4685 (16W:185) Modern Korean History	3 s.h.
ARTH:3270 (01H:124)/ASIA:3270 (039:131) Themes in Asian Art History	3 s.h.	JPNS:1506 (039:020) Asian Humanities: Japan	3 s.h.
ASIA:1135 (039:135) Korean Language in Culture and Society	3 s.h.	JPNS:2175 (39J:125)/ANTH:2175 (113:125) Japanese Society and Culture	3 s.h.
ASIA:1704 (039:034) The Languages of Asia in Cultural and Historical Perspective	3 s.h.	JPNS:3135 (39J:135) Postmodern Aesthetics and Japanese Culture	3 s.h.
ASIA:1706 (039:036) Understanding Korean Culture Wave	3 s.h.	JPNS:3201 (39J:130) Workshop in Japanese Literary Translation	3 s.h.
ASIA:4507 (039:198) Topics in Asian Studies	arr.	JPNS:3202 (39J:141)/CL:3204 (218:143) Traditional Japanese Literature in Translation	3 s.h.
ASIA:4606 (039:145)/CINE:4606 (048:106) Topics in Asian Cinema	3 s.h.	JPNS:3203 (39J:142)/CL:3203 (218:142) Modern Japanese Fiction in Translation	3 s.h.
CHIN:1504 (039:019) Asian Humanities: China	3 s.h.	JPNS:3204 (39J:143) Topics in Japanese Literature in Translation	3 s.h.
CHIN:1702 (039:032) Chinese Popular Culture	3 s.h.	JPNS:3205 (39J:144) Major Authors in Modern Japanese Literature	3 s.h.
CHIN:3201 (039:143) Workshop in Chinese Literary Translation	3 s.h.	JPNS:3206 (39J:146)/CL:3206 (218:147) Warriors Dreams	3 s.h.
CHIN:3202 (039:142) Chinese Literature: Prose	3 s.h.	JPNS:3210 (39J:150) Japanese Theater	3 s.h.
CHIN:3301 (039:139)/LING:3301 (103:139) Chinese Historical Phonology	3 s.h.	JPNS:3401 (39J:103) Language in Japanese Society	3 s.h.
CHIN:3302 (039:144)/LING:3302 (103:144)/ SLA:3302 (164:181) Introduction to Chinese Linguistics	3 s.h.	JPNS:3402 (39J:129) Japan: Culture and Communication	3 s.h.
CHIN:3341 (039:141)/CL:3341 (218:141) Chinese Literature: Poetry	3 s.h.	JPNS:3601 (39J:155) Contemporary Japanese Culture	3 s.h.
CHIN:4203 (039:180)/CL:4203 (218:183) Modern Chinese Writers	3 s.h.	JPNS:4201 (39J:145)/CL:4201 (218:144) The Tale of Genji	3 s.h.
CHIN:4206 (039:173)/CINE:4674 (048:174) Transnational Chinese Cinemas	3 s.h.	PHIL:3845 (026:145) Buddhist Philosophy	3 s.h.
CHIN:5103 (039:171) Readings in Chinese Literature	3 s.h.	POLI:3408 (030:148) Government and Politics of China	3 s.h.
CINE:2625 (048:026) Introduction to Asian Film	3 s.h.	POLI:3414 (030:143)/ASIA:3414 (039:178) Government and Politics of the Far East	3 s.h.
EPLS:5104 (07B:104) Education in the Third World	2-3 s.h.	RELS:1404 (032:004)/ASIA:1040 (039:064) Living Religions of the East	3 s.h.
GEOG:1060 (044:060) Geography of Asia: From Japan to Pakistan	3 s.h.	RELS:1506 (032:006)/ASIA:1060 (039:006) Introduction to Buddhism	3 s.h.
		RELS:1510 (032:010)/ASIA:1110 (039:007) Gods, Buddhas, and Ghostly Officials: The Past and Present of Chinese Religions	3 s.h.
		RELS:1610 (032:017)/JPNS:1115 (39J:017) Japanese Religions	3 s.h.

RELS:3431 (032:131)/GWSS:3131 (131:131) Gender and Sexuality in East Asia	3 s.h.	ARTH:3350 (01H:132)/CLSA:3232 (20E:128) Art of Early Rome: Patrons and Politics	3 s.h.
RELS:3560 (032:170)/ASIA:3560 (039:168) Topics in Asian Religions	3 s.h.	ARTH:3360 (01H:133)/CLSA:3233 (20E:130) Art of the Ancient Roman Empire	3 s.h.
RELS:3575 (032:178)/ASIA:3775 (039:188) East Meets West: The Western Reception of Eastern Religion	3 s.h.	ARTH:3370 (01H:134)/CLSA:3234 (20E:129) Art and Culture in Ancient Pompeii	3 s.h.
RELS:3645 (032:175)/PHIL:3845 (026:145) Buddhist Philosophy	3 s.h.	ARTH:3380 (01H:135) City of Rome: Image and Ideology	3 s.h.
RELS:3655 (032:188)/ASIA:3655 (039:170) Zen Buddhism	3 s.h.	ARTH:3390 (01H:136) Early Medieval Art	3 s.h.
RELS:3660 (032:116)/JPNS:3660 (39J:109) Japanese Religion and Thought	3 s.h.	ARTH:3391 (01H:137) Themes in Medieval Art	3 s.h.
RELS:3666 (032:166) The History of a Religious and Spiritual Practice: Yoga in Asia and Beyond	3 s.h.	ARTH:3420 (01H:138) Gothic Architecture	3 s.h.
RELS:4404 (032:186)/CHIN:4204 (039:140) The Literature of Daoism	3 s.h.	ARTH:3520 (01H:131) The Sculptural Origins of Michelangelo	3 s.h.
RELS:4660 (032:156)/ASIA:4660 (039:156) Buddhist Poetry	3 s.h.	ARTH:3530 (01H:140) The World of Giotto and Dante	3 s.h.
UICB:5110 (108:132) Islamic/Asian Papermaking History and Technique	3 s.h.	ARTH:3550 (01H:142) Leonardo, Raphael, and Their Contemporaries	3 s.h.
European Studies Track		ARTH:3630 (01H:146) Themes in Renaissance Art	3 s.h.
Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.		ARTH:3640 (01H:147) The Artist in the Studio: Allegory and Reality from Renaissance to Modern	3 s.h.
IS:2112 (187:007) The European Union	3 s.h.	ARTH:3650 (01H:150) Seventeenth-Century Dutch and Flemish Painting	3 s.h.
ANTH:3238 (113:130) Archaeology of the Iberian Peninsula	3 s.h.	ARTH:3700 (01H:152) David to Delacroix: Art in the Age of Revolutions	3 s.h.
ANTH:3239 (113:150) Tribes and Chiefdoms of Ancient Europe	3 s.h.	ARTH:3720 (01H:155) The Romantic Revolution	3 s.h.
ARTH:1020 (01H:004) Masterpieces: Art in Historical and Cultural Perspectives	3 s.h.	ARTH:3730 (01H:158) Realism, Impressionism, Post-Impressionism	3 s.h.
ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I	3 s.h.	ARTH:3740 (01H:159) Manet to Matisse	3 s.h.
ARTH:1060 (01H:006) From Mona Lisa to Modernism: Survey of Western Art II	3 s.h.	ARTH:3820 (01H:171) Modern Art	3 s.h.
ARTH:2020 (01H:084) Introduction to Western Architecture	3 s.h.	ARTH:3830 (01H:172) Late Modern Art	3 s.h.
ARTH:2320 (01H:026)/CLSA:2226 (20E:026) Introduction to Ancient Art	3 s.h.	ARTH:3850 (01H:178) Pop Art	3 s.h.
ARTH:2420 (01H:040) Introduction to Medieval Art	3 s.h.	ARTH:3864 (01H:164) Nazi and Stalinist Art: Aesthetics of Power	3 s.h.
ARTH:2520 (01H:047) Introduction to Italian Renaissance Art	3 s.h.	ARTH:3870 (01H:184) History of Photography	3 s.h.
ARTH:2620 (01H:053) Introduction to Baroque Visual Culture	3 s.h.	ARTH:3880 (01H:185) Modern Architecture	3 s.h.
ARTH:2730 (01H:062) Introduction to Nineteenth-Century Art	3 s.h.	CINE:2621 (048:021) Introduction to European Film	3 s.h.
ARTH:2740 (01H:063) Introduction to Northern Renaissance Art	3 s.h.	CINE:4604 (048:104) Topics in European Film	3 s.h.
ARTH:2820 (01H:073) Introduction to Modern/ Contemporary Art	3 s.h.	CL:1240 (218:040) Major Texts of World Literature, Antiquity to 1700	3 s.h.
ARTH:3030 (01H:183) History of Prints	3 s.h.	CL:1241 (218:041) Major Texts of World Literature, 1700 to the Present	3 s.h.
ARTH:3197 (01H:174) Themes in Modern and Contemporary Art	3 s.h.	CL:3223 (218:116) Reading European Poetry	3 s.h.
ARTH:3310 (01H:197) Celtic and Viking Art	3 s.h.	CL:3263 (218:163) Studies in 20th Century European Literature	arr.
ARTH:3330 (01H:127)/CLSA:3227 (20E:124) Classical Greek Art	3 s.h.	CLSA:1010 (20E:014) Hero, God, Mortal: Literature of Greece	3 s.h.
		CLSA:1020 (20E:015) Rome: Soldiers, Slaves, and Emperors	3 s.h.
		CLSA:1035 (20E:035) Greek Tragedy, Comedy, and the Invention of Democracy	3 s.h.
		CLSA:1117 (20E:017) The First Caesars: Julius Caesar to Nero	3 s.h.
		CLSA:1181 (20E:081)/GHS:1181 (152:081) Ancient Medicine	3 s.h.
		CLSA:1830 (20E:030) Greek Civilization	3 s.h.
		CLSA:1840 (20E:031) Roman Civilization	3 s.h.

CLSA:1875 (20E:075) Ancient Sports and Leisure	3 s.h.	ENGL:2348 (008:063) British Romanticism	3 s.h.
CLSA:1883 (20E:083) War	3 s.h.	ENGL:2359 (008:064) Victorian Literature	3 s.h.
CLSA:2384 (20E:084) Killers, Crooks, and Deviants: Ancient Law and Society	3 s.h.	ENGL:2360 (008:065) Twentieth-Century British Literature	3 s.h.
CLSA:2482 (20E:082) Ancient Mediterranean Religions	3 s.h.	ENGL:2361 (008:066) Twenty-first-Century British Literature	3 s.h.
CLSA:3008 (20E:108) Greek Drama in Translation	3 s.h.	ENGL:2310 (008:079) Selected British Authors After 1900	3 s.h.
CLSA:3015 (20E:112) Classical Mythology	3 s.h.	ENGL:2330 (008:091) Topics in Modern British Literature After 1900	3 s.h.
CLSA:3025 (20E:133) Advanced Topics in Mythology	3 s.h.	ENGL:2369 (008:085) Topics in British Culture and Identity	3 s.h.
CLSA:3041 (20E:141) Studies in Latin Literature	3 s.h.	ENGL:3010 (008:126) Children's Literature	3 s.h.
CLSA:3144 (20E:144)/HIST:3405 (16E:105) Engineering and Technology in the Ancient Mediterranean	3 s.h.	ENGL:3140 (008:130) Literature and the Book	3 s.h.
CLSA:3151 (20E:151) Roman Law	3 s.h.	ENGL:3216 (008:150) Topics in Medieval and Renaissance Literature	3 s.h.
CLSA:3235 (20E:118)/ANTH:3276 (113:192) Greek Archaeology and Ethnohistory	3 s.h.	ENGL:3226 (008:101)/MDVL:3226 (162:101) Literature and Culture of the Middle Ages	3 s.h.
CLSA:3240 (20E:119)/ANTH:3277 (113:194) Roman Archaeology	3 s.h.	ENGL:3228 (008:111) Literature and Culture of the Restoration	3 s.h.
CLSA:3340 (20E:140) Magic in the Ancient World	3 s.h.	ENGL:3236 (008:102) Literature and the Culture of the Renaissance	3 s.h.
CLSA:3445 (20E:145)/RELS:3245 (032:145) Mythology of Otherworldly Journeys	3 s.h.	ENGL:3237 (008:100) Literature and Culture of Seventeenth-Century England	3 s.h.
CLSA:3809 (20E:109)/GWSS:3809 (131:109) Women in Antiquity	3 s.h.	ENGL:3246 (008:122) 16th- and 17th-Century Poetry	3 s.h.
CLSA:3820 (20E:120) Concepts of the City: Athens	3 s.h.	ENGL:3257 (008:141) Old English Beowulf	3 s.h.
CLSA:4181 (20E:181) History of Western Medicine	3 s.h.	ENGL:3266 (008:142) Medieval Celtic Literature	3 s.h.
CLSG:3001 (20G:120) Archaic and Classical Periods I	3 s.h.	ENGL:3267 (008:143) Medieval Norse Literature	3 s.h.
CLSG:3002 (20G:121) Archaic and Classical Periods II	3 s.h.	ENGL:3276 (008:144)/THTR:3276 (049:181) Medieval Drama	3 s.h.
CLSG:3003 (20G:122)/RELS:3003 (032:122) Classical and Hellenistic Periods I	3 s.h.	ENGL:3277 (008:145)/THTR:3277 (049:184) English Renaissance Drama	3 s.h.
CLSL:3001 (20L:120) Latin Literature of the Republic I	3 s.h.	ENGL:3286 (008:146) Chaucer	3 s.h.
CLSL:3002 (20L:121) Latin Literature of the Republic II	3 s.h.	ENGL:3287 (008:147)/THTR:3287 (049:072) Shakespeare	3 s.h.
CLSL:3003 (20L:122) Latin Literature of the Empire I	3 s.h.	ENGL:3296 (008:148) Milton	3 s.h.
CLSL:3004 (20L:123) Latin Literature of the Empire II	3 s.h.	ENGL:3320 (008:178) Modern British Drama	3 s.h.
COMM:4143 (036:143) Classical Rhetoric and Greek Culture	3 s.h.	ENGL:3329 (008:103) Literature and Culture of Eighteenth-Century Britain	3 s.h.
DANC:2060 (137:080)/DPA:2060 (188:080) Dance and Society in Global Contexts	3 s.h.	ENGL:3338 (008:112) Literature and Culture of the Romantic Period	3 s.h.
ENGL:2206 (008:008) Classical and Biblical Literature	3 s.h.	ENGL:3339 (008:104) Literature and Culture of Nineteenth-Century Britain	3 s.h.
ENGL:2216 (008:060) Selected Works of the Middle Ages	3 s.h.	ENGL:3348 (008:107) Literature and Culture of Nineteenth-Century Scotland	3 s.h.
ENGL:2236 (008:076) Selected Early Authors	3 s.h.	ENGL:3350 (008:110) Literature and Culture of 20th- and 21st-Century Britain	3 s.h.
ENGL:2309 (008:078) Selected British Authors Before 1900	3 s.h.	ENGL:3355 (008:121) British Poetry	3 s.h.
ENGL:2329 (008:090) Topics in Modern British Literature Before 1900	3 s.h.	ENGL:3519 (008:167) Literature and Culture of Empire	3 s.h.
ENGL:2338 (008:062) Eighteenth-Century British Literature	3 s.h.	ENNM:3320 (08A:133) British Novel: Scott to Conrad for Non-English Majors	3 s.h.
		FREN:1005 (009:005) Texts and Contexts: French-Speaking World	3 s.h.
		FREN:1007 (009:007) Nature/Ecology French Philosophy and Fiction	3 s.h.
		FREN:1510 (009:030) Cultural Misunderstandings: France and U.S.A.	3 s.h.

FREN:3030 (009:130) Paris and the Art of Urban Life	3 s.h.	HIST:3112 (16E:114)/PHIL:3112 (026:112) Medieval Philosophy	3 s.h.
FREN:3110 (009:113) French Civilization	3 s.h.	HIST:3145 (16W:155) Europe and the U.S. in the Twentieth Century	3 s.h.
FREN:3120 (009:114) French Civilization	3 s.h.	HIST:3409 (16E:109)/MDVL:3409 (162:109) Medieval Civilization I	3 s.h.
FREN:3215 (009:117) Studies in Medieval and Early Modern France	3 s.h.	HIST:3410 (16E:110)/MDVL:3410 (162:110) Medieval Civilization II	3 s.h.
FREN:3225 (009:119) Studies in Modern France	3 s.h.	HIST:3436 (16E:102)/CLSA:3836 (20E:136) Food in Ancient Mediterranean Society	3 s.h.
FREN:3250 (009:118) Topics in French Studies I	3 s.h.	HIST:4133 (016:130) The Rise of Modern Science	3 s.h.
FREN:3510 (009:147)/CINE:3605 (048:105) French Cinema	3-4 s.h.	HIST:4289 (16W:160)/AINS:4289 (149:160) The Atlantic World c. 1450-1850	3 s.h.
FREN:3540 (009:148)/CINE:3647 (048:167)/GWSS:3540 (131:167) Gender and Sexuality in French Cinema	3 s.h.	HIST:4400 (16E:100)/CLSA:4400 (20E:100) The Roman Empire	3 s.h.
FREN:4080 (009:168)/CL:4368 (218:168) Post-Colonial Literature in France	3 s.h.	HIST:4401 (16E:101)/CLSA:4101 (20E:101) Ancient Egypt and the Ancient Near East	3 s.h.
FREN:4750 (009:178) Topics in French Studies II	3 s.h.	HIST:4403 (16E:103) Alexander the Great	3 s.h.
GEOG:2130 (044:055) World Cities	3 s.h.	HIST:4404 (16E:104) The World of Ancient Greece	3 s.h.
GRMN:2618 (13E:118)/CL:2618 (218:148) The Third Reich and Literature	3 s.h.	HIST:4406 (16E:106)/CLSA:4106 (20E:106) Warfare in Ancient Mediterranean Society	3 s.h.
GRMN:2666 (13E:066) Pact with the Devil	3 s.h.	HIST:4407 (16E:107) The Hellenistic World and Rome	3 s.h.
GRMN:2720 (13E:120) Germany in the World	3 s.h.	HIST:4408 (16E:108)/MDVL:4408 (162:108) The Twelfth-Century Renaissance	3 s.h.
GRMN:2775 (13E:075) Scandinavian Crime Fiction	3 s.h.	HIST:4411 (16E:113)/MDVL:4411 (162:113) Economic and Social History of Medieval Europe	3 s.h.
GRMN:2780 (13E:080) King Arthur Through the Ages	3 s.h.	HIST:4412 (16E:117)/MDVL:4412 (162:117) History of the Medieval Church	3 s.h.
GRMN:2785 (13E:085) The Fantastic and Supernatural in German Fiction and Film	3 s.h.	HIST:4417 (16E:111)/MDVL:4417 (162:111) Medieval Intellectual History 300-1150	3 s.h.
GRMN:3236 (013:136) German Film	3 s.h.	HIST:4419 (16E:139) Ancient and Medieval Science	3 s.h.
GRMN:3250 (013:135) Brief Texts About Big Events	3 s.h.	HIST:4421 (16E:121)/MDVL:4421 (162:121) The Middle Ages in Film	3 s.h.
GRMN:3405 (013:105) German Cultural History	3 s.h.	HIST:4423 (16E:116)/MDVL:4423 (162:116) Ireland in the Early Middle Ages	3 s.h.
GRMN:3501 (013:101) Introduction to German Literature	3 s.h.	HIST:4426 (16E:119)/MDVL:4426 (162:119) Women, Power, and Society in Medieval Europe	3 s.h.
GRMN:3555 (013:155) Image of America in German Literature and Film	3 s.h.	HIST:4428 (16E:134) Nineteenth-Century Europe	3 s.h.
GRMN:3807 (013:107) Introduction to German Linguistics	3 s.h.	HIST:4431 (16E:131) Early Modern England	3 s.h.
GRMN:3865 (013:165) History of the German Language	3 s.h.	HIST:4435 (16E:132) War and Society in Modern Europe	3 s.h.
GRMN:4315 (013:115) Contemporary German Civilization	3 s.h.	HIST:4438 (16E:130) Modern European Imperialism	3 s.h.
GRMN:4540 (013:140) Literature in Film	3 s.h.	HIST:4441 (16E:141) Special Topics in European History	arr.
GRMN:4589 (013:153) Tyrants and Terror	3 s.h.	HIST:4460 (16E:135) Twentieth-Century Europe: The Nazi Era	3 s.h.
GRMN:4630 (013:152) German Culture Before the Third Reich	3 s.h.	HIST:4461 (16E:136) Twentieth-Century Europe: The Cold War and After	3 s.h.
GRMN:4643 (013:143) Witch Trials: Fact and Fiction	3 s.h.	HIST:4464 (16E:143) Modern France 1789-1871	3 s.h.
GRMN:4730 (013:150) Beautiful Souls and Scandalous Writing	3 s.h.	HIST:4465 (16E:144) Modern France 1870-Present	3 s.h.
GWSS:2651 (131:152)/CLSA:3650 (20E:150) Gender and Sexuality in the Ancient World	3 s.h.	HIST:4466 (16E:145)/FREN:4466 (009:145) France and Algeria from Pirates to Terrorism	3 s.h.
GWSS:4427 (131:181)/HIST:4427 (16E:125) Society and Gender in Europe 1200-1789	3 s.h.		
HIST:1225 (016:035)/RELS:1225 (032:025) Medieval Religion and Culture	3 s.h.		
HIST:2465 (16E:065) Europe Since 1945	3 s.h.		

HIST:4470 (16E:146) France from 1815-Present	3 s.h.	PORT:3500 (038:107) Introduction to Portuguese Literature	3 s.h.
HIST:4473 (16E:155) German History 1648-1914	3 s.h.	PORT:4100 (038:120) Topics in Luso-Brazilian Culture	3 s.h.
HIST:4475 (16E:156)/GRMN:4475 (13E:126) Germany Since 1914: Weimar, Hitler, and After	3-4 s.h.	RELS:1070 (032:011) Introduction to the Hebrew Bible/Old Testament	3 s.h.
HIST:4477 (16E:147) Napoleon and His Afterlives	3 s.h.	RELS:1080 (032:012) Introduction to the New Testament	3 s.h.
HIST:4485 (16E:151) Modern Britain: The Nineteenth Century	3-4 s.h.	RELS:2351 (032:051) Religious Thinkers of the West	3 s.h.
HIST:4486 (16E:152) Modern Britain: The Twentieth Century	3 s.h.	RELS:2775 (032:150) The Bible and the Holocaust	3 s.h.
HIST:4499 (16E:185) First World War	3-4 s.h.	RELS:2962 (032:062) Islam in the Public Sphere: Arts, Literature, Culture, and Politics	3 s.h.
HIST:4910 (16E:120)/UICB:4910 (108:182) The Book in the Middle Ages	3 s.h.	RELS:3243 (032:143) Early Christianity: From Jesus to the Rise of Islam	3 s.h.
HIST:4920 (16E:118)/UICB:4920 (108:183)/SLIS:4920 (021:258) The Transition from Manuscript to Print	3 s.h.	RELS:3340 (032:109) Recovering Eden: The Afterlife in Early Judaism and Christianity	3 s.h.
HIST:4978 (16E:158) Holocaust in History and Memory	3 s.h.	RELS:3716 (032:164)/CLSA:3416 (20E:115) Greek Religion and Society	3 s.h.
ITAL:3550 (018:132) Images of Modern Italy	3-4 s.h.	RELS:4155 (032:154)/HIST:4455 (16E:123) Religious Conflict: Early-Modern Period	3 s.h.
ITAL:4350 (018:114) Studies in Italian Language	3 s.h.	RELS:4181 (032:181) Special Topics in Western Religion	3 s.h.
ITAL:4633 (018:119) Medieval Italian Literature	3 s.h.	SPAN:2400 (035:110) Readings in Spanish Literature	3 s.h.
ITAL:4634 (018:120) Medieval and Renaissance Italian Literature	3 s.h.	SPAN:3500 (035:164) Topics in Culture of the Hispanic World	3 s.h.
ITAL:4667 (018:105) Modern Italian Fiction	3 s.h.	SPAN:3600 (035:150) Cultures of Spain	3 s.h.
ITAL:4668 (018:106) Modern Italian Poetry and Drama	3 s.h.	SPAN:3620 (035:153) Madrid	3 s.h.
LING:3080 (103:131) History of the English Language	3 s.h.	SPAN:3700 (035:160) The Cid in History and Legend	3 s.h.
MUS:1004 (025:137)/DPA:1004 (188:137) World of the Beatles	3 s.h.	SPAN:3750 (035:151) Literature in the Time of Cervantes	3 s.h.
PHIL:2214 (026:114) Seventeenth-Century Philosophy	3 s.h.	SPAN:3810 (035:152) Romanticism and Revolution in Spain	3 s.h.
PHIL:2215 (026:115) Modern Philosophy	3 s.h.	SPAN:3820 (035:161) Modern and Contemporary Spanish Literature	3 s.h.
PHIL:3110 (026:110)/CLSA:3338 (20E:138) Philosophy of Ancient Greece and Rome	3 s.h.	SPAN:3840 (035:157) Contemporary Spanish Short Story	3 s.h.
PHIL:3111 (026:111) Ancient Philosophy	3 s.h.	SPAN:4620 (035:180) Spanish Golden Age Fiction	3 s.h.
PHIL:3112 (026:112)/HIST:3112 (16E:114) Medieval Philosophy	3 s.h.	SPAN:4650 (035:183) Don Quijote	3 s.h.
PHIL:3318 (026:118) Twentieth-Century Philosophy	3 s.h.	SPAN:4690 (035:181) Topics in Spanish Literature	3 s.h.
PHIL:3341 (026:141) Existentialist Philosophy	3 s.h.	SPAN:4860 (035:170) The Spanish Civil War	3 s.h.
PHIL:3432 (026:132) Introduction to Political Philosophy	3 s.h.	SPAN:4870 (035:179)/RELS:4870 (032:179) Islamic Cultural Presence in Spain	3 s.h.
PHIL:3435 (026:135) Philosophy of Law	3 s.h.	THTR:4421 (049:194) Dramaturgy	3 s.h.
PHIL:4153 (026:153) Aristotle	3 s.h.	UICB:4910 (108:182)/HIST:4910 (16E:120) The Book in the Middle Ages	3 s.h.
PHIL:4258 (026:158) Descartes	3 s.h.	UICB:5130 (108:133) Western Papermaking History and Technique	3 s.h.
PHIL:4260 (026:160) Spinoza and Leibniz	3 s.h.		
PHIL:4346 (026:176) Frege and Russell	3 s.h.		
PHIL:4377 (026:177) Wittgenstein	3 s.h.		
PHIL:4482 (026:182) History of Ethics	3 s.h.		
POLI:3305 (030:132) Modern Political Theory	3 s.h.		
POLI:3401 (030:142) European Union	3 s.h.		
POLI:3412 (030:140) Government and Politics of Europe	3 s.h.		
POLI:3416 (030:172) France in the 21st Century	3 s.h.		
		Global Artistic Tradition and Change Track	
		Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.	
		AINS:2085 (149:085) Native American Material Culture	3 s.h.

ANTH:3237 (113:124) Politics of the Archaeological Past	3 s.h.	CINE:2621 (048:021) Introduction to European Film	3 s.h.
ARTH:1010 (01H:001) Art and Visual Culture	3 s.h.	CINE:2622 (048:022) World Film	3 s.h.
ARTH:1020 (01H:004) Masterpieces: Art in Historical and Cultural Perspectives	3 s.h.	CINE:2624 (048:024) Introduction to Latin American Film	3 s.h.
ARTH:1030 (01H:008) Themes in Global Art	3 s.h.	CINE:2625 (048:026) Introduction to Asian Film	3 s.h.
ARTH:1040 (01H:002) Arts of Africa	3 s.h.	CINE:3185 (048:185)/GWSS:3185 (131:185)/WLLC:3185 (218:185) Global Women's Cinema	3 s.h.
ARTH:1050 (01H:005) From Cave Paintings to Cathedrals: Survey of Western Art I	3 s.h.	CINE:3750 (048:170) Topics in Cinema and Culture	3 s.h.
ARTH:1070 (01H:016)/CHIN:1070 (039:016) Asian Art and Culture	3 s.h.	CINE:4604 (048:104) Topics in European Film	3 s.h.
ARTH:1090 (01H:009) Earthly Paradises: A Global History of Gardens	3 s.h.	CINE:4606 (048:106) Topics in Asian Cinema	3 s.h.
ARTH:2020 (01H:084) Introduction to Western Architecture	3 s.h.	CINE:4616 (048:117) Topics in National Cinema	3 s.h.
ARTH:2220 (01H:031)/ASIA:2231 (039:028) Introduction to the Art of China	3 s.h.	CINE:4618 (048:118) Topics in World Cinemas	3 s.h.
ARTH:2250 (01H:033)/JPNS:2250 (39J:033) Introduction to the Art of Japan	3 s.h.	CL:1240 (218:040) Major Texts of World Literature, Antiquity to 1700	3 s.h.
ARTH:2520 (01H:047) Introduction to Italian Renaissance Art	3 s.h.	CL:1241 (218:041) Major Texts of World Literature, 1700 to the Present	3 s.h.
ARTH:2740 (01H:063) Introduction to Northern Renaissance Art	3 s.h.	CL:2700 (218:075) Romani (Gypsy) Cultures of Eastern Europe	3 s.h.
ARTH:3150 (01H:107) Art of West Africa	3 s.h.	CL:3152 (218:152)/IWP:3152 (181:152) America in Other Words	1-3 s.h.
ARTH:3160 (01H:108) Themes in African Art	3 s.h.	CL:3222 (218:122) City as Text/Text as City	3 s.h.
ARTH:3197 (01H:174) Themes in Modern and Contemporary Art	3 s.h.	CL:3263 (218:163) Studies in 20th Century European Literature	arr.
ARTH:3220 (01H:119)/ASIA:3219 (039:159) Chinese Art and Culture	3 s.h.	CL:4266 (218:166) Topics in Literature and Theory	3 s.h.
ARTH:3230 (01H:120)/ASIA:3220 (039:120) Chinese Painting I: Pagodas and Palaces	3 s.h.	CLSA:1010 (20E:014) Hero, God, Mortal: Literature of Greece	3 s.h.
ARTH:3240 (01H:191) Chinese Painting II	3 s.h.	CLSA:1035 (20E:035) Greek Tragedy, Comedy, and the Invention of Democracy	3 s.h.
ARTH:3260 (01H:123)/JPNS:3260 (39J:123) Japanese Painting	3 s.h.	CLSA:1875 (20E:075) Ancient Sports and Leisure	3 s.h.
ARTH:3310 (01H:197) Celtic and Viking Art	3 s.h.	CLSA:3008 (20E:108) Greek Drama in Translation	3 s.h.
ARTH:3320 (01H:110)/RELS:3704 (032:104) Egyptian Art	3 s.h.	CLSA:3015 (20E:112) Classical Mythology	3 s.h.
ARTH:3350 (01H:132)/CLSA:3232 (20E:128) Art of Early Rome: Patrons and Politics	3 s.h.	CLSG:3001 (20G:120) Archaic and Classical Periods I	3 s.h.
ARTH:3360 (01H:133)/CLSA:3233 (20E:130) Art of the Ancient Roman Empire	3 s.h.	CLSG:3002 (20G:121) Archaic and Classical Periods II	3 s.h.
ARTH:3390 (01H:136) Early Medieval Art	3 s.h.	CLSL:3001 (20L:120) Latin Literature of the Republic I	3 s.h.
ARTH:3530 (01H:140) The World of Giotto and Dante	3 s.h.	CLSL:3002 (20L:121) Latin Literature of the Republic II	3 s.h.
ARTH:3630 (01H:146) Themes in Renaissance Art	3 s.h.	CLSL:3003 (20L:122) Latin Literature of the Empire I	3 s.h.
ARTH:3640 (01H:147) The Artist in the Studio: Allegory and Reality from Renaissance to Modern	3 s.h.	CLSL:3004 (20L:123) Latin Literature of the Empire II	3 s.h.
ARTH:3864 (01H:164) Nazi and Stalinist Art: Aesthetics of Power	3 s.h.	DANC:1150 (137:057) Brazilian Culture and Carnival	3 s.h.
ASIA:2450 (039:048) India Beat: The Aesthetics and Politics of India Today	3 s.h.	DANC:2060 (137:080)/DPA:2060 (188:080) Dance and Society in Global Contexts	3 s.h.
ASIA:4606 (039:145)/CINE:4606 (048:106) Topics in Asian Cinema	3 s.h.	DANC:2070 (137:081) Ethnic Dance in a Global Society	3 s.h.
CHIN:4203 (039:180)/CL:4203 (218:183) Modern Chinese Writers	3 s.h.	ENGL:2310 (008:079) Selected British Authors After 1900	3 s.h.
CHIN:4206 (039:173)/CINE:4674 (048:174) Transnational Chinese Cinemas	3 s.h.	ENGL:2329 (008:090) Topics in Modern British Literature Before 1900	3 s.h.
CINE:1640 (048:071) Film Authors	3 s.h.	ENGL:2330 (008:091) Topics in Modern British Literature After 1900	3 s.h.

ENGL:2359 (008:064) Victorian Literature	3 s.h.	MUS:1004 (025:137)/DPA:1004 (188:137) World of the Beatles	3 s.h.
ENGL:2360 (008:065) Twentieth-Century British Literature	3 s.h.	MUS:1009 (025:080) Jazz Cultures in America and Abroad	3 s.h.
ENGL:2505 (008:031) Introduction to Postcolonial Studies	3 s.h.	MUS:3310 (025:103) World Music	3 s.h.
ENGL:2510 (008:075) Selected Transnational Authors	3 s.h.	MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
ENGL:2560 (008:084) Topics in Culture and Identity	3 s.h.	MUS:3312 (025:178) Music, Culture, and Identity	3 s.h.
ENGL:3140 (008:130) Literature and the Book	3 s.h.	PORT:2800 (038:115) Writing Brazil in the U.S.	3 s.h.
ENGL:3216 (008:150) Topics in Medieval and Renaissance Literature	3 s.h.	RELS:3448 (032:148) The Allure of Krishna: Sacred Sexuality in Indian Culture	3 s.h.
ENGL:3246 (008:122) 16th- and 17th-Century Poetry	3 s.h.	RELS:4660 (032:156)/ASIA:4660 (039:156) Buddhist Poetry	3 s.h.
ENGL:3510 (008:164) Topics in Transnational Literature	3 s.h.	SLAV:1131 (041:098) Introduction to Russian Culture	3 s.h.
ENGL:3530 (008:114) Caribbean Literature and Culture	3 s.h.	SLAV:3124 (041:157) Invitation to Nabokov	3 s.h.
ENGL:3550 (008:119)/AFAM:3550 (129:119) African Literature	3 s.h.	SLAV:3202 (041:102)/CL:3302 (218:107) Russian Literature in Translation 1860-1917	3 s.h.
ENGL:3555 (008:157)/AFAM:3555 (129:158) Topics in African Cinema	3 s.h.	SOAS:1502 (039:018) Asian Humanities: India	3 s.h.
ENGL:3595 (008:191)/IWP:3191 (181:191)/ WLLC:3191 (218:191) International Literature Today	1, 3 s.h.	SPAN:2400 (035:110) Readings in Spanish Literature	3 s.h.
FREN:3030 (009:130)/ARTH:3020 (01H:157) Paris and the Art of Urban Life	3 s.h.	SPAN:2500 (035:111) Readings in Spanish American Literature	3 s.h.
FREN:3250 (009:118) Topics in French Studies I	3 s.h.	SPAN:2900 (035:107) Music of the Hispanic World	3 s.h.
FREN:3510 (009:147)/CINE:3605 (048:105) French Cinema	3-4 s.h.	SPAN:3220 (035:149) Visual Culture: Colonial Spanish America	3 s.h.
FREN:4015 (009:166) Francophone Cinema	3-4 s.h.	SPAN:3320 (035:132) Spanish American Poetry	3 s.h.
FREN:4080 (009:168) Post-Colonial Literature in France	3 s.h.	SPAN:3370 (035:147) Topics in Literatures and Cultures	3 s.h.
GRMN:2785 (13E:085) The Fantastic and Supernatural in German Fiction and Film	3 s.h.	SPAN:3520 (035:145) Introduction to Film Studies	3 s.h.
GRMN:3236 (013:136) German Film	3 s.h.	SPAN:3820 (035:161) Modern and Contemporary Spanish Literature	3 s.h.
GRMN:3501 (013:101) Introduction to German Literature	3 s.h.	SPAN:4350 (035:171) Twentieth-Century Spanish American Theater and Performance	3 s.h.
GRMN:3555 (013:155) Image of America in German Literature and Film	3 s.h.	SPAN:4370 (035:177) Literature and Mass Culture in Latin America	3 s.h.
GRMN:4540 (013:140) Literature in Film	3 s.h.	SPAN:4390 (035:178) Topics in Spanish American Literature	3 s.h.
GRMN:4589 (013:153) Tyrants and Terror	3 s.h.	SPAN:4630 (035:182) Society and Poetry: Spanish Lyric	3 s.h.
GWSS:2193 (131:052)/ENGL:2193 (008:052) Literature, Culture, and Women	3 s.h.	SPAN:4650 (035:183) Don Quijote	3 s.h.
GWSS:3360 (131:162)/SPAN:3360 (035:144) Latin American Women Writers	3 s.h.	SPAN:4690 (035:181) Topics in Spanish Literature	3 s.h.
ITAL:4668 (018:106) Modern Italian Poetry and Drama	3 s.h.	SPAN:4810 (035:191)/CINE:4678 (048:178) Topics in Latin American Cinema	3 s.h.
IWP:3191 (181:191) International Literature Today	1,3 s.h.	SPAN:4920 (035:192) Topics in Film Studies	3 s.h.
JPNS:3202 (39J:141)/CL:3204 (218:143) Traditional Japanese Literature in Translation	3 s.h.	THTR:1400 (049:002) Theatre and Society: Ancients and Moderns	3 s.h.
JPNS:3203 (39J:142)/CL:3203 (218:142) Modern Japanese Fiction in Translation	3 s.h.	THTR:1401 (049:003) Theatre and Society: Romantics and Rebels	3 s.h.
JPNS:3204 (39J:143) Topics in Japanese Literature in Translation	3 s.h.	THTR:2410 (049:112) History of Theatre and Drama I	3 s.h.
JPNS:3205 (39J:144) Major Authors in Modern Japanese Literature	3 s.h.	THTR:2411 (049:113) History of Theatre and Drama II	3 s.h.
JPNS:3210 (39J:150) Japanese Theater	3 s.h.	UICB:5110 (108:132) Islamic/Asian Papermaking History and Technique	3 s.h.
		UICB:5130 (108:133) Western Papermaking History and Technique	3 s.h.

WLLC:2550 (218:070) Mardi Gras and More: Cultures of Carnival	3-4 s.h.
WLLC:3700 (218:160)/ASIA:3700 (039:164)/JPNS:3700 (39):162) Topics in Global Cinema	3 s.h.

Global Health Studies Track

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

IS:3555 (187:155)/GHS:3555 (152:155) Understanding Health and Disease in Africa	3 s.h.
IS:3910 (187:180)/HRTS:3910 (216:180) Human Rights Advocacy	3 s.h.
ANTH:2164 (113:091) Culture and Healing for Future Health Professionals	3 s.h.
ANTH:2181 (113:147) The Anthropology of Aging	3 s.h.
ANTH:2320 (213:090) Anthropological Perspectives on Human Infectious Disease: Origins and Evolution	3 s.h.
ANTH:3102 (113:185)/GHS:3102 (152:185)/CBH:5125 (172:173) Medical Anthropology	3 s.h.
ANTH:3111 (113:119)/GHS:3040 (152:119) Health in Mexico	3 s.h.
ANTH:3151 (113:151) The Anthropology of the Beginnings and Ends of Life	3 s.h.
ANTH:3152 (113:152) Anthropology of Caregiving and Health	3 s.h.
ANTH:3326 (213:153) Infectious Disease and Human Evolution	3 s.h.
ANTH:4140 (113:133)/GWSS:4140 (131:133)/CBH:5140 (172:133) The Anthropology of Women's Health	3 s.h.
CEE:4141 (053:141)/GHS:4141 (152:141) Design for the Developing World	3 s.h.
CLSA:1181 (20E:081)/GHS:1181 (152:081) Ancient Medicine	3 s.h.
CLSA:4181 (20E:181) History of Western Medicine	3 s.h.
ECON:3760 (06E:113) Health Economics	3 s.h.
GEOG:3070 (044:107)/GHS:3070 (152:107) Hungry Planet: Global Geographies of Food	3 s.h.
GEOG:3110 (044:131)/GHS:4111 (152:131) Geography of Health	3 s.h.
GEOG:3760 (044:175) Hazards and Society	3 s.h.
GEOG:4750 (044:125) Environmental Impact Analysis	4 s.h.
GHS:3010 (152:150) Identifying and Developing a Global Health Project	2-3 s.h.
GHS:3020 (152:151) Proseminar in Global Health	1 s.h.
GHS:3030 (152:152) Global Health Conference	1 s.h.
GHS:3060 (152:154) Studies in Complementary and Alternative Medicine	3 s.h.
GHS:3110 (152:121)/ANTH:3110 (113:121)/AINS:3110 (149:121) Health of Indigenous Peoples	3 s.h.
GHS:3131 (152:170)/SLAV:3131 (041:104) Health Care and Health Reforms in Russia	3 s.h.
GHS:3720 (152:160) Global Health Seminar	3 s.h.

GHS:3850 (152:158) Promoting Health Globally	3 s.h.
GHS:4100 (152:125) Topics in Global Health	1-3 s.h.
GHS:4160 (152:137)/HIST:4160 (16W:137) History of Public Health	3 s.h.
GHS:4230 (152:182) Health Experience of Immigrants, Migrants, and Refugees	3 s.h.
GHS:4340 (152:135)/HHP:4340 (027:135) Global Health and Global Food	3 s.h.
GHS:4600 (152:120) Global Health and Human Rights	2-3 s.h.
HIST:4162 (16W:138)/GHS:4162 (152:138) History of Global Health	3 s.h.
HIST:4508 (16W:108) Medicine and Public Health in Latin America, 1820-2000	3 s.h.
HIST:4605 (16W:140) Disease, Politics, and Health in South Asia	2-4 s.h.
OEH:4210 (175:111)/GHS:4210 (152:111)/EPID:4210 (173:111) International Health	3 s.h.
PHAR:8788 (046:126)/CEE:4788 (053:126)/GHS:4126 (152:126) International Perspectives: Xicotepec	2 s.h.
RELS:3580 (032:180) Religion and Healing	3 s.h.
SSW:3135 (042:135)/GHS:3050 (152:153)/ASP:3135 (153:135) Global Aging	3 s.h.

Global Resources and the Environment Track

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

AINS:3554 (149:154) Native Histories and Endurance in the Greater Midwest	3 s.h.
ANTH:2136 (113:116) Urban Anthropology	3 s.h.
ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
ANTH:3103 (113:143) Environment and Culture	3 s.h.
ANTH:3112 (113:114) Environmentalisms	3 s.h.
ANTH:4130 (113:139) Religion and Environmental Ethics	3 s.h.
CEE:4141 (053:141)/GHS:4141 (152:141) Design for the Developing World	3 s.h.
CL:3222 (218:122) City as Text/Text as City	3 s.h.
ECON:3625 (06E:133)/URP:3135 (102:135) Environmental and Natural Resource Economics	3 s.h.
GEOG:1020 (044:003) The Global Environment	3 s.h.
GEOG:1060 (044:060) Geography of Asia: From Japan to Pakistan	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:1090 (044:010) Globalization and Geographic Diversity	3 s.h.
GEOG:2110 (044:011) Population Geography	3 s.h.
GEOG:2130 (044:055) World Cities	3 s.h.
GEOG:2410 (044:104) Environment and Development	3 s.h.
GEOG:3070 (044:107)/GHS:3070 (152:107) Hungry Planet: Global Geographies of Food	3 s.h.

GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy	3 s.h.	RELS:1810 (032:016) Religion and Liberation	3 s.h.
GEOG:3760 (044:175) Hazards and Society	3 s.h.	RELS:2775 (032:150) The Bible and the Holocaust	3 s.h.
GEOG:3780 (044:120) U.S. Energy Policy in Global Context	3 s.h.	RELS:2962 (032:062) Islam in the Public Sphere: Arts, Literature, Culture, and Politics	3 s.h.
GEOG:4750 (044:125)/URP:4750 (102:125) Environmental Impact Analysis	4 s.h.	RELS:3808 (032:108)/AFAM:3500 (129:108) Malcolm X, King, and Human Rights	3 s.h.
GEOG:4770 (044:177) Environmental Justice	3 s.h.	RELS:3855 (032:155) Human Rights and Islam	3 s.h.
GHS:4340 (152:135)/HHP:4340 (027:135) Global Health and Global Food	3 s.h.	SOC:2430 (034:080) Comparative Criminal Justice Systems	3 s.h.
RELS:3976 (032:076)/AINS:3276 (149:076) American Indian Environmentalism	3 s.h.	SOC:3415 (034:045) Global Criminology	3 s.h.
RHET:3700 (010:170) Rhetoric of Sustainability	3 s.h.	WLLC:3185 (218:185) Global Women's Cinema	3 s.h.
URP:3140 (102:140) Planning for Sustainability	3 s.h.		

Human Rights Track

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

ASIA:1770 (039:017) Asian Humanities: Middle East	3 s.h.
CLSA:2384 (20E:084) Killers, Crooks, and Deviants: Ancient Law and Society	3 s.h.
EPLS:5104 (07B:104) Education in the Third World	2-3 s.h.
GEOG:4770 (044:177) Environmental Justice	3 s.h.
GEOG:4960 (044:164) The Middle East	3 s.h.
GHS:4230 (152:182) Health Experience of Immigrants, Migrants, and Refugees	3 s.h.
GHS:4600 (152:120) Global Health and Human Rights	2-3 s.h.
GWSS:3157 (131:157)/HIST:3157 (016:157) Gender, Sexuality, and Human Rights	3 s.h.
HIST:4101 (016:101) History of Human Rights	3 s.h.
HIST:4526 (16W:116) Dictatorships of Latin America	3 s.h.
HIST:4617 (16W:174) History, Memory, and Pacific War	3 s.h.
HRTS:2115 (216:080) Introduction to Human Rights	3 s.h.
HRTS:3900 (216:175) Child Labor and International Human Rights	3 s.h.
HRTS:3905 (216:176) Topics in Human Rights	1-3 s.h.
HRTS:3910 (216:180) Human Rights Advocacy	3 s.h.
HRTS:3915 (216:181) Human Rights and the Arts	3 s.h.
JMC:3300 (019:140) Media Law and Communication	3 s.h.
LAW:8570 (091:193) Human Rights in the World Community	1-3 s.h.
LAW:8698 (091:307) Law in the Muslim World	2-3 s.h.
LING:1040 (103:045)/ANTH:1040 (113:045) Language Rights	3 s.h.
PHIL:1034 (026:034) Philosophy and the Just Society	3 s.h.
PHIL:3430 (026:130) Philosophy of Human Rights	3 s.h.
PHIL:4482 (026:182) History of Ethics	3 s.h.
POLI:3513 (030:197) Politics of International Human Rights Law	3 s.h.

International Business Track

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.
CHIN:3103 (039:117) Business Chinese I	3 s.h.
CHIN:3104 (039:118) Business Chinese II	3 s.h.
CHIN:3260 (039:130) Conversational Business Chinese	3 s.h.
COMM:2042 (036:042) Intercultural Communication	3 s.h.
COMM:4142 (036:142) Advanced Intercultural Communication	3 s.h.
ECON:3345 (06E:125) Global Economics and Business	3 s.h.
ECON:3620 (06E:129) Economic Growth and Development	3 s.h.
ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
ECON:4110 (06E:173) International Economics	3 s.h.
ENTR:4460 (06T:152) Entrepreneurship and Global Trade	3 s.h.
FIN:4240 (06F:130) International Finance	3 s.h.
FREN:1510 (009:030) Cultural Misunderstandings: France and U.S.A.	3 s.h.
FREN:3410 (009:115) Business French	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.
GRMN:2720 (13E:120) Germany in the World	3-4 s.h.
GRMN:3214 (013:114) Business German	3 s.h.
HIST:3126 (016:126) History of Globalization	3 s.h.
MGMT:3450 (06J:146) International Business Environment	3 s.h.
MKTG:4300 (06M:151) International Marketing	3 s.h.
POLI:3502 (030:167) Politics and the Multinational Enterprise	3 s.h.
POLI:3516 (030:170) The Politics of International Economics	3 s.h.
PORT:3130 (038:108) Business Portuguese	3 s.h.
SPAN:3040 (035:118) Business Spanish	3 s.h.
SPAN:3080 (035:168) Advanced Business Spanish	3 s.h.

International Communication and Information Track

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

IS:2042 (187:042)/COMM:2042 (036:042)/SSW:2042 (042:042) Intercultural Communication	3 s.h.
ANTH:1401 (113:014) Language, Culture, and Communication	3 s.h.
ASIA:1135 (039:135) Korean Language in Culture and Society	3 s.h.
CHIN:3201 (039:143) Workshop in Chinese Literary Translation	3 s.h.
CL:3152 (218:152)/IWP:3152 (181:152) America in Other Words	1-3 s.h.
COMM:1174 (036:074) Media and Society	3 s.h.
COMM:2071 (036:071) Communication and Critical/Cultural Studies	3 s.h.
COMM:2086 (036:086) Global Media Studies	3 s.h.
COMM:4131 (036:131) Globalization and Culture	3 s.h.
COMM:4142 (036:142) Advanced Intercultural Communication	3 s.h.
COMM:4152 (036:152) Latin American Media	3 s.h.
COMM:4173 (036:173) Social Media, Culture, and Politics	3 s.h.
COMM:4174 (036:174) Communication, Technology, and National Security	3 s.h.
EPLS:5104 (07B:104) Education in the Third World	2-3 s.h.
FREN:1510 (009:030) Cultural Misunderstandings: France and U.S.A.	3 s.h.
FREN:4890 (009:197)/TRNS:4497 (218:197) Techniques of Translation	3 s.h.
GRMN:3555 (013:155) Image of America in German Literature and Film	3 s.h.
GRMN:3807 (013:107) Introduction to German Linguistics	3 s.h.
GRMN:3865 (013:165) History of the German Language	3 s.h.
ITAL:4350 (018:114) Studies in Italian Language	3 s.h.
IWP:3191 (181:191) International Literature Today	1,3 s.h.
JMC:3130 (019:156) Comparative Communication Systems	3 s.h.
JMC:3155 (019:161) Law, Media, and Current Issues	3 s.h.
JMC:3160 (019:164) Images and Society	3 s.h.
JMC:3300 (019:140) Media Law and Communication	3 s.h.
JPNS:3201 (39J:130) Workshop in Japanese Literary Translation	3 s.h.
JPNS:3401 (39J:103) Language in Japanese Society	3 s.h.
JPNS:3402 (39J:129) Japan: Culture and Communication	3 s.h.
LING:1010 (103:011) Language and Society	3 s.h.

LING:1020 (103:020) Introduction to the Study of Language	3 s.h.
LING:1060 (103:055) Languages of the World	3 s.h.
LING:3100 (103:150) Language and Gender	3 s.h.
POLI:1600 (030:070) Introduction to Political Communication	3 s.h.
POLI:3515 (030:166) Global Communication and Politics	3 s.h.
RELS:2289 (032:089)/CLSA:2489 (20E:089) Jerusalem from the Bronze to the Digital Age	3 s.h.
RHET:3700 (010:170) Rhetoric of Sustainability	3 s.h.
SPAN:2030 (035:109) Study of Language: Myths and Concepts	3 s.h.
SPAN:3020 (035:119) Journalistic Writing in Spanish	3 s.h.
SPAN:3030 (035:117) Translation Workshop: English to Spanish	3 s.h.
SPAN:3050 (035:129) Translation Workshop: Spanish to English	3 s.h.
SPAN:3100 (035:121) Introduction to Hispanic Linguistics	3 s.h.
SPAN:3130 (035:124) Introduction to Bilingualism	3 s.h.
SPAN:3150 (035:126) Spanish Applied Linguistics	3 s.h.
SPAN:4370 (035:177) Literature and Mass Culture in Latin America	3 s.h.
SPAN:4940 (035:169) Journalistic Narrative	3 s.h.
TRNS:3480 (218:180) Literature and Translation	3 s.h.

Islamic and Middle Eastern Studies

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

ANTH:3275 (113:196)/CLSA:3596 (20E:196) The Archaeology of Ancient Egypt	3 s.h.
ARAB:1050 (195:050) Topics in Middle East/Muslim World Studies I	3 s.h.
ARAB:2025 (195:126) Study Abroad: Culture and Society	1 s.h.
ARAB:2050 (195:125) Topics in Middle East/Muslim World Studies II	3 s.h.
ARTH:3320 (01H:110) Egyptian Art	3 s.h.
ASIA:1770 (039:017) Asian Humanities: Middle East	3 s.h.
CLSA:1181 (20E:081)/GHS:1181 (152:081) Ancient Medicine	3 s.h.
CLSA:2482 (20E:082) Ancient Mediterranean Religions	3 s.h.
CLSA:3144 (20E:144)/HIST:3405 (16E:105) Engineering and Technology in the Ancient Mediterranean	3 s.h.
CLSA:3445 (20E:145)/RELS:3245 (032:145) Mythology of Otherworldly Journeys	3 s.h.
CLSA:4181 (20E:181) History of Western Medicine	3 s.h.
GEOG:4960 (044:164) The Middle East	3 s.h.

HIST:2461 (016:045)/RELS:2361 (032:061)/ CLSA:2461 (20E:071) Middle East and Mediterranean: Alexander to Suleiman	3 s.h.	UICB:5110 (108:132) Islamic/Asian Papermaking History and Technique	3 s.h.
HIST:2462 (016:046) Middle East and Mediterranean: Saladin to Napoleon	3 s.h.	Latin American Studies Track	
HIST:4419 (16E:139) Ancient and Medieval Science	3 s.h.	Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.	
HIST:4466 (16E:145)/FREN:4466 (009:145) France and Algeria from Pirates to Terrorism	3 s.h.	ANTH:2110 (113:131) Latin American Economy and Society	3 s.h.
HIST:4724 (16W:124) Crossing the Indian Ocean	3 s.h.	ANTH:2220 (113:163) Archaeology of Mesoamerica	3 s.h.
HIST:4728 (16W:128) Identity, Trade, and Diaspora	3 s.h.	ANTH:3111 (113:119)/GHS:3040 (152:119) Health in Mexico	3 s.h.
HIST:4730 (16W:126) Slavery, Jihads, and Saints in Islamic Africa	3 s.h.	ARTH:3120 (01H:105) Art of Pre-Columbian America	3 s.h.
HIST:4810 (16W:152) History of the Modern Middle East	3 s.h.	CINE:2624 (048:024) Introduction to Latin American Film	3 s.h.
HIST:4815 (16W:153) Topics in the Modern Middle East	3 s.h.	CL:2700 (218:075) Romani (Gypsy) Cultures of Eastern Europe	3 s.h.
LAW:8698 (091:307) Law in the Muslim World	2-3 s.h.	COMM:4152 (036:152) Latin American Media	3 s.h.
POLI:1403 (030:043) Introduction to Politics in the Muslim World	3 s.h.	DANC:1150 (137:057) Brazilian Culture and Carnival	3 s.h.
POLI:3406 (030:156) Ethnic and Religious Conflict in the Muslim World	3 s.h.	ENGL:3525 (008:113) Literature and Culture of the Americas	3 s.h.
POLI:3419 (030:145) War in the Muslim World	3 s.h.	ENGL:3535 (008:133) Inter-American Studies	3 s.h.
POLI:3422 (030:135) Transnational Issues and the Horn of Africa	arr.	HIST:4216 (16A:112) Mexican American History	3 s.h.
POLI:3423 (030:105) The Middle East: Policy and Diplomacy	3 s.h.	HIST:4217 (16A:113) Latina/o Immigration	3 s.h.
RELS:1070 (032:011) Introduction to the Hebrew Bible/Old Testament	3 s.h.	HIST:4334 (16W:134) Topics in American Borderlands History	3 s.h.
RELS:1130 (032:030) Introduction to Islamic Civilization	3 s.h.	HIST:4501 (16W:106) Society and Revolution in Cuba	3 s.h.
RELS:2289 (032:089)/CLSA:2489 (20E:089) Jerusalem from the Bronze to the Digital Age	3 s.h.	HIST:4502 (16W:107)/AINS:4502 (149:107) History of Mexico	3 s.h.
RELS:2730 (032:063)/AFAM:2730 (129:063) African American Islam	3 s.h.	HIST:4505 (16W:110) Topics in Latin American History	3 s.h.
RELS:2852 (032:052)/GWSS:2052 (131:060) Women in Islam and the Middle East	3 s.h.	HIST:4508 (16W:108) Medicine and Public Health in Latin America, 1820-2000	3 s.h.
RELS:2962 (032:062) Islam in the Public Sphere: Arts, Literature, Culture, and Politics	3 s.h.	HIST:4510 (16W:111) Colonial Latin America	3 s.h.
RELS:3020 (032:157) Religion and Politics	3 s.h.	HIST:4515 (16W:112) Introduction to Modern Latin America	3 s.h.
RELS:3105 (032:105) The World of the Old Testament	3 s.h.	HIST:4520 (16W:114) Latin America and the U.S.: The Historical Perspective	3 s.h.
RELS:3243 (032:143) Early Christianity: From Jesus to the Rise of Islam	3 s.h.	HIST:4525 (16W:115) Latin American Revolution	3 s.h.
RELS:3340 (032:109) Recovering Eden: The Afterlife in Early Judaism and Christianity	3 s.h.	HIST:4526 (16W:116) Dictatorships of Latin America	3 s.h.
RELS:3704 (032:104)/ARTH:3320 (01H:110) Egyptian Art	3 s.h.	LAS:2700 (130:070)/IS:2700 (187:070)/ SPAN:2700 (035:070)/PORT:2700 (038:070) Introduction to Latin American Studies	3 s.h.
RELS:3855 (032:155) Human Rights and Islam	3 s.h.	MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
RELS:4133 (032:133) Special Topics: Islamic and Middle Eastern Societies	3 s.h.	POLI:3104 (030:108) Immigration Politics	3 s.h.
RELS:4352 (032:152) The Dead Sea Scrolls	3 s.h.	POLI:3415 (030:144) Latin American Politics	3 s.h.
RELS:4768 (032:168) Islamic Sects	3 s.h.	PORT:1800 (038:020) Contemporary Brazilian Narrative	3 s.h.
RELS:4859 (032:159)/LAW:8250 (091:223) Comparative Islamic Law	3 s.h.	PORT:2800 (038:115) Writing Brazil in the U.S.	3 s.h.
RELS:4870 (032:179)/SPAN:4870 (035:179) Islamic Cultural Presence in Spain	3 s.h.	PORT:3350 (038:105) Brazilian Literature Before 1900	3 s.h.
SLAV:3100 (041:165) West and East: Women in the Slavic World	3 s.h.		

PORT:3400 (038:106) Brazilian Literature After 1900	3 s.h.	ASIA:1770 (039:017) Asian Humanities: Middle East	3 s.h.
PORT:4000 (038:112) Topics in Luso-Brazilian Literature	3 s.h.	ENGL:2505 (008:031) Introduction to Postcolonial Studies	3 s.h.
PORT:4100 (038:120) Topics in Luso-Brazilian Culture	3 s.h.	ENGL:3510 (008:164) Topics in Transnational Literature	3 s.h.
SLAV:3124 (041:157) Invitation to Nabokov	3 s.h.	ENGL:3515 (008:138) Topics in Postcolonial Studies	3 s.h.
SPAN:1800 (035:020) Contemporary Spanish American Narrative	3 s.h.	ENGL:3525 (008:113) Literature and Culture of the Americas	3 s.h.
SPAN:2200 (035:114) Introduction to Spanish American Cultures	3 s.h.	ENGL:3535 (008:133) Inter-American Studies	3 s.h.
SPAN:2500 (035:111) Readings in Spanish American Literature	3 s.h.	ENGL:3540 (008:132) Literature of the Indian Subcontinent	3 s.h.
SPAN:2800 (035:113) Screening Latin America	3 s.h.	ENGL:3570 (008:161)/CL:3570 (218:161) Transnational and Postcolonial Writing by Women	3 s.h.
SPAN:2900 (035:107) Music of the Hispanic World	3 s.h.	ENGL:3590 (008:165) People on the Move	3 s.h.
SPAN:3200 (035:130) Cultures of Spanish America	3 s.h.	FREN:3130 (009:120) French-Speaking Cultures	3 s.h.
SPAN:3220 (035:149) Visual Culture: Colonial Spanish America	3 s.h.	FREN:4015 (009:166) Francophone Cinema	3-4 s.h.
SPAN:3230 (035:138) Modern Mexico	3 s.h.	FREN:4080 (009:168) Post-Colonial Literature in France	3 s.h.
SPAN:3300 (035:131) Contemporary Spanish American Fiction	3 s.h.	FREN:4110 (009:163) Francophone Literature of the African Diaspora	3 s.h.
SPAN:3310 (035:134) Spanish American Short Story	3 s.h.	GWSS:2150 (131:149)/ANTH:2150 (113:115) Transnational Feminism	3 s.h.
SPAN:3320 (035:132) Spanish American Poetry	3 s.h.	HIST:3255 (016:082) The World Since 1945	3 s.h.
SPAN:3350 (035:140) Contemporary Spanish American Literature	3 s.h.	HIST:4216 (16A:112) Mexican American History	3 s.h.
SPAN:3360 (035:144)/GWSS:3360 (131:162) Latin American Women Writers	3 s.h.	HIST:4272 (16A:163) Native Americans in the Age of Empires, ca. 1500-1815	3 s.h.
SPAN:3440 (035:135) Topics in Latino/a Literature and Culture	3 s.h.	HIST:4289 (16W:160)/AINS:4289 (149:160) The Atlantic World c. 1450-1850	3 s.h.
SPAN:4330 (035:173) Colonial Spanish American Literature	3 s.h.	HIST:4438 (16E:130) Modern European Imperialism	3 s.h.
SPAN:4350 (035:171) Twentieth-Century Spanish American Theater and Performance	3 s.h.	HIST:4466 (16E:145)/FREN:4466 (009:145) France and Algeria from Pirates to Terrorism	3 s.h.
SPAN:4370 (035:177) Literature and Mass Culture in Latin America	3 s.h.	HIST:4520 (16W:114) Latin America and the U.S.: The Historical Perspective	3 s.h.
SPAN:4380 (035:193) Narratives of Underdevelopment	3 s.h.	HIST:4640 (16W:194) Imperialism and Modern India	3 s.h.
SPAN:4390 (035:178) Topics in Spanish American Literature	3 s.h.	HIST:4728 (16W:128) Identity, Trade, and Diaspora	3 s.h.
SPAN:4810 (035:191)/CINE:4678 (048:178) Topics in Latin American Cinema	3 s.h.	HIST:4815 (16W:153) Topics in the Modern Middle East	3 s.h.
SPAN:4900 (035:176)/HIST:4504 (16W:109)/PORT:4700 (038:176)/CL:4700 (218:153)/ANTH:4700 (113:132)/LAS:4700 (130:176) Latin American Studies Seminar	3 s.h.	MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
Postcolonial and Diasporic Studies Track		POLI:3104 (030:108) Immigration Politics	3 s.h.
Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.		POLI:3508 (030:164) Race in World Politics	3 s.h.
AINS:2085 (149:085) Native American Material Culture	3 s.h.	PORT:4100 (038:120) Topics in Luso-Brazilian Culture	3 s.h.
AINS:3554 (149:154) Native Histories and Endurance in the Greater Midwest	3 s.h.	RELS:3808 (032:108)/AFAM:3500 (129:108) Malcolm X, King, and Human Rights	3 s.h.
ANTH:1008 (113:067) Anthropology of Immigration	3 s.h.	SPAN:3440 (035:135) Topics in Latino/a Literature and Culture	3 s.h.
ANTH:3237 (113:124) Politics of the Archaeological Past	3 s.h.	SPAN:4350 (035:171) Twentieth-Century Spanish American Theater and Performance	3 s.h.
		Russian, East European, and Eurasian Studies Track	
		Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include	

at least 12 s.h. in upper-level courses numbered 3000 or above.

ARTH:3864 (01H:164) Nazi and Stalinist Art: Aesthetics of Power	3 s.h.
CL:2700 (218:075) Romani (Gypsy) Cultures of Eastern Europe	3 s.h.
HIST:4493 (16E:178) Soviet Union 1917-1945	3-4 s.h.
POLI:1401 (030:041) Introduction to the Politics of Russia and Eurasia	3 s.h.
POLI:3410 (030:146) Russian Foreign Policy	3 s.h.
POLI:3413 (030:141) Russian Politics	3 s.h.
SLAV:1131 (041:098) Introduction to Russian Culture	3 s.h.
SLAV:1132 (041:099) Russia Today	3 s.h.
SLAV:1450 (041:058) Diversities of Eastern Europe: Culture, Art, and Politics	3 s.h.
SLAV:1531 (041:093) Slavic Folklore	3 s.h.
SLAV:1532 (041:094) Religion and Culture of Slavs	3 s.h.
SLAV:2100 (041:150) Secrets of Russian Mentality	3 s.h.
SLAV:2131 (041:160) Women in Russian Society	3 s.h.
SLAV:2531 (041:164)/CL:2531 (218:164) Topics in Russian, East European, and Eurasian Studies	3 s.h.
SLAV:3082 (041:082) Youth Subcultures After Socialism	3 s.h.
SLAV:3100 (041:165) West and East: Women in the Slavic World	3 s.h.
SLAV:3122 (041:155)/CL:3122 (218:149) Tolstoy and Dostoevsky	3-4 s.h.
SLAV:3124 (041:157) Invitation to Nabokov	3 s.h.
SLAV:3131 (041:104)/GHS:3131 (152:170) Health Care and Health Reforms in Russia	3 s.h.
SLAV:3202 (041:102)/CL:3302 (218:107) Russian Literature in Translation 1860-1917	3 s.h.
SLAV:3221 (041:168)/CL:3221 (218:154) Twentieth-Century Czech Authors	3 s.h.
SLAV:3250 (041:190) Readings in Russian Literature	3 s.h.

South Asian Studies Track

Students must complete a minimum of 18 s.h. for the track, chosen from the following list. They must include at least 12 s.h. in upper-level courses numbered 3000 or above.

ANTH:2108 (113:107)/GWSS:2108 (131:107) Gendering India	3 s.h.
ANTH:3121 (113:127)/GWSS:3121 (131:127) Love and Kinship in South Asia	3 s.h.
ASIA:2450 (039:048) India Beat: The Aesthetics and Politics of India Today	3 s.h.
ASIA:4606 (039:145)/CINE:4606 (048:106) Topics in Asian Cinema	3 s.h.
ENGL:3540 (008:132) Literature of the Indian Subcontinent	3 s.h.
ENGL:3570 (008:161)/CL:3570 (218:161) Transnational and Postcolonial Writing by Women	3 s.h.
ENGL:3590 (008:165) People on the Move	3 s.h.

EPLS:5104 (07B:104) Education in the Third World	2-3 s.h.
GEOG:1060 (044:060) Geography of Asia: From Japan to Pakistan	3 s.h.
HIST:2606 (016:007)/ASIA:2606 (039:057) Civilizations of Asia: South Asia	3-4 s.h.
HIST:2609 (016:009) India Now! A Survey from Bollywood Films to Global Terror	3 s.h.
HIST:4605 (16W:140) Disease, Politics, and Health in South Asia	2-4 s.h.
HIST:4640 (16W:194) Imperialism and Modern India	3 s.h.
HIST:4724 (16W:124) Crossing the Indian Ocean	3 s.h.
RELS:1404 (032:004)/ASIA:1040 (039:064) Living Religions of the East	3 s.h.
RELS:1410 (032:014) Introduction to Indian Religions	3 s.h.
RELS:1506 (032:006)/ASIA:1060 (039:006) Introduction to Buddhism	3 s.h.
RELS:3448 (032:148) The Allure of Krishna: Sacred Sexuality in Indian Culture	3 s.h.
RELS:3560 (032:170)/ASIA:3560 (039:168) Topics in Asian Religions	3 s.h.
RELS:3575 (032:178)/ASIA:3775 (039:188) East Meets West: The Western Reception of Eastern Religion	3 s.h.
RELS:3580 (032:180) Religion and Healing	3 s.h.
SOAS:1502 (039:018) Asian Humanities: India	3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete in order to stay on the University's Four-Year Graduation Plan.

Note: Students who intend to study abroad during their junior year should schedule an appointment during their fourth semester to meet with an advisor from Study Abroad; those who intend to study abroad during their senior year should schedule an appointment during their sixth semester.

Before the fifth semester begins: at least the two introductory courses and one foundation course

Before the seventh semester begins: at least nine courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least 12 courses in the major, including the required research preparation course for program option B students or the first writing course for program option C students

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in international studies have the opportunity to graduate with honors in the major. International studies honors students must maintain a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in all course work for the major and in all course work that may be applied to the major.

To graduate with honors in the major, students must complete a minimum of 45 s.h. for the major (an additional 3 s.h.), including at least 15 s.h. in upper-level course work numbered 3000 or above and at least 6 s.h. in courses designated as honors courses. Students may meet this requirement in one of two ways. They may complete 21 s.h. in a single track, with at least 15 s.h. in upper-level courses numbered 3000 or above. Or they may select courses from two tracks, completing at least 12 s.h. in the first track, including 9 s.h. in upper-level courses numbered 3000 or above; and completing at least 9 s.h. in the second track, including 6 s.h. in upper-level courses numbered 3000 or above.

Honors students completing the Certificate in Global Health Studies, International Business, or Latin American Studies or the minor in global health studies or Latin American studies may not choose an international studies track that corresponds with those certificate(s) or minor(s). Those who choose the two-track option may not choose a first track that corresponds with those certificate(s) or minor(s).

Honors students must choose program option B for the major. Instead of taking IS:4990 (187:199) International Studies Senior Project, they take IS:4991 (187:198) Honors Thesis in International Studies, they present their research in a poster session.

In addition to pursuing honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program. Learn about the program by visiting Honors at Iowa.

Minor

The minor in international studies requires a minimum of 15 s.h. in courses approved for the international studies major, including 12 s.h. in courses numbered 3000 or above taken at The University of Iowa. The minor must include IS:2000 (187:020) Introduction to International Studies or one of the major's foundation courses. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. To preserve the interdisciplinary nature of the minor, students may count a maximum of 6 s.h. from a single department or program, from the Tippie College of Business, or from a major, another minor, or a certificate toward the minor in international studies.

Courses

Lower-Level Undergraduate

- IS:1000 (187:010) Designing Your International Studies Major** 1 s.h.
Importance of interdisciplinarity, global perspectives, and world language study for 21st-century liberal education; intentional planning of courses and other out-of-class experiences to prepare students for life and career after college.
- IS:1101 (187:008) Cultural Anthropology** 3 s.h.
Comparative study of culture, social organization. GE: Social Sciences; Values, Society, and Diversity. Same as ANTH:1101 (113:003).

- IS:2000 (187:020) Introduction to International Studies** 3 s.h.
Introduction to the interdisciplinary field of international studies.
- IS:2012 (187:003) Issues in International Studies** 1 s.h.
Modules focusing on varied topics, taught by international studies faculty members.
- IS:2013 (187:004) Issues in International Studies** 1-3 s.h.
Modules focusing on varied topics, taught by international studies faculty members.
- IS:2014 (187:012) Germany and the Amanas** 1 s.h.
Contemporary issues of Germany, patterns of immigration to Amana, Iowa.
- IS:2015 (187:013) Poland and the Czech Republic** 1 s.h.
Contemporary issues of Poland, the Czech Republic, and Slovakia; immigration paths to the United States, and Iowa settlements.
- IS:2016 (187:014) The Netherlands and Pella** 1 s.h.
History and culture of the Netherlands; immigration pattern of the Dutch who came to Pella, Iowa.
- IS:2042 (187:042) Intercultural Communication** 3 s.h.
Culture defined as a system of taken-for-granted assumptions about the world that influence how people think and act; cultural differences that produce challenges and opportunities for understanding and communication; those differences from several theoretical perspectives; opportunities to examine culture and cultural differences in practical, experience-driven ways. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as SSW:2042 (042:042), COMM:2042 (036:042).
- IS:2111 (187:006) Developed and Developing Places** 3 s.h.
Geography and the world distribution of key cultural factors—population, religion, and per capita income; economic and demographic differences between developed and developing countries.
- IS:2112 (187:007) The European Union** 3 s.h.
Brief history and rationale for the European Union; environmental, economic, social, and political aspects of this potential superpower.
- IS:2115 (187:080) Introduction to Human Rights** 3 s.h.
Analysis and evaluation of the international human rights program; relationship between human rights and international law. Same as HRTS:2115 (216:080).

IS:2700 (187:070) Introduction to Latin American Studies 3 s.h.

Cultures of Latin American countries with emphasis on cultural history and cultural production; interdisciplinary survey. Same as SPAN:2700 (035:070), PORT:2700 (038:070), LAS:2700 (130:070).

Upper-Level Undergraduate and Graduate

IS:3010 (187:095) Creating a Proposal for International Research 2 s.h.

Major components of research process; development of intellectually challenging and personally engaging topics of international research. Requirements: junior or higher standing.

IS:3011 (187:096) Library Strategies for International Research 1 s.h.

Skill development in international research; academic projects; work with research librarian; activity-based introduction to article, statistical, and governmental databases; research and popular materials; information discovery process (tools and search strategies); enhancement of critical thinking skills. Same as ULIB:3011 (417:096).

IS:3020 (187:122) Writing Projects in International Studies 1-3 s.h.

Writing project on a subject specified by supervising faculty member; available only in conjunction with a regularly offered course.

IS:3110 (187:110) Global at Iowa 0-1 s.h.

Peer mentoring to a small group of international students undergoing an orientation course that promotes academic success and cultural adjustment at The University of Iowa; training sessions; meetings with international students to facilitate small-group discussions; organized outings to University-sponsored events to promote crosscultural understanding and enhance international students' experiences as members of the University of Iowa community.

IS:3133 (187:133) Introduction to Public International Law and Human Rights 3 s.h.

Introduction to elementary ideas of public international law; tension between traditional design and transformation brought about by human rights; public international law regarded as law governing conduct of states; how ascendancy of human rights in 20th century has profoundly altered traditional picture; states that respect and actively foster enjoyment of human rights of their populations; when a state engages in killing some of its own people and engages a responsibility to protect by international community. Same as PHIL:3139 (026:139).

IS:3200 (187:134) Political Economy of International Development 3 s.h.

Overview of development theory and debate; increasing role of China and other new players in development funding and projects; development-oriented projects, career paths.

IS:3400 (187:140) International Studies Internship 1-3 s.h.

Professional work experience in internationally-focused positions; faculty supervised. Requirements: junior or senior standing in international studies.

IS:3550 (187:150) Special Topics in International Studies 1-3 s.h.

Special topics related to international studies.

IS:3555 (187:155) Understanding Health and Disease in Africa 3 s.h.

Cultural, historical, and political framework for the delivery of health care services in African nations. Recommendations: junior or higher standing. Same as GHS:3555 (152:155).

IS:3834 (187:126) Arab Spring in Context: Media, Religion, and Geopolitics 3 s.h.

Protest movements that started in Tunisia in 2011 and swept across North Africa and the Middle East transforming Arab and Islamic societies in radically different ways; function of social media, satellite television, communication technology; influence of religious leaders and groups on some protest outcomes; impact of wealth and geopolitics on social fabric of Islamic societies within and outside Arab countries. Requirements: for COMM:3834 (036:129) — g.p.a. of at least 2.50, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as RELS:3834 (032:134), WLLC:3834 (218:165), JMC:3146 (019:146), COMM:3834 (036:129).

IS:3900 (187:175) Child Labor and International Human Rights 3 s.h.

Complexity of child labor in global, regional, national, and local contexts; international human rights system, current programs and strategies for reducing or eliminating abusive child labor. Same as HRTS:3900 (216:175).

IS:3905 (187:176) Topics in Human Rights 1-3 s.h.

Examination of emerging human rights issues from an interdisciplinary and international perspective. Same as HRTS:3905 (216:176).

IS:3910 (187:180) Human Rights Advocacy 3 s.h.

Theoretical foundations and critical issues for international human rights advocacy and international humanitarian movements. Same as HRTS:3910 (216:180).

IS:3990 (187:105) Independent Study in International Studies arr.

Research on a topic of international significance. Requirements: international studies major.

IS:4131 (187:132) Globalization and Culture 3 s.h.

How context for everyday experience has increasingly become globally determined (e.g., ever-increasing transnational migration of people, spread of American culture, growth of international corporations and trade, rise of international conflict and transnational activism); range of theoretical and critical readings on globalization; various phenomena and perspectives regarding topic; themes directly relevant to lives of modern youth; how globalization affects opportunities and risks, identities and relationships. Requirements: for COMM:4131 (036:131) — COMM:1301 (036:001), COMM:1305 (036:005), COMM:1112 (036:012) or COMM:1170 (036:070), COMM:1117 (036:017) or COMM:1130 (036:030), COMM:1168 (036:068) or COMM:1174 (036:074), g.p.a of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as COMM:4131 (036:131).

IS:4990 (187:199) International Studies Senior Project 3 s.h.

Prerequisites: IS:3010 (187:095). Requirements: international studies major.

IS:4991 (187:198) Honors Thesis in International Studies 3 s.h.

Prerequisites: IS:3010 (187:095). Requirements: international studies major.

Journalism and Mass Communication

Director

- David M. Ryfe

Professors

- Julie Andsager, Daniel A. Berkowitz, Stephen G. Bloom, Meenakshi Gigi Durham, Judy Polumbaum, David M. Ryfe

Associate professors

- Stephen Berry, Venise Berry, Frank Durham, Lyombe Eko, Donald McLeese, Jane Singer, Sujatha Sosale

Assistant professors

- Kajsa Dalrymple, Brian Ekdale, Thomas Oates (American Studies/Journalism and Mass Communication), Melissa Tully, Travis Vogan (Journalism and Mass Communication/American Studies), Rachel Young

Lecturer

- Ann Haugland

Professors emeriti

- Joseph Ascroft, Gilbert Cranberg, Pamela J. Creedon, Carolyn Stewart Dyer, John Kimmich, Kenneth Starck, Al Talbott

Associate professors emeriti

- John Erickson, Sue Lafky

Undergraduate major: journalism and mass communication (B.A., B.S.)

Undergraduate minor: mass communication

Graduate degrees: M.A. in journalism; M.A. in strategic communication; Ph.D. in mass communications

Web site: <http://clas.uiowa.edu/sjmc/>

The School of Journalism and Mass Communication offers an undergraduate major and minor as well as graduate degree programs. Undergraduate students in all majors may use approved journalism and mass communication courses to satisfy the General Education Program (p. 323)'s Historical Perspectives, Social Sciences, and Values, Society, and Diversity requirements, and the school's First-Year Seminar is designed specifically for entering undergraduate students.

Undergraduate Programs of Study

- Major in journalism and mass communication (Bachelor of Arts, Bachelor of Science)
- Minor in mass communication

Media writing and visual storytelling form the core of the undergraduate major in journalism and mass communication. Students are required to take both professional and conceptual courses offered by the school; they develop professional skills while studying the historical, legal, cultural, and institutional roles of media in society. They also complete extensive academic

work outside the school, consistent with the University's commitment to the liberal arts and sciences.

The major prepares students for careers in the field. Graduates find employment in a variety of areas, such as public relations, advertising, marketing, political communication, health communication, philanthropy and fundraising communication, newspapers, magazines, radio, television, online communications and social media, publication design, photojournalism, and media research.

The school is accredited by the Accrediting Council on Education in Journalism and Mass Communications.

ADMISSION TO THE MAJOR

Undergraduate students are admitted to the major in journalism and mass communication in one of two ways.

First-year students who enter the University as honors students in the College of Liberal Arts and Sciences or as Presidential Scholars, Old Gold Scholars, or Daily Iowan Scholars are guaranteed admission to the major as long as they have satisfied the necessary prerequisites.

Students who do not enter the University as honors students, Presidential Scholars, Old Gold Scholars, or Daily Iowan Scholars may declare a journalism and mass communication interest and must apply for admission to the major. They typically apply during the semester in which they will complete JMC:1100 (019:090) Media Uses and Effects and JMC:1200 (019:091) Media History and Culture; the General Education Program's Rhetoric requirement; and a total of at least 30 s.h. of course work.

The primary consideration for admission to the major is overall academic performance. Other factors include performance in journalism courses, a statement of interest submitted by the student, and writing ability. All qualified applicants are considered, with overall grade-point average as a major factor in admission. The number of students accepted each semester depends on the number of students currently in the program and available resources. Applications are reviewed with the goal of admitting the most qualified students to the program.

For applications and deadline information, contact the School of Journalism and Mass Communication.

TRANSFER STUDENTS

Transfer students with a declared interest in journalism and mass communication are classified as pre-journalism and mass communication majors. They may apply for admission to the major during the semester in which they will complete at least 30 s.h. of course work at The University of Iowa and other institutions, including the General Education Program's Rhetoric requirement and the two required premajor foundation courses, JMC:1100 (019:090) Media Uses and Effects and JMC:1200 (019:091) Media History and Culture. Students must complete JMC:1100 (019:090) and JMC:1200 (019:091) at The University of Iowa; they may not substitute courses completed at other institutions for either course.

The School of Journalism and Mass Communication may accept transfer credit in journalism earned at institutions accredited by the Accrediting Council on Education in Journalism and Mass Communications. A maximum of 7 s.h. of approved transfer credit may be applied to the major in journalism and mass communication; a maximum of 3 s.h. of approved transfer credit may be applied to the minor in mass communication. Some journalism course

work taken at other schools may be used to fulfill the major's elective and/or second area of concentration requirements.

Students who wish to apply transfer credit toward School of Journalism and Mass Communication requirements must discuss the proposed transfer credit with a journalism faculty advisor and must have approval from the head of undergraduate studies.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts and the Bachelor of Science with a major in journalism and mass communication require a minimum of 120 s.h., including at least 36 s.h. in journalism and mass communication courses, plus a second major or 24 s.h. in a second concentration area. Students must maintain a g.p.a. of at least 2.00 in the major. All students must complete the College of Liberal Arts and Sciences General Education Program.

Students may count a maximum of 48 s.h. earned in School of Journalism and Mass Communication courses (prefix JMC) toward the 120 s.h. required for a B.A. or B.S. degree.

Each student works with an assigned faculty advisor or an educational advisor to develop a study plan that meets the major's requirements. Requirements for the major are consistent with the program's accreditation requirements; the school cannot make exceptions.

Students are encouraged, but not required, to use the University's ifolio system to collect and edit their preprofessional work. They will find the portfolio useful as they interact with faculty members in preparation for entering the job market and for presentation in job interviews.

The journalism major (B.A. and B.S.) requires the following course work.

PREMAJOR FOUNDATION

Both of these:

JMC:1100 (019:090) Media Uses and Effects	3 s.h.
JMC:1200 (019:091) Media History and Culture	3 s.h.

JOURNALISM PROFESSIONAL SKILLS COURSES

Both of these:

JMC:2010 (019:098) Journalistic Reporting and Writing	4 s.h.
JMC:2020 (019:088) Introduction to Multimedia Storytelling	4 s.h.

Intermediate/advanced reporting and writing—two of these:

JMC:3400 (019:120) Specialized Reporting and Writing	4 s.h.
JMC:3405 (019:121) Depth Reporting and Writing	4 s.h.
JMC:3410 (019:122) Magazine Reporting and Writing	4 s.h.
JMC:3411 (019:123) Radio and Television Storytelling	4 s.h.
JMC:3412 (019:124) Strategic Communication Writing	4 s.h.

JMC:3415 (019:128) Writing Across Cultures	4 s.h.
JMC:3450 (019:125) Freelance Reporting and Writing	4 s.h.
JMC:3460 (019:126) Arts and Culture Reporting and Writing	4 s.h.
JMC:3470 (019:127) Narrative Journalism	4 s.h.
JMC:3490 (019:129) Feature Reporting and Writing	4 s.h.
JMC:4100 (019:171) Advanced Reporting and Writing	4 s.h.

Workshop—one of these:

JMC:3600 (019:130) Topics in Media Production	4 s.h.
JMC:3603 (019:134) TV News Production	4 s.h.
JMC:3605 (019:136) Editing the News	4 s.h.
JMC:3610 (019:131) Graphic Design	4 s.h.
JMC:3615 (019:135) Strategic Communication Campaigns	4 s.h.
JMC:3620 (019:138) Applied Digital and Social Media	4 s.h.
JMC:3625 (019:137) Planning and Evaluation of Strategic Campaigns	4 s.h.
JMC:3630 (019:132) Photo Storytelling: Making Powerful Images	4 s.h.
JMC:3633 (019:133) Philanthropy Communication in a Digital World	4 s.h.
JMC:4120 (019:178) Iowa Journalist	4 s.h.
JMC:4130 (019:175) Advanced Public Relations Writing	4 s.h.
JMC:4300 (019:172) Advanced Photo Storytelling	4 s.h.
JMC:4310 (019:173) Advanced Media Workshop	4 s.h.
JMC:4320 (019:174) Advanced Television News	4 s.h.
JMC:4330 (019:176) Visual Storytelling	4 s.h.
JMC:4340 (019:177) Convergence Journalism	4 s.h.

And:

A third reporting and writing course or a second workshop chosen from courses not taken in the lists above	4 s.h.
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CONCEPTUAL COURSES

This course:

JMC:3300 (019:140) Media Law and Communication	3 s.h.
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And one of these:

JMC:3100 (019:157) Fundraising and Philanthropy Communication	3 s.h.
JMC:3105 (019:141) Classic and Contemporary Sports Writing	3 s.h.
JMC:3110 (019:150) Visual Communication	3 s.h.
JMC:3115 (019:151) Solving Communication Problems	3 s.h.
JMC:3120 (019:152) History of Mass Communication in the U.S.	3 s.h.
JMC:3125 (019:154) Media and Consumers	3 s.h.
JMC:3130 (019:156) Comparative Communication Systems	3 s.h.

JMC:3135 (019:143) New Media and the Future of Sport	3 s.h.
JMC:3140 (019:158) News-Editorial Problems	3 s.h.
JMC:3145 (019:159) On the Campaign Trail: Elections and the Media	3 s.h.
JMC:3150 (019:160) Media and Health	3 s.h.
JMC:3155 (019:161) Law, Media, and Current Issues	3 s.h.
JMC:3160 (019:164) Images and Society	3 s.h.
JMC:3165 (019:165) African Americans and the Media	3 s.h.
JMC:3170 (019:166) Communication Technology and Society	3 s.h.
JMC:3175 (019:167) Gender and Mass Media	3 s.h.
JMC:3180 (019:168) Journalism Ethics	3 s.h.
JMC:3181 (019:145) The Business of Sport Communication	3 s.h.
JMC:3185 (019:169) Topics in Mass Communication	2-3 s.h.
JMC:3190 (019:144) Classics of Sports Journalism: From Jack London to Grantland	3 s.h.

OPTIONAL JOURNALISM ELECTIVES

Students may earn elective credit by completing additional journalism and mass communication course work (prefix JMC), but they may not exceed a maximum of 48 s.h. earned in the School of Journalism and Mass Communication toward the 120 s.h. required for the B.A. or B.S. degree. Credit earned in JMC:2100 (019:099) Journalism Internship counts toward the total journalism and mass communication course work that students may apply to the B.A. or B.S. degree.

SECOND MAJOR OR CONCENTRATION AREA

Every student majoring in journalism and mass communication must complete a second major or a concentration area outside the School of Journalism and Mass Communication. Study in the second major or concentration area enables students to acquire a substantial body of knowledge or expertise in a relevant area, learn how another discipline views the world, and/or develop a companion set of skills to those in journalism and mass communication.

Students who satisfy the requirement by completing a concentration area must choose 24 s.h. of related course work in one or more departments; at least 15 of the 24 s.h. must be earned in advanced courses; in most departments, advanced courses are numbered 3000 or above. Course work in the concentration area must be arranged in consultation with the student's advisor; each student must have the advisor's written endorsement of the second major or concentration area before graduation.

The Certificate in Fundraising and Philanthropy Communication does not satisfy the requirement for a second major or concentration area.

Second Major or Concentration Area for the B.A.

Bachelor of Arts students must complete the requirements for the journalism and mass communication major (36 s.h.) and must satisfy the school's second major or concentration area requirement in one of two ways.

Option 1: complete a B.A. major in another department.

Option 2: complete a 24 s.h. concentration of related courses in one or more departments that offer B.A. degrees; at least 15 s.h. of the required 24 s.h. must be earned in advanced courses.

Second Major or Concentration Area for the B.S.

Bachelor of Science students must complete the requirements for the journalism and mass communication major (36 s.h.) and must satisfy the school's second major or concentration area requirement in one of two ways.

Option 1: complete a B.S. major in a natural, mathematical, or social science.

Option 2: complete a 24 s.h. concentration of related courses in the social sciences (economics, geography, political science, psychology, or sociology) and/or the natural and mathematical sciences, earning at least 15 s.h. of the required 24 s.h. in advanced courses; and complete all the special math, research methods, statistics, computer science, and/or cognate science requirements required for the B.S. in the department in which the majority of concentration area courses are taken.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Note: Students must be admitted to the journalism and mass communication major by the first semester of their sophomore year in order to be eligible for the Four-Year Graduation Plan. The checkpoints below include the required work in journalism and mass communication plus a second concentration area, but they do not include the requirements of a second major, since the Four-Year Graduation Plan does not apply to second majors.

Before the third semester begins: JMC:1100 (019:090) Media Uses and Effects and/or JMC:1200 (019:091) Media History and Culture

Before the fifth semester begins: JMC:2010 (019:098) Journalistic Reporting and Writing, JMC:2020 (019:088) Introduction to Multimedia Storytelling, one more course in the major, and at least one course in the second major or concentration area

Before the seventh semester begins: two required professional skills courses; one advanced, conceptual, or elective course in the major; three more courses in the second major or concentration area; and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two more required professional skills courses; one advanced, conceptual, or elective course in the major; and two more courses in the second major or concentration area

During the eighth semester: enrollment in all remaining course work in the major (including the second major or concentration area), all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in journalism and mass communication have the opportunity to graduate with honors in the major. Students in the school's honors program must have a

g.p.a. of at least 3.50 in work for the major. To graduate with honors in the major, they complete JMC:4955 (019:191) Honors Project, earning 3 s.h. of credit in work guided by a faculty member. The honors project may be a thesis or a professional project and typically is completed during the last semester of the senior year. Students are encouraged but not required to take JMC:4950 (019:190) Honors Readings or JMC:4993 (019:193) Honors Workshop to prepare for the project.

Honors students in the school also must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

All majors with an overall g.p.a. of at least 3.33 are encouraged to take any journalism and mass communication course for honors credit and to make use of other honors opportunities in the school. Visit Journalism Honors Program on the school's web site or contact the school's honors advisor for details.

Minor

The minor in mass communication requires a minimum of 15 s.h. in mass communication courses, including 12 s.h. earned in courses considered advanced for the minor taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Courses for the minor may not be taken pass/nonpass.

Conceptual courses numbered JMC:3100 (019:157) Fundraising and Philanthropy Communication through JMC:3190 (019:144) Classics of Sports Journalism: From Jack London to Grantland, and the course JMC:3300 (019:140) Media Law and Communication are considered advanced for the minor. Students are encouraged to take JMC:1100 (019:090) Media Uses and Effects or JMC:1200 (019:091) Media History and Culture as a lower-level course.

The minor introduces students to the field of mass communication; it does not prepare them for careers in media.

National Honor Society

The school's chapter of Kappa Tau Alpha, the national society honoring scholarship in journalism and mass communication, was founded in 1936 and is named for former director Leslie G. Moeller. Students are considered for membership if their grade-point average places them in the top 10 percent of their class and they have completed at least five semesters of University work, including a minimum of 9 s.h. in journalism and mass communication skills courses. Contact the school's Kappa Tau Alpha advisor for details.

Certificate in Fundraising and Philanthropy Communication

The School of Journalism and Mass Communication administers the undergraduate certificate program in fundraising and philanthropy communication; see Fundraising and Philanthropy Communication (p. 310) in the Catalog.

Graduate Programs of Study

- Master of Arts in journalism
- Master of Arts in strategic communication
- Doctor of Philosophy in mass communications

Master of Arts: Journalism

The Master of Arts program in journalism requires 33 s.h. of graduate credit. Students must complete a creative thesis. The program admits students for fall entry.

The M.A. program in journalism focuses on communication. Its approach is academic and theoretical, balanced with substantial development of professional skills, to prepare students for careers in media education. The program is designed for individuals who hold a bachelor's degree in journalism and/or mass communication and wish to continue their education in the field; for experienced journalists or communicators who wish to prepare to teach by earning an M.A. and then a Ph.D.; and for persons who hold a bachelor's degree in another discipline and would like to enter journalism by earning an M.A.

Students in the M.A. program in journalism who wish to enter the school's Ph.D. program in mass communications must complete all M.A. requirements, including the creative thesis, before they may be considered for admission to the Ph.D. program. Professional course work from the M.A. program cannot be applied to the requirements of the Ph.D. program.

M.A. students gain grounding in concepts, theories, and research methods while they pursue a curriculum that emphasizes technology, innovation and media, creative and collaborative multimedia, design for media, cross-media studies, transformed social interactions, and visual communication. They also hone technical skills in reporting, writing, visual and graphic storytelling, design, and digital imaging.

Students choose courses in consultation with their advisors.

All M.A. students must complete the following course work.

JMC:5240 (019:240) Social Media and Online Communication	3 s.h.
JMC:5400 (019:226) Master's Advanced Writing and Editing	3 s.h.
JMC:6255 (019:255) Problems in International Communication	3 s.h.
JMC:6800 (019:279) Mass Communication Seminar	3 s.h.
Courses outside journalism and mass communication	6 s.h.

Students who have not taken a recent U.S. media law class must enroll in JMC:3300 (019:140) Media Law and Communication or an alternative media law course approved by the advisor. They must have the instructor's consent.

All students must complete a thesis—an original, in-depth, theory-based work that combines scholarship and creative production. The thesis must be done in an appropriate and reproducible medium. Students may write conventional theses or produce creative, multimedia, and cross-media theses grounded in digital humanistic and social science traditions. Theses may include original scholarly research, creative visual storytelling, visual ethnography, digital

animation, digital documentary productions, digital literatures, and so forth.

For a more detailed description of the M.A. program in journalism, contact the School of Journalism and Mass Communication.

Master of Arts: Strategic Communication

The Master of Arts program in strategic communication requires a minimum of 30 s.h. of graduate credit. Courses for the program are offered online. They also are offered on location at the John and Mary Pappajohn Education Center in Des Moines, Iowa, but not on the University's Iowa City campus.

The strategic communication program is designed for professionals in a wide variety of areas, such as corporate and organizational communication, public relations, integrated marketing communication, advertising, political and public affairs communication, health communication, event planning, risk communication, and professional writing. The program focuses on the skills, knowledge, and experience that working professionals need, including the ability to anticipate and meet the challenges of radical change in the media landscape.

The M.A. program offers three specializations: health and medicine, political communication, and public affairs communication. It also permits students to design a specialization that fits their interests and needs.

The curriculum consists of core courses, electives, and a capstone project in place of a thesis. In most courses, students are encouraged to introduce case studies and projects from their workplace.

The M.A. in strategic communication requires the following course work.

CORE COURSES

All of these:

JMC:5300 (019:225) Media Principles, Problems, and Challenges	3 s.h.
JMC:5400 (019:226) Master's Advanced Writing and Editing	3 s.h.
JMC:6800 (019:279) Mass Communication Seminar	3 s.h.

JMC:5300 (019:225) provides a conceptual foundation for strategic communication; JMC:5400 (019:226) sharpens students' professional skills; and JMC:6800 (019:279) focuses on best practices of leadership communication both in and outside of corporations and other organizations.

And one or both of these:

JMC:5237 (019:237) Financial and Budget Fundamentals for Communicators	3 s.h.
JMC:5240 (019:240) Social Media and Online Communication	3 s.h.

The program recommends that students complete both JMC:5237 (019:237) and JMC:5240 (019:240); students who complete both may count the second course as an elective.

ELECTIVES

Strategic communication students earn 15 s.h. in elective courses, which they choose in consultation with their advisors. Students choose electives from the list below. They also may choose other electives that are appropriate for their individual programs, drawing from courses offered by the School of Journalism and Mass Communication and by other University of Iowa departments and programs.

JMC:5238 (019:238) Strategic Communication Campaigns	3 s.h.
JMC:5239 (019:239) Strategic Web Video Communication	3 s.h.
JMC:5248 (019:248) Strategic Political Communication	3 s.h.
JMC:5266 (019:266) Risk Communication	3 s.h.
JMC:5267 (019:267) Strategic Health Care Communication	3 s.h.
JMC:5268 (019:268) Strategic Planning for the Communication Professional	3 s.h.
JMC:5269 (019:269) Media Management for Strategic Communicators	3 s.h.
JMC:5285 (019:285) Strategic Communication Externship	3 s.h.

CAPSTONE PROJECT

Strategic communication students complete the following capstone project in place of a thesis.

JMC:5955 (019:299) Masters Research	arr.
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For a more detailed description of the M.A. in strategic communication, contact the School of Journalism and Mass Communication.

Doctor of Philosophy

The Doctor of Philosophy program in mass communications requires 80 s.h. of graduate credit. The program admits students for fall entry. It is designed for students who have completed an M.A. thesis.

The program emphasizes interdisciplinary inquiry into media communication phenomena from sociocultural, historical, and social science perspectives. It is defined by the scholarly interests of its faculty, which include ethnographic, scientific, historical, legal, critical, cultural, social, feminist, and international aspects of media communication, both verbal and visual; comparative communication; convergence; new and emerging media; health communication; popular culture; and globalization. Faculty members use qualitative or quantitative methods in their research and teaching.

The program is highly individualized. In consultation with his or her advisor, each student draws on courses offered by the School of Journalism and Mass Communication as well as other academic units to develop a course of study that reflects his or her academic background, experience, professional goals, and intellectual interests.

Students may count up to 30 s.h. of master's degree credit toward the 80 s.h. required for the Ph.D., with the graduate committee's approval, as long as the credit was earned in courses relevant to the Ph.D. study plan. The Graduate College does not accept transfer credit for professional skills courses. Students who have earned professional master's degrees must take additional Ph.D. course work.

The Doctor of Philosophy in mass communications requires the following course work.

JMC:6100 (019:320) Ph.D. Seminar (taken four times)	4 s.h.
JMC:6210 (019:231) Social Science Theories in Media and Communication	3 s.h.
JMC:6220 (019:232) Critical Cultural Theories in Media and Communication	3 s.h.
JMC:6310 (019:235) Quantitative Research Methods for Media and Communication	3 s.h.
JMC:6320 (019:236) Qualitative Research Methods for Media and Communication	3 s.h.
JMC:6700 (019:265) Approaches to Teaching	3 s.h.
JMC:6999 (019:399) Dissertation	arr.
Advanced research methods courses	3 s.h.
Advanced theory courses	3 s.h.
Journalism and mass communication electives	6 s.h.
Outside concentration courses	9 s.h.
Credit from master's degree and/or additional Ph.D. courses	30 s.h.

For a more detailed description of the Ph.D. program, contact the School of Journalism and Mass Communication.

Joint J.D./M.A. and J.D./Ph.D.

The School of Journalism and Mass Communication and the College of Law offer a joint Juris Doctor/Master of Arts in journalism and a joint Juris Doctor/Doctor of Philosophy in mass communications. The joint degree programs allow students to count a limited amount of credit toward both degrees. Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the joint degree program. Admission for journalism and mass communication graduate programs is for fall entry.

For information about the J.D., see the College of Law (p. 1005) section of the Catalog.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Facilities and Resources

Adler Journalism and Mass Communication Building

The School of Journalism and Mass Communication moved into the Philip D. Adler Journalism and Mass Communication Building in January 2005. The 65,000-square-foot building has computer laboratories for audio, video, design, writing and web publishing, and a resource center. A photography laboratory is located nearby. The building also is home to offices of the Iowa High School Press Association; the Quill and Scroll Society, an international honor society for high school journalists; the University's award-winning student newspaper, *The Daily Iowan*; and *Daily Iowan TV*, a student-run newscast.

Iowa Center for Communication Study

The Iowa Center for Communication Study encourages and facilitates student and faculty research in communication.

It also sponsors publications and provides editorial oversight for the *Journal of Communication Inquiry*.

Financial Support

More than \$170,000 in scholarships and awards is disbursed to journalism and mass communication students each year. Scholarship information and applications are available each fall. Visit Scholarships on the School of Journalism and Mass Communication web site or contact the school.

The school offers research and teaching assistantships for graduate students; preference is given to Ph.D. students. Journalism and mass communication students have been successful in winning competitive fellowships open to all graduate students; applicants must be nominated by the graduate committee.

The school has a program of modest financial support for undergraduate and graduate student research projects.

Professional Enrichment

Internships

The school encourages undergraduate majors and Master of Science professional journalism emphasis students to complete at least one internship. The school's internship and assessment coordinator helps students find appropriate positions.

Undergraduate students may earn up to 4 s.h. of internship credit, registering with appropriate faculty sponsorship for JMC:2100 (019:099) Journalism Internship (1-4 s.h.). Internships do not fulfill requirements for the major, but internship credit counts toward the total journalism and mass communication credit that students may apply toward a B.A. or B.S. degree (maximum of 48 s.h.). Students may take internships for no credit through CCP:1019 (409:019) Internship in Journalism.

Students also are encouraged to pursue opportunities for journalism experience on campus through student-operated media, including *The Daily Iowan*, *Daily Iowan TV*, and KRUI-FM radio.

Job Placement

The school's internship and assessment coordinator helps students seeking career guidance and employment opportunities. The school compiles and publicizes notices of professional jobs open to JMC students and graduates. It also cooperates with the University's Pomerantz Career Center in providing career guidance and placement services as well as workshops and programs on seeking jobs.

Activities

The school engages in a variety of activities for the enrichment of students, faculty, and the entire campus. Speakers visit campus each year under lectureships funded by the John F. Murray and Leslie G. Moeller Fund, and the M. Holly McGranahan Lecture. In addition, guest speakers are funded through the Hearst Visiting Professionals Program and the Hageboeck Daily Iowan Visiting Professionals Program. Campus organizations for students include Kappa Tau Alpha (KTA, a national society honoring scholarship in journalism), the National Association of Black Journalists (NABJ), the Public Relations

Student Society of America (PRSSA), the Society of Professional Journalists (SPJ), and Ed on Campus (EOC).

Courses

Lower-Level Undergraduate

JMC:1000 (019:029) First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

JMC:1100 (019:090) Media Uses and Effects 3 s.h.

Introduction to mass communication theory as it relates to practical applications in the media industry and American society. GE: Social Sciences.

JMC:1200 (019:091) Media History and Culture 3 s.h.

Historical development of journalism in the United States; cultural, historical content. GE: Historical Perspectives.

JMC:1500 (019:050) Social Media Today 3 s.h.

Prehistory of social media and identification of ideas, events, and elements in ancient and historical times; earliest days of online posting and interacting; first instances of social engagement on the Web; how social media (journalism, politics, health care, romance and lifestyle, entertainment, war and terrorism, professions and jobs) affects individual areas of life, culture, and society; what's next and how social media changes lives in the future and affects the fate of humanity. GE: Values, Society, and Diversity.

JMC:2010 (019:098) Journalistic Reporting and Writing 4 s.h.

Fundamental skills of journalistic reporting and writing. Prerequisites: JMC:1100 (019:090) and JMC:1200 (019:091). Corequisites: JMC:2020 (019:088). Requirements: journalism major.

JMC:2020 (019:088) Introduction to Multimedia Storytelling 4 s.h.

Fundamental skills of multimedia storytelling, including visual and digital. Prerequisites: JMC:1100 (019:090) and JMC:1200 (019:091). Corequisites: JMC:2010 (019:098). Requirements: journalism major.

JMC:2100 (019:099) Journalism Internship 1-3 s.h.

Faculty-supervised professional work experience in journalism and mass communication. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.

JMC:2200 (019:096) Communication and Public Relations 3 s.h.

Theory and practice of public relations; cultural, social, organizational roles of public relations, opportunities, problems, and solutions. Requirements: journalism major.

Upper-Level Undergraduate and Graduate

JMC:3100 (019:157) Fundraising and Philanthropy Communication 3 s.h.

Practical experience planning and writing fundraising materials; how yearly fundraising helps approximately 1.5 million nonprofit organizations receive more than \$3 billion from individuals, foundations, and corporations to help people in need, advocate for causes, support research/arts/culture, and enhance opportunities for public and/or their members. Same as FPC:3185 (217:169).

JMC:3105 (019:141) Classic and Contemporary Sports Writing 3 s.h.

Critical reading of sports reportage, including historical and current examples; social and cultural preoccupations and problems viewed through the prism of sports journalism.

JMC:3110 (019:150) Visual Communication 3 s.h.

History of modern visual communication from a cultural perspective; visual form, composition, spatial representation, color and other topics; in-depth study of selected artists, designers, photographers.

JMC:3115 (019:151) Solving Communication Problems 3 s.h.

Fundamentals of scientific inquiry in the study of communication and mass communication behavior; language, concepts, procedures, application of behavioral research methods; field and experimental approaches.

JMC:3120 (019:152) History of Mass Communication in the U.S. 3 s.h.

Historical analysis of professional practices. Prerequisites: JMC:1200 (019:091).

JMC:3125 (019:154) Media and Consumers 3 s.h.

Communications media in historical, political, economic contexts and their relationships with audiences; criteria for evaluating media content in relation to nature and consequences of news, entertainment, advertising.

JMC:3130 (019:156) Comparative Communication Systems 3 s.h.

Culture and communication as central to examining media in different social and political settings; emphasis on contemporary problems.

JMC:3135 (019:143) New Media and the Future of Sport 3 s.h.

Emergence and significance of Internet blogs, social media, convergence journalism, video games, and fantasy sports; economic, regulatory, and cultural forces that shape new media sport journalism and entertainment. Same as SPST:3198 (028:187), AMST:3198 (045:187).

JMC:3140 (019:158) News-Editorial Problems 3 s.h.

Current issues in journalism, editing strategies; emphasis on press performance and practical problems journalists confront in their work.

JMC:3145 (019:159) On the Campaign Trail: Elections and the Media 3 s.h.

Relationship between political campaigns and mass media; critical evaluation of nature, role, function of media political coverage.

JMC:3146 (019:146) Arab Spring in Context: Media, Religion, and Geopolitics 3 s.h.

Protest movements that started in Tunisia in 2011 and swept across North Africa and the Middle East transforming Arab and Islamic societies in radically different ways; function of social media, satellite television, communication technology; influence of religious leaders and groups on some protest outcomes; impact of wealth and geopolitics on social fabric of Islamic societies within and outside Arab countries. Requirements: for COMM:3834 (036:129) — g.p.a. of at least 2.50, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as RELS:3834 (032:134), IS:3834 (187:126), WLLC:3834 (218:165), COMM:3834 (036:129).

JMC:3150 (019:160) Media and Health 3 s.h.

Potential and limits of mass media's ability to educate the public about health; research and theory on the influence of information and entertainment media; theories, models, assumptions of mass communication in relation to public health issues. Same as CBH:3150 (172:140), GHS:3150 (152:159).

JMC:3155 (019:161) Law, Media, and Current Issues 3 s.h.

Current topics in communication law.

JMC:3160 (019:164) Images and Society 3 s.h.

Development and uses of photography, film, and television as technologies of reproduction in contemporary culture.

JMC:3165 (019:165) African Americans and the Media 3 s.h.

GE: Values, Society, and Diversity. Same as AFAM:3925 (129:122).

JMC:3170 (019:166) Communication Technology and Society 3 s.h.

Implications and effects of computer-based forms of communication, especially the Internet, for journalists, the media audience, and society at large.

JMC:3175 (019:167) Gender and Mass Media 3 s.h.

Media images and representations of the body in terms of gender; impact on people, society; media and body image, sexuality, gender roles, gender and power, race, ethnicity, class, age; critical analysis of mediated images.

JMC:3180 (019:168) Journalism Ethics 3 s.h.

Application of ethical principles in journalistic decision making; consideration of potentially conflicting values, loyalties, and goals that force professional journalists to make difficult choices.

JMC:3181 (019:145) The Business of Sport Communication 3 s.h.

Critical and practical approach to understanding contemporary sports media and business practices that mark it; focus on sports media industries and institutions; branding, marketing, demographic, public relations, and promotional factors that shape content. Same as SPST:3181 (028:123).

JMC:3185 (019:169) Topics in Mass Communication 2-3 s.h.

Focus on particular area, issue, approach, or body of knowledge; may include international media, media criticism, new technologies, history of documentary photography, literary journalism, media management.

JMC:3190 (019:144) Classics of Sports Journalism: From Jack London to Grantland 3 s.h.

Historical examples of celebrated works of sports journalism; focus on long-form texts. Same as SPST:3180 (028:183).

JMC:3210 (019:102) Workshop for Secondary School Journalism/Communication Teachers 1-3 s.h.

Workshops on journalism/mass media curriculum, audio/video production, photojournalism, publication design, journalistic writing techniques, advising student publications. Same as EDTL:3026 (07S:130).

JMC:3300 (019:140) Media Law and Communication 3 s.h.

Issues affecting the media: freedom of expression, libel, privacy, access to information, protection of news sources, free press/fair trial, copyright, government regulation of broadcasting. Requirements: junior standing.

JMC:3400 (019:120) Specialized Reporting and Writing 4 s.h.

Topics may include public affairs, law, science, business, medicine, intercultural affairs, education, computer-assisted reporting. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.

JMC:3405 (019:121) Depth Reporting and Writing 4 s.h.

Enterprise reporting; emphasis on reporter as researcher, organizer, writer of complex stories in a variety of contexts. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.

JMC:3410 (019:122) Magazine Reporting and Writing 4 s.h.

Finding ideas, researching, interviewing; problems of organization and style; identification of audiences and markets; development of writing skills. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.

JMC:3411 (019:123) Radio and Television Storytelling 4 s.h.

Principles; gathering, writing, editing, reporting the news; techniques and concepts as a foundation for understanding, successfully writing, and delivering broadcast news. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Corequisites: JMC:3603 (019:134). Requirements: journalism major.

- JMC:3412 (019:124) Strategic Communication Writing** 4 s.h.
Principles and practices of persuasive writing; focus on public relations; may include editorials, op-ed pieces, magazine essays, reviews. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3415 (019:128) Writing Across Cultures** 4 s.h.
Forms of travel writing and other types of crosscultural reporting; skills, knowledge, understandings vital to writing well about an increasingly multicultural and diverse world. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3450 (019:125) Freelance Reporting and Writing** 4 s.h.
Approaches to writing and marketing articles to magazines, newspapers, other publications; developing ideas, researching periodical markets, writing queries, writing and rewriting articles for publication. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major. Same as CNW:3450 (08N:125).
- JMC:3460 (019:126) Arts and Culture Reporting and Writing** 4 s.h.
Writing about arts and culture in a range of formats (e.g., news, profiles, features, criticism, essays); emphasis on original reporting that draws on resources, issues, people, and events on campus and in the community, especially in visual and performing arts. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3470 (019:127) Narrative Journalism** 4 s.h.
Process of writing the true story; development of skills in researching, interviewing, information gathering, organization, story-telling techniques, writing final story; story publication in magazines, newspapers, journals, online. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3490 (019:129) Feature Reporting and Writing** 4 s.h.
Storytelling techniques for magazine, newspaper, web site features; stylistic flair; human elements in stories; research, interviewing, and reporting. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3600 (019:130) Topics in Media Production** 4 s.h.
Analysis and solution of problems with communication strategies and/or media products; public relations, newsletter production, radio, media research, web basics, global media, interviewing, PR fund-raising. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3603 (019:134) TV News Production** 4 s.h.
Electronic news gathering (ENG); conceptualization, shooting, editing basic news packages. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Corequisites: JMC:3411 (019:123). Requirements: journalism major.
- JMC:3605 (019:136) Editing the News** 4 s.h.
Principles and process of editing content for publication; micro- and macroediting, headline writing, other aspects of editing. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3610 (019:131) Graphic Design** 4 s.h.
Problems of design, layout and production; practical and aesthetic considerations; digital techniques; creative projects. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3615 (019:135) Strategic Communication Campaigns** 4 s.h.
Development and presentation of public relations campaigns for client organizations; communication theory and research techniques applied to analyzing and solving public relations problems through objective-based strategic planning. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3620 (019:138) Applied Digital and Social Media** 4 s.h.
Creation of original journalistic web sites incorporating writing, design, and structure; contemporary online media issues. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3625 (019:137) Planning and Evaluation of Strategic Campaigns** 4 s.h.
Undergraduate-level research methods used specifically for public relations and advertising; basic quantitative and qualitative methods as related to strategic communication; hands-on exercises. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major.
- JMC:3630 (019:132) Photo Storytelling: Making Powerful Images** 4 s.h.
Techniques; basic craft, location shooting, editing photographs; group critiques of assignments. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088).
- JMC:3633 (019:133) Philanthropy Communication in a Digital World** 4 s.h.
World of philanthropy and nonprofit work that changes rapidly with and in response to developments in digital communications; campaigns and fundraisers driven by free agents on social networking sites as an example of how philanthropists and nonprofit workers operate in digital environment; overview of trends in areas of philanthropy and nonprofit work; practical skills to help communicate, create, and disseminate messages using multiple digital tools and social media; analysis of communication/media strategies; media production. Same as FPC:3633 (217:133).
- JMC:4100 (019:171) Advanced Reporting and Writing** 4 s.h.

Project journalism; extended magazine pieces, explanatory/investigative journalism, series for newspapers, or task-force projects by entire class on a major issue, with goal of publication. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major and one course from JMC:3400 (019:120) through JMC:3490 (019:129).

JMC:4120 (019:178) Iowa Journalist 4 s.h.
Experience in photojournalism and desktop publishing software consistent with real-world media and public relations objectives; students write, edit, design, and produce *Iowa Journalist* magazine. Requirements: journalism major and one course from JMC:3400 (019:120) through JMC:3620 (019:138).

JMC:4130 (019:175) Advanced Public Relations Writing 4 s.h.
Case-based study of corporate public relations practice; globalization issues, branding and integrated communication, crisis management. Prerequisites: JMC:3412 (019:124). Requirements: journalism major.

JMC:4300 (019:172) Advanced Photo Storytelling 4 s.h.
Photojournalism skills; may include documentary photography, advanced photojournalism methods and techniques. Prerequisites: JMC:3630 (019:132).

JMC:4310 (019:173) Advanced Media Workshop 4 s.h.
Journalism and mass communication skills; may include editing, broadcasting, design, multimedia. Prerequisites: JMC:2010 (019:098) and JMC:2020 (019:088). Requirements: journalism major and one course from JMC:3400 (019:120) through JMC:3620 (019:138).

JMC:4320 (019:174) Advanced Television News 4 s.h.
Advanced training and experience in producing, writing, and reporting television news packages and newscasts; emphasis on meeting professional standards. Prerequisites: JMC:3411 (019:123) and JMC:3603 (019:134). Requirements: journalism major.

JMC:4330 (019:176) Visual Storytelling 4 s.h.
Experience with journalistic storytelling techniques, generating story ideas, researching, writing, producing, editing, and critiquing documentary features and other visual narratives; use of digital video and archival material to produce visual narrative pieces for broadcast and other media platforms. Prerequisites: JMC:3411 (019:123) and JMC:3603 (019:134). Requirements: journalism major.

JMC:4340 (019:177) Convergence Journalism 4 s.h.
Use of multiple technologies for journalistic storytelling across media platforms, such as print, television, and Internet. Prerequisites: JMC:3620 (019:138). Requirements: journalism major.

JMC:4900 (019:180) Special Projects in Mass Communication arr.
Research and readings to fit needs, interests of students.

JMC:4910 (019:181) Readings in Communication and Mass Communication 1-3 s.h.
Focus on a problem or issue.

JMC:4950 (019:190) Honors Readings 1-3 s.h.
Topic in journalism or mass communication, chosen by student. Requirements: honors standing.

JMC:4955 (019:191) Honors Project 3 s.h.
Independent research or project for honors students. Requirements: honors standing.

JMC:4993 (019:193) Honors Workshop 3 s.h.
Preparation for honors project; coordination of student's individual thesis work, introduction to issues in research design, methods. Requirements: honors standing.

Graduate

JMC:5100 (019:220) Masters Seminar 1 s.h.
Theoretical or methodological problems in mass communication.

JMC:5237 (019:237) Financial and Budget Fundamentals for Communicators 3 s.h.
How a company operates as a business; rapid changes in international economy; important SEC documents and other sources of information on public companies; a public company's financial statements; comparison of public companies financial conditions; analysis and informed conclusions about a public company's financial condition.

JMC:5238 (019:238) Strategic Communication Campaigns 3 s.h.
Practice of strategic communication through traditional and new media for purpose of benefiting nonprofit organizations or bringing about social change; examples and strategies from corporate, nonprofit, and social marketing campaigns; application of knowledge for benefit of real-world clients; principles and strategies applied to professional projects.

JMC:5239 (019:239) Strategic Web Video Communication 3 s.h.
Production of video content and releasing visual stories online; tools needed to capture compelling images and edit meaningful stories; strengths and weaknesses of video storytelling using portable video cameras and affordable editing software; for graduate students who are working professionals.

JMC:5240 (019:240) Social Media and Online Communication 3 s.h.
Exploration of information industry growth; creative processes involved in developing a blog and utilizing multimedia tools to enhance strategic messages; focus on characteristics and spread of new communication technologies and their social, economic, and political effects.

JMC:5248 (019:248) Strategic Political Communication 3 s.h.
Study of political communication; topics range from classic issues (agenda setting) to current debates and emerging topics associated with new media; readings address political communication in the United States.

- JMC:5266 (019:266) Risk Communication** 3 s.h.
Examination of risk as a central concept in communication process; risk as intrinsically an interdisciplinary concept; literature from a wide range of disciplines and perspectives (communication, psychology, sociology, formal risk analysis); case studies drawn from issues and cultural contexts (environmental, technological or health risks, food safety risks; international military crisis or threats of terrorism, natural disasters); emphasis on comparison of European and American contexts.
- JMC:5267 (019:267) Strategic Health Care Communication** 3 s.h.
Breaking down health care to basics; writing and communicating about health care in an understandable way so that hospitals, medical groups, and health care businesses can be better understood when doing business with each other as well as the public and consumers at large; health care writing and communication so consumers can understand, avoid injuries and even death from medical errors shown by studies on health literacy; how doctors and insurance companies can convey their messages in easy-to-understand way to lessen public frustration with the system.
- JMC:5268 (019:268) Strategic Planning for the Communication Professional** 3 s.h.
Use of a 10 step strategic planning model to discuss ways that an effective strategic planning process can be developed to effectively respond to a changing environment; strategic planning for an organization, department, specific project, and personal growth; ways that strategic thinking can help develop strategic thinking skills that transfer to any part of a career.
- JMC:5269 (019:269) Media Management for Strategic Communicators** 3 s.h.
Looking at media in a completely new way; focus on economics and management of competitive businesses; how modern-day businesses in the media sector succeed or fail and why; decision making, competition, and outcomes; emphasis on news media companies that operate in public glare and offer rich opportunities for critical observation.
- JMC:5285 (019:285) Strategic Communication Externship** 3 s.h.
Externship to allow connection between academic program and professional world; enhancement of skill and knowledge.
- JMC:5300 (019:225) Media Principles, Problems, and Challenges** 3 s.h.
Current issues in journalism and mass communication in the United States and the world.
- JMC:5400 (019:226) Master's Advanced Writing and Editing** 3 s.h.
Writing workshop for M.A. strategic communication students.
- JMC:5910 (019:280) Masters Tutorial** arr.
Topics in communication and mass communication inquiry.
- JMC:5920 (019:281) Masters Practicum** arr.
Research, readings, projects to fit needs, interests of students.
- JMC:5950 (019:298) Capstone Project in Strategic Communication** 3 s.h.
Workshop of capstone projects required for graduation; for students nearing completion of M.A. in strategic communication. Requirements: M.A. in strategic communication program enrollment.
- JMC:5955 (019:299) Masters Research** arr.
Independent research for projects, theses.
- JMC:6100 (019:320) Ph.D. Seminar** 1 s.h.
Forum on theoretical or methodological problems in mass communication.
- JMC:6210 (019:231) Social Science Theories in Media and Communication** 3 s.h.
Introduction to social science theory used by communication scholars to study media and communication; use of theory to explain media and communication phenomena.
- JMC:6220 (019:232) Critical Cultural Theories in Media and Communication** 3 s.h.
Continuation of JMC:6210 (019:231); introduction to critical cultural theories; use of theories to explain media and communication phenomena.
- JMC:6254 (019:254) Communication and Change** 3 s.h.
Diverse perspectives on changing communication forms and their implications for media and society; theoretical and methodological approaches to research involving innovation.
- JMC:6255 (019:255) Problems in International Communication** 3 s.h.
Representative topics: communication systems in national development and globalization; international and cross-cultural communication structure and theory; human rights; images, values; mass persuasion; laws, agreements; information channels, content, flow, effects; censorship, language, literacy.
- JMC:6256 (019:256) Gender and Mass Communication** 3 s.h.
Approaches to the study of gender and communication; topics vary. Same as GWSS:6256 (131:257).
- JMC:6310 (019:235) Quantitative Research Methods for Media and Communication** 3 s.h.
Journalism and media communication research methods that involve collection and analysis of quantifiable data; surveys, content analyses, and experiments.
- JMC:6320 (019:236) Qualitative Research Methods for Media and Communication** 3 s.h.
Interpretive research methods in journalism and communication studies that involve field observation, interviews, and textual analysis; use of contemporary, historical, and legal resources; ethical and philosophical positions underlying use of these methods.

JMC:6330 (019:330) Reading Group 1-3 s.h.
 Analysis and discussion of important texts.

JMC:6333 (019:333) Seminar in Media Communication 3 s.h.
 Topics vary.

JMC:6340 (019:310) The Internet, Human Rights, and Freedom of Expression 3 s.h.
 Origins of international human rights regime from a comparative and collective memory perspective; major human rights and freedom of expression controversies from a comparative and international perspective.

JMC:6700 (019:265) Approaches to Teaching 3 s.h.
 Institutional and disciplinary issues that influence the journalism/mass communication classroom, philosophies of teaching, and use of teaching strategies, techniques, and classroom technologies; for students planning to work in academia.

JMC:6776 (019:276) Visual Narratives Techniques 3 s.h.
 Analyses of theories, aesthetics, and methodologies of visual narratives in media storytelling; narrative techniques employed in different media from broadcast television documentaries and news features to narrative storytelling in cyberspace; conceptual survey of visual narratives; hands-on research, writing, production, and editing of narrative video content for broadcast television and online platforms; production of a high-quality visual narrative project.

JMC:6800 (019:279) Mass Communication Seminar 2-3 s.h.
 Readings, research.

JMC:6910 (019:380) Ph.D. Tutorial arr.
 Communication and mass communication inquiry.

JMC:6920 (019:381) Ph.D. Research Practicum arr.
 Conceptualization and execution of research projects.

JMC:6999 (019:399) Dissertation arr.

Latin American Studies

Director

- Joy Hayes (Communication Studies)

Coordinator

- Karmen R. Berger

Undergraduate minor: Latin American studies

Undergraduate certificate: Latin American studies

Web site: <http://clas.uiowa.edu/latin-american-studies>

The Latin American Studies Program (LASP) is interdisciplinary, focusing on the history, politics, social organization, economy, geography, music, religion, art, and literature of Central and South America, Mexico, and the Caribbean. Faculty members from across the College of Liberal Arts and Sciences participate in the Latin American Studies Program as affiliated faculty members. Other University of Iowa faculty members occasionally offer courses and participate in the program's research, study, and interdisciplinary activities.

The Latin American Studies Program prepares students for graduate study or for Latin America-related careers in business, communications, government, bilingual/bicultural education, secondary teaching, community organizing, and international work.

In addition to its instructional activity, LASP sponsors a wide variety of activities, brings scholars of Latin America to campus, and fosters institutional linkages.

Undergraduate Programs of Study

- Certificate in Latin American Studies
- Minor in Latin American studies

Certificate

The Certificate in Latin American Studies requires a minimum of 24 s.h. The certificate program is open to current University of Iowa undergraduate students (except those earning a major in international studies (p. 428) with an emphasis in Latin American studies) and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in the certificate. Completion of the certificate is noted on the student's transcript.

A student may earn the certificate or the minor in Latin American studies, but not both.

The 24 s.h. required for the certificate must be earned in LASP-approved courses (see "Associated Courses" and "Courses" below) and must include at least 12 s.h. of credit earned at The University of Iowa. All students develop an individual certificate plan of study in close cooperation with a LASP advisor. They may count a total of 12 s.h. of credit earned for majors, minors, and other certificates toward the Certificate in Latin American Studies. In some cases, students may be able to count certificate courses toward certain General Education Program (p. 323) requirements.

The Certificate in Latin American Studies requires the following course work.

LAS:2700 (130:070) Introduction to Latin American Studies	3 s.h.
LAS:4700 (130:176) Latin American Studies Seminar	3 s.h.
Spanish and Portuguese courses	6 s.h.
Additional courses	12 s.h.

The required Spanish and Portuguese courses (6 s.h.) must be chosen from the lists under "Associated Courses" below.

The required additional courses (12 s.h.) also must be chosen from the lists under "Associated Courses" and "Courses" below. They must include courses from at least two different departments, and they may include a maximum of one (3 s.h.) additional course in Spanish or Portuguese.

Study Abroad

The program highly recommends study abroad in Latin America. Students must have prior approval to apply credit from a study abroad program toward the certificate requirements; contact the Latin American Studies Program.

Minor

The minor in Latin American studies requires a minimum of 15 s.h. in LASP-approved courses (see "Associated Courses" and "Courses" below), including 12 s.h. in University of Iowa courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

A student may earn the minor or the certificate in Latin American studies, but not both.

Students may count a total of 6 s.h. earned for majors, certificates, and other minors toward the Latin American studies minor. The minor is interdisciplinary, so it may include a maximum of 6 s.h. of credit from any single department or program.

Students are strongly encouraged to take either or both of these for the minor.

LAS:2700 (130:070) Introduction to Latin American Studies	3 s.h.
LAS:4700 (130:176) Latin American Studies Seminar	3 s.h.

Study Abroad

The Latin American Studies Program highly recommends, but does not require, that students have an in-depth Latin American cultural experience, usually through study abroad, before completing their undergraduate requirements.

In cooperation with International Programs Study Abroad, LASP faculty members facilitate student participation in programs in many Latin American countries. University of Iowa students may enroll in programs in Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Honduras, Mexico, and Uruguay. Programs range from intensive language study to group programs with a special focus. The University of Iowa cosponsors these programs through various consortiums.

Study abroad courses may be counted toward requirements for the certificate and the minor with prior approval from a LASP director.

Financial Support

Students are encouraged to apply for a Stanley Undergraduate Award for International Research/Fieldwork through University of Iowa International Programs. The awards are given to outstanding University of Iowa undergraduates who, in close consultation with a faculty member, propose well-conceived, small-scale research or fieldwork projects that require travel abroad. Students may conduct projects while participating in a study abroad program and may combine the award with other awards and financial assistance. For information regarding other scholarships, contact LASP advisors, International Programs staff, and the LASP director.

Activities

In addition to its instructional activity, LASP organizes a range of public programming activities each semester, including film series, photography and art exhibits, conferences, roundtable discussions, and lectures. Recent events include public lectures on community media and violence in Mexico and Colombia and on the cultural legacies of the 1960s in Latin America, and the annual Charles A. Hale Lecture in Latin American Studies. In 2012 LASP cosponsored an interdisciplinary symposium on the Latino Midwest and the International Conference of the American Portuguese Studies Association.

Associated Courses

The following courses are approved for the Latin American studies certificate and minor. Students may petition to include other courses that have significant Latin American content; consult the Latin American Studies Program.

Anthropology

ANTH:2110 (113:131) Latin American Economy and Society	3 s.h.
ANTH:2220 (113:163) Archaeology of Mesoamerica	3 s.h.
ANTH:3111 (113:119)/GHS:3040 (152:119) Health in Mexico	3 s.h.
ANTH:3130 (113:104) Cultural Politics	3 s.h.
ANTH:4700 (113:132)/HIST:4504 (16W:109)/SPAN:4900 (035:176)/PORT:4700 (038:176)/CL:4700 (218:153)/LAS:4700 (130:176) Latin American Studies Seminar	3 s.h.

Art

ARTH:3120 (01H:105) Art of Pre-Columbian America	3 s.h.
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CINEMATIC ARTS

CINE:2624 (048:024) Introduction to Latin American Film	3 s.h.
CINE:4678 (048:178)/SPAN:4810 (035:191) Topics in Latin American Cinema	3 s.h.

Comparative Literature

CL:4700 (218:153)/HIST:4504 (16W:109)/LAS:4700 (130:176)/SPAN:4900 (035:176)/PORT:4700 (038:176)/ANTH:4700 (113:132) Latin American Studies Seminar	3 s.h.
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Communication Studies

COMM:4152 (036:152) Latin American Media	3 s.h.
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Dance

DANC:1150 (137:057) Brazilian Culture and Carnival	3 s.h.
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English

ENGL:3525 (008:113) Literature and Culture of the Americas	3 s.h.
ENGL:3535 (008:133) Inter-American Studies (when content is Latin American)	3 s.h.

History

HIST:4216 (16A:112) Mexican American History	3 s.h.
HIST:4217 (16A:113) Latina/o Immigration	3 s.h.
HIST:4334 (16W:134) Topics in American Borderlands History	3 s.h.
HIST:4501 (16W:106) Society and Revolution in Cuba	3 s.h.
HIST:4502 (16W:107) History of Mexico	3 s.h.
HIST:4504 (16W:109)/SPAN:4900 (035:176)/PORT:4700 (038:176)/CL:4700 (218:153)/ANTH:4700 (113:132)/LAS:4700 (130:176) Latin American Studies Seminar	3 s.h.
HIST:4505 (16W:110) Topics in Latin American History	3 s.h.
HIST:4508 (16W:108) Medicine and Public Health in Latin America, 1820-2000	3 s.h.
HIST:4510 (16W:111) Colonial Latin America	3 s.h.
HIST:4515 (16W:112) Introduction to Modern Latin America	3 s.h.
HIST:4520 (16W:114) Latin America and the U.S.: The Historical Perspective	3 s.h.
HIST:4525 (16W:115) Latin American Revolution	3 s.h.
HIST:4526 (16W:116) Dictatorships of Latin America	3 s.h.

International Studies

IS:2700 (187:070)/SPAN:2700 (035:070)/PORT:2700 (038:070)/LAS:2700 (130:070) Introduction to Latin American Studies	3 s.h.
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Music

MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
MUS:3163 (025:163) Steel Band	1 s.h.

Political Science

POLI:3104 (030:108) Immigration Politics	3 s.h.
POLI:3415 (030:144) Latin American Politics	3 s.h.

Portuguese

PORT:1800 (038:020) Contemporary Brazilian Narrative	3 s.h.
PORT:2700 (038:070)/LAS:2700 (130:070)/SPAN:2700 (035:070)/IS:2700 (187:070) Introduction to Latin American Studies	3 s.h.
PORT:2800 (038:115) Writing Brazil in the U.S.	3 s.h.

PORT:3350 (038:105) Brazilian Literature Before 1900	3 s.h.	SPAN:4900 (035:176)/HIST:4504 (16W:109)/CL:4700 (218:153)/LAS:4700 (130:176)/	3 s.h.
PORT:3400 (038:106) Brazilian Literature After 1900	3 s.h.	PORT:4700 (038:176)/ANTH:4700 (113:132) Latin American Studies Seminar	
PORT:4000 (038:112) Topics in Luso-Brazilian Literature (when topic is Latin American)	3 s.h.	SPAN:4950 (035:196) Advanced Workshop on Creative Writing in Spanish	3 s.h.
PORT:4100 (038:120) Topics in Luso-Brazilian Culture (when topic is Latin American)	3 s.h.		
PORT:4700 (038:176)/HIST:4504 (16W:109)/SPAN:4900 (035:176)/CL:4700 (218:153)/ANTH:4700 (113:132)/LAS:4700 (130:176) Latin American Studies Seminar	3 s.h.		

Spanish

SPAN:1800 (035:020) Contemporary Spanish American Narrative	3 s.h.
SPAN:2200 (035:114) Introduction to Spanish American Cultures	3 s.h.
SPAN:2500 (035:111) Readings in Spanish American Literature	3 s.h.
SPAN:2700 (035:070)/IS:2700 (187:070)/LAS:2700 (130:070)/PORT:2700 (038:070) Introduction to Latin American Studies	3 s.h.
SPAN:2800 (035:113) Screening Latin America	3 s.h.
SPAN:3060 (035:120) Introductory Workshop on Creative Writing in Spanish	3 s.h.
SPAN:3200 (035:130) Cultures of Spanish America	3 s.h.
SPAN:3220 (035:149) Visual Culture: Colonial Spanish America	3 s.h.
SPAN:3230 (035:138) Modern Mexico	3 s.h.
SPAN:3270 (035:146)/CL:3262 (218:162) Pan-Caribbean Literary Currents	3 s.h.
SPAN:3300 (035:131) Contemporary Spanish American Fiction	3 s.h.
SPAN:3310 (035:134) Spanish American Short Story	3 s.h.
SPAN:3320 (035:132) Spanish American Poetry	3 s.h.
SPAN:3350 (035:140) Contemporary Spanish American Literature	3 s.h.
SPAN:3360 (035:144)/GWSS:3360 (131:162) Latin American Women Writers	3 s.h.
SPAN:3400 (035:137) Chicano Literature and Culture	3 s.h.
SPAN:3420 (035:143) Cuban American Literature and Culture	3 s.h.
SPAN:3440 (035:135) Topics in Latino/a Literature and Culture	3 s.h.
SPAN:4310 (035:175) Cultural Identity in Caribbean Literature	3 s.h.
SPAN:4330 (035:173) Colonial Spanish American Literature	3 s.h.
SPAN:4370 (035:177) Literature and Mass Culture in Latin America	3 s.h.
SPAN:4380 (035:193) Narratives of Underdevelopment	3 s.h.
SPAN:4390 (035:178) Topics in Spanish American Literature	3 s.h.
SPAN:4800 (035:190) Chicano Cinema	3 s.h.
SPAN:4810 (035:191)/CINE:4678 (048:178) Topics in Latin American Cinema	3 s.h.
SPAN:4820 (035:174) Latino/a Popular Culture	3 s.h.

Rotating Topics

The focus of these courses changes from semester to semester. With prior approval, students may use these courses to satisfy requirements for the Latin American studies certificate or minor when the course focuses on Latin America.

ANTH:3107 (113:109) Literature and Anthropology	3 s.h.
CINE:3627 (048:112) Proseminar in Cinema and Culture	1-2 s.h.
CINE:4618 (048:118) Topics in World Cinemas	3 s.h.
ENGL:4000 (008:098) English Honors Seminar	3 s.h.
HIST:2151 (16W:051) Introduction to the History Major	3 s.h.
SPAN:3290 (035:148) Topics in Cinema and Society	3 s.h.
SPAN:3370 (035:147) Topics in Literatures and Cultures	3 s.h.
SPAN:4850 (035:172) Topics in Cultural Studies	3 s.h.
SPAN:4910 (035:194) Topics in Literary Studies	3 s.h.
SPAN:4920 (035:192) Topics in Film Studies	3 s.h.

Courses

All Latin American Studies Program courses are approved for the certificate and minor.

LAS:2700 (130:070) Introduction to Latin American Studies 3 s.h.

Cultures of Latin American countries with emphasis on cultural history and cultural production; interdisciplinary survey. Same as SPAN:2700 (035:070), PORT:2700 (038:070), IS:2700 (187:070).

LAS:4700 (130:176) Latin American Studies Seminar 3 s.h.

Interdisciplinary approach. Taught in English. Recommendations: Spanish or Portuguese sufficient for background readings. Same as ANTH:4700 (113:132), SPAN:4900 (035:176), PORT:4700 (038:176), HIST:4504 (16W:109), CL:4700 (218:153).

LAS:4990 (130:105) Independent Study arr.

Linguistics

Chair

- William D. Davies

Professors

- William D. Davies, Catherine O. Ringen, Jerzy Rubach, Roumyana Slabakova

Associate professors

- Jill Beckman, Alice L. Davison, Elena Gavruseva, Paula Kempchinsky, Bob McMurray (Linguistics/Communication Sciences and Disorders/Psychology)

Adjunct instructor

- Maureen Burke

Professor emeritus

- Robert S. Wachal

Undergraduate major: linguistics (B.A.)

Undergraduate minor: linguistics

Graduate degrees: M.A. in linguistics; Ph.D. in linguistics

Web site: <http://clas.uiowa.edu/linguistics/>

Linguistics is the scientific study of human languages, which are highly complex systems. Areas of study include word structure (morphology), speech sounds (phonetics) and their patterns of combination and contrast (phonology), sentence structure (syntax), and meaning relations (semantics).

Linguists study well-known and familiar languages, such as English, Spanish, Russian, and Chinese. They also study less well-known languages and even those languages about which little has been discovered. While human languages are different from one another in many ways, there are broad similarities among them, supporting the idea that the capacity for language is part of human cognitive functions.

The description of formal patterns of human language has a number of applications. Linguistics is connected to psychology and to speech and hearing, in studying how children learn language, how speakers process and interpret language, and how injuries and disorders affect both production and perception of speech. Linguistics also is linked with anthropology and other social sciences in studying how language use relates to culture, region, class, and gender. Linguists collaborate with computer scientists to construct computational representations of syntax and semantics for processing natural languages.

Linguistics has important ties with instruction in foreign languages and in English as a second language (ESL). Studies of how languages are learned are based in part on analysis of the languages in question. They also are grounded strongly in theories of second language acquisition, which in turn are related to theories of how linguistic knowledge is represented in the mind.

People with linguistic training teach ESL and help clinicians retrain people with linguistic disabilities. Some help design school programs for minority groups or intelligence and achievement tests. Linguists also work in occupations related to law, the computer industry, and foreign languages.

High scores on verbal, analytic, and quantitative aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, students must be able to reason logically and explicitly and deal with formulas and abstract symbols.

Undergraduate Programs of Study

- Major in linguistics (Bachelor of Arts)
- Minor in linguistics

Depending on their vocational goals, students planning to major in linguistics should consider pursuing their studies either through the M.A. in linguistics with a professional focus or through the Ph.D., or they should complete a second major. Appropriate companion fields include languages, anthropology, computer science, English, mathematics, philosophy, psychology, sociology, speech pathology, and elementary and secondary education.

Bachelor of Arts

The Bachelor of Arts with a major in linguistics requires a minimum of 120 s.h., including 30 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in linguistics prepares students to do basic language analysis in syntax-semantics (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of subspecialties enable students to tailor the program to their own interests.

The major in linguistics requires the following course work.

All of these:

LING:3001 (103:100) Introduction to Linguistics	3 s.h.
LING:3005 (103:110) Articulatory and Acoustic Phonetics	3 s.h.
LING:3010 (103:111) Syntactic Analysis	3 s.h.
LING:3020 (103:112) Phonological Analysis	3 s.h.

One of these:

A course in language history, such as LING:3080 (103:131) or LING:3301 (103:139)
 A course in an old language (classical Greek, Latin, Old English, Sanskrit)

And:

Electives chosen in consultation with a faculty advisor, bringing total credit in the major to 30 s.h.

Students must complete no fewer than 15 s.h. of requirements for the major at The University of Iowa, including LING:3005 (103:110) Articulatory and Acoustic Phonetics, LING:3010 (103:111) Syntactic Analysis, and LING:3020 (103:112) Phonological Analysis.

The course LING:1003 (103:028) English Grammar does not count toward the linguistics major.

TESL Emphasis

As part of the major in linguistics, students may complete an emphasis in Teaching English as a Second Language (TESL). The TESL emphasis can prepare students to teach English to nonnative speakers abroad. It also is excellent preparation for graduate work in second language acquisition. TESL emphasis students complete the requirements for the linguistics major listed above, using the following course work to partially satisfy the electives requirement.

Both of these:

LING:4040 (103:141) The Structure of English	3 s.h.
LING:4050 (103:145) Methods of Teaching English as a Second Language	3 s.h.

One of these:

LING:3030 (103:156) Child Language-Linguistic Perspectives	3 s.h.
LING:3670 (103:137) Language Processes	3 s.h.
LING:4080 (103:157) Linguistic Theory and Second Language Acquisition	3 s.h.
LING:4090 (103:161) Practical Phonetics	3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the fifth semester begins: Introduction to Linguistics [LING:3001 (103:100)] and one additional linguistics course

Before the seventh semester begins: three more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in linguistics have the opportunity to graduate with honors in the major. Departmental honors students must complete the required course work for the major and must prepare an honors thesis, working in consultation with their academic advisor. Honors students in linguistics must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in linguistics requires a minimum of 15 s.h. in linguistics courses, including at least 12 s.h. in University of Iowa courses numbered LING:3001 (103:100) Introduction to Linguistics and above. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses

for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

The minor in linguistics requires the following course work.

LING:3001 (103:100) Introduction to Linguistics	3 s.h.
LING:3005 (103:110) Articulatory and Acoustic Phonetics	3 s.h.
LING:3010 (103:111) Syntactic Analysis	3 s.h.
LING:3020 (103:112) Phonological Analysis	3 s.h.
Additional approved course work to total a minimum of 15 s.h.	

Joint B.A./M.A. with TESL Focus

Undergraduate linguistics majors who plan to earn a master's degree in linguistics with a Teaching English as a Second Language (TESL) focus have the opportunity to enroll in the joint Bachelor of Arts/Master of Arts degree program. Students in the joint B.A./M.A. program take selected graduate-level courses while they are still undergraduates and may count 12 s.h. of advanced course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.A., and they usually complete the M.A. one year later.

As part of the undergraduate major with TESL focus, B.A./M.A. students take LING:4040 (103:141) The Structure of English, a course in language history, LING:3001 (103:100) Introduction to Linguistics, and LING:3005 (103:110) Articulatory and Acoustic Phonetics.

They substitute some graduate-level course work for normal undergraduate requirements. Instead of taking LING:3010 (103:111) Syntactic Analysis to fulfill the B.A. syntax requirement, they take LING:5010 (103:201) Introduction to Syntax, the first course in the mandatory two-course syntax sequence for M.A. students. Instead of taking LING:3020 (103:112) Phonological Analysis to fulfill the B.A. phonology requirement, they take LING:5020 (103:203) Introduction to Phonology, the first in the graduate two-course phonology sequence.

In addition, LING:4050 (103:145) Methods of Teaching English as a Second Language and LING:6010 (103:202) Syntactic Theory count toward both degrees and typically are taken during the senior year.

To be admitted to the program, students must be working toward an undergraduate major in linguistics, must have completed at least 80 s.h. of undergraduate course work (typically by the end of their fifth semester), and must have a g.p.a. of at least 3.50.

Graduate Programs of Study

- Master of Arts in linguistics (with or without thesis)
- Doctor of Philosophy in linguistics

Department of Linguistics graduate programs emphasize theory and research. Students interested in non-university careers also may take courses in applied linguistics and other fields, either in connection with doctoral work or as an option in the M.A. program.

Iowa's linguistics department has particular strengths in second language acquisition (SLA), phonology, and syntax.

The curriculum in second language acquisition includes courses that provide an overview and analysis of current

SLA research conducted within the generative framework, with emphasis on explaining the linguistic competence of second language learners in terms of universal grammar (UG), the innate language acquisition device. Work focuses on experimental research investigating the influence of the first language, theories of UG access, and related topics.

The phonology curriculum emphasizes current theoretical perspectives, including optimality theory, and the collection, description, and interpretation of novel phonological and phonetic data. Courses feature extensive work in data analysis and problem solving, focusing on construction and evaluation of phonological theories, particularly in light of new empirical data.

The syntax curriculum includes the dual emphases of empirical and theoretical perspectives. It offers a variety of foundational courses that build analytic and argumentation skills, as well as specialized course work on current issues in syntactic theory. The courses consist of intensive work in problem solving. They combine discovery and description of new linguistic data with exploration of the implications of such facts in testing and constructing syntactic theories.

Master of Arts

The Master of Arts in linguistics requires a minimum of 31-37 s.h. of graduate credit with thesis, or 37 s.h. without thesis.

All M.A. students complete the following set of required core courses in phonology, syntax, and language acquisition (total of 22 s.h.).

LING:3005 (103:110) Articulatory and Acoustic Phonetics	3 s.h.
LING:5000 (103:200) Proseminar: Morphosyntax	1 s.h.
LING:5010 (103:201) Introduction to Syntax	3 s.h.
LING:5020 (103:203) Introduction to Phonology	3 s.h.
LING:6010 (103:202) Syntactic Theory	3 s.h.
LING:6020 (103:204) Phonological Theory	3 s.h.
LING:6080 (103:211) Generative Second Language Acquisition	3 s.h.

One of these:

LING:5040 (103:113) Linguistic Field Methods	3 s.h.
LING:6040 (103:210) Linguistic Structures	3 s.h.
LING:6050 (103:217) Language Universals Linguistic Typology	3 s.h.

Thesis students also complete at least 9 s.h. of electives and may earn up to 6 s.h. for the thesis. Nonthesis students also complete 15 s.h. of Department of Linguistics course work, which may include a 9 s.h. focus (e.g., teaching English as a second language). A student's advisor must approve all courses that count toward the degree.

A student with a linguistics background may waive up to 6 s.h. of course work if the department determines that he or she completed comparable work before enrolling in the program.

Comprehensive examinations cover phonology, syntax, and applied linguistics (for students who choose this option).

Doctor of Philosophy

The Doctor of Philosophy in linguistics requires a minimum of 72 s.h. of graduate credit, or 73 s.h. for graduates of the M.A. nonthesis program. The highly selective program provides students with a strong foundation in theoretical linguistics and helps them develop the skills they will need to explore the close relationship between linguistics and related disciplines.

The Ph.D. core includes the following course work (total of 18 s.h.).

Two upper-level syntax courses numbered LING:7010 (103:212) or above

Two upper-level phonology courses numbered LING:7020 (103:214) or above

Two or more seminars

An approved specialty area of 18 s.h. also is required, and students must achieve proficiency in a foreign language, as specified by department regulations.

To pass the comprehensive examination for the Ph.D., a student must gain approval for two papers of publishable quality. One must be in phonology or syntax. The other should be in an area of the student's choosing and must be distinct from the area of the first paper.

An oral defense of the dissertation and three years in residence at The University of Iowa are required. In addition, all candidates are required to gain supervised experience in teaching and research.

Related Certificate: Cognitive Science of Language

The Graduate College offers the Certificate in Cognitive Science of Language, which requires a minimum of 12-15 s.h. of graduate credit. Designed to complement doctoral study, the certificate program ensures that students have training in interdisciplinary approaches to the study of language along with strong theoretical grounding in their Ph.D. discipline. See Cognitive Science of Language (p. 961) (Graduate College) in the Catalog for more information.

Admission

Applicants to the graduate program in linguistics must complete an application form, submit GRE General Test scores, and have three letters of recommendation sent to the Department of Linguistics. Students whose first language is not English must submit Test of English as a Foreign Language (TOEFL) scores. Applications for admission should be submitted as early as possible for the following academic year.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

Applications should be received by February 1 for the following academic year in order to have priority in consideration for financial aid. Applications received after February 1 are considered for remaining aid. Earlier application is strongly encouraged.

Exceptionally well-qualified applicants may be eligible for a Presidential Graduate Research Fellowship. Individuals interested in being nominated for a presidential fellowship should submit all application materials by January 15 for the following academic year.

Applications for all awards are considered only for students whose application for admission is complete.

Facilities

The Department of Linguistics has two laboratories. One is equipped with 14 computer workstations for small group instruction, individual work, and student research in speech analysis, second language acquisition, computational linguistics, and other areas. The other has a soundproof booth connected to a computer with software for speech analysis. Remote terminals and personal computers are also available to students.

The departmental reading room, which contains a modest library, provides a common meeting place for faculty and students. Students have considerable influence on departmental affairs and enjoy a high degree of individual instruction.

Courses

Lower-Level Undergraduate

LING:1000 (103:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

LING:1003 (103:028) English Grammar 3 s.h.

Recognizing nouns, verbs, adverbs, adjectives, and other parts of speech; sentence analysis; subjects, objects; types of sentences; passives, relative clauses; for students with little or no background in English grammar study. Does not count toward the linguistics major.

LING:1010 (103:011) Language and Society 3 s.h.

Correlations between social and linguistic behavior; methods for discovering and describing socially significant language behavior; educational and political implications of findings. GE: Social Sciences.

LING:1020 (103:020) Introduction to the Study of Language 3 s.h.

Nontechnical introduction: classification of languages, writing systems, language and the brain, acquisition of first and second languages, bilingualism, animal communication, language and computing.

LING:1030 (103:035) English Words 3 s.h.

English word formation, basic units of English vocabulary; vocabulary skill expansion; word structure.

LING:1040 (103:045) Language Rights 3 s.h.

Language minorities and linguistic human rights in the United States and worldwide; language and identity, culture, power; case studies of language rights deprivation. GE: International and Global Issues. Same as ANTH:1040 (113:045).

LING:1050 (103:013) Language and Formal Reasoning 3 s.h.

Semantics and sentence structure of English; word meanings, meaning connected to truth conditions, reasoning based on logical connectives and quantifiers, evaluation of valid and invalid arguments. GE: Quantitative or Formal Reasoning.

LING:1060 (103:055) Languages of the World 3 s.h.

Overview of structural similarities and differences in human language; survey of the world's major language families; emphasis on sentence and word structure, sound systems, and modes of classification. GE: Social Sciences.

LING:2010 (103:095) Research Practicum arr.

Individual participation in faculty research projects.

LING:2090 (103:099) Special Project arr.

Upper-Level Undergraduate and Graduate

LING:3001 (103:100) Introduction to Linguistics 3 s.h.

Introduction to the study of human language: sounds and their contrasts and variation, words and meaningful subunits, sentence structure, historical change.

LING:3005 (103:110) Articulatory and Acoustic Phonetics 3 s.h.

Production and transcription of sounds in human languages; physics of sound, computer analysis of speech sounds. Offered fall semesters. Same as SLA:3400 (164:160).

LING:3010 (103:111) Syntactic Analysis 3 s.h.

Introduction to sentence structures and basic abstract relations that characterize them, including word category, word order, hierarchical organization; problem sets from English and other languages as basis for discussion, analysis. Offered spring semesters. Prerequisites: LING:3001 (103:100).

LING:3020 (103:112) Phonological Analysis 3 s.h.

Introduction to analysis of sound systems; generative phonological theory; practice in phonological analysis using data from a variety of languages. Offered spring semesters. Prerequisites: LING:3001 (103:100) and LING:3005 (103:110).

LING:3030 (103:156) Child Language-Linguistic Perspectives 3 s.h.

Linguistic theory as applied to first-language learning, including acquisition of sounds, syntax and word meaning, acquisition strategies, properties of input, theories of first-language acquisition. Prerequisites: LING:3001 (103:100).

LING:3040 (103:115) Topics in Linguistics 3 s.h.

Varied topics in linguistics; for undergraduates.

LING:3080 (103:131) History of the English Language 3 s.h.

Development of phonological and grammatical structure of English, from Old to Modern English; dialectal differentiation in English.

LING:3100 (103:150) Language and Gender 3 s.h.

Gender-related language variation; current research on gender-specific linguistic forms and usage in the United States and other language communities; introduction to relevant principles of linguistic theory and analysis. GE: Values, Society, and Diversity.

LING:3116 (103:177) Basic Neuroscience for Speech and Hearing 3 s.h.

Basic anatomy, physiology of central nervous system; emphasis on neural systems involved in normal and disordered communication. Offered fall semesters. Requirements: biology, zoology, or physiology course. Same as CSD:3116 (003:116).

LING:3117 (103:172) Psychology of Language 3 s.h.

Theoretical, empirical investigations of linguistic behavior; behaviorist, rationalist models in context of formal linguistic structure and context of models of speech perception and production. Offered spring semesters. Prerequisites: LING:3001 (103:100). GE: Social Sciences. Same as CSD:3117 (003:117).

LING:3118 (103:176) Language Acquisition 1-3 s.h.

Models of children's language acquisition; child language/communication development from infancy through school age, in context of current developmental research. Offered spring semesters. Requirements: for CSD:3118 (003:118) — LING:3001 (103:100) and PSY:1001 (031:001); for LING:3118 (103:176) — LING:3001 (103:100) or LING:3117 (103:172). GE: Social Sciences. Same as CSD:3118 (003:118).

LING:3301 (103:139) Chinese Historical Phonology 3 s.h.

Phonology of Mandarin, other major Chinese dialect groups; reconstruction of the sound system of Middle and Old Chinese. Same as CHIN:3301 (039:139).

LING:3302 (103:144) Introduction to Chinese Linguistics 3 s.h.

Aspects of modern Chinese linguistics, such as Chinese phonology, syntax, pedagogical grammar, history of the language. Taught in English. Same as SLA:3302 (164:181), CHIN:3302 (039:144).

LING:3670 (103:137) Language Processes 3 s.h.

Psychological processes involved in using languages, including speech perception and production, the meaning of words, understanding and producing sentences, and basics of discourse and pragmatics; developmental and neural bases of language processes. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2601 (031:016), grade of C- or higher in PSY:2810 (031:010), and psychology major; or nonmajor and CSD:1015 (003:015) or LING:3001 (103:100). Same as PSY:3670 (031:137).

LING:4020 (103:155) Morphology 3 s.h.

Lexicon and principles of word formation; principal processes of inflection, derivation, and compounding found in the world's languages; relation to phonology, syntax; practice in morphological analysis from a variety of languages. Prerequisites: LING:3001 (103:100).

LING:4030 (103:140) Introduction to Computational Linguistics 3 s.h.

Introduction to computational linguistics; focus on theory and practice of natural language processing and syntactic and semantic analysis. Same as CS:4460 (22C:146).

LING:4040 (103:141) The Structure of English 3 s.h.

Descriptive analysis of English, including word and sentence structure; focus on relevance to teaching English as a second language. Offered fall semesters. Prerequisites: LING:3001 (103:100).

LING:4050 (103:145) Methods of Teaching English as a Second Language 3 s.h.

Observations of ESL and intensive English classes at the University; design and presentation of short lessons, text evaluation, demonstrations of innovative approaches of the last decade; materials. Offered spring semesters. Prerequisites: LING:3005 (103:110) and LING:4040 (103:141). Same as SLA:4401 (164:163).

LING:4060 (103:175) Introduction to Semantics 3 s.h.

Overview of meaning in natural language mapped onto lexical and syntactic structures; formal logical and set theory description; discussion of truth conditions, compositionality, presupposition, definiteness, quantification in natural language. Requirements: course in syntax.

LING:4080 (103:157) Linguistic Theory and Second Language Acquisition 3 s.h.

Introduction of research results obtained by generative second language acquisition framework and their implications for classroom teaching methods; current views of language architecture; focus on inflectional morphology and linguistic interfaces, which have been proposed to be severe bottlenecks for acquisition; research findings on acquisition of syntax, phonology, semantics, linguistic pragmatics; pedagogical implications of these findings. Prerequisites: LING:3010 (103:111) and LING:3020 (103:112). Same as SLA:4080 (164:157).

LING:4090 (103:161) Practical Phonetics 3 s.h.

Contemporary articulatory and acoustic research, including second-language acquisition, elicitation and computer analysis of primary linguistic data. Prerequisites: LING:3005 (103:110).

LING:4589 (103:163) Philosophy of Language 3 s.h.

Contemporary topics. Same as PHIL:4589 (026:189).

Graduate

LING:5000 (103:200) Proseminar: Morphosyntax 1 s.h.

Basic morphological analysis of languages other than English; morphological markers of syntactic relations (morphosyntax), such as case/agreement, possession, switch reference and other inflectional marking. Corequisites: LING:5010 (103:201).

LING:5010 (103:201) Introduction to Syntax 3 s.h.

Methods and argumentation for formal analysis of sentence structure through induction from language data of central concepts and relations; hypothesis testing, empirical bases of theoretical concepts. Corequisites: LING:5000 (103:200). Same as SLA:5010 (164:241).

LING:5020 (103:203) Introduction to Phonology 3 s.h.

Analysis of sound systems, focus on early generative phonological theory; extensive practice in analysis using data from a variety of languages; linguistic argumentation. Prerequisites: LING:3005 (103:110). Same as SLA:5020 (164:203).

LING:5030 (103:206) First Language Acquisition 3 s.h.

Child language from a crosslinguistic perspective. Prerequisites: LING:3005 (103:110), and LING:4040 (103:141) or LING:5010 (103:201). Same as SLA:5401 (164:245).

LING:5040 (103:113) Linguistic Field Methods 3 s.h.

Collection and analysis of primary linguistic data from unfamiliar language; methods of elicitation, theory, practical problems; extensive practice in eliciting data from a consultant. Prerequisites: LING:3005 (103:110). Requirements: a course in syntax and a course in phonology.

LING:5070 (103:107) Practicum in Teaching English as a Second Language 3 s.h.

Practical experience in TESL, observation and participation in intensive English classes; design and teaching of ESL classes under supervision. Offered summer sessions. Prerequisites: LING:4050 (103:145).

LING:5090 (103:199) Special Projects arr.

Theoretical and applied topics.

LING:6010 (103:202) Syntactic Theory 3 s.h.

Current syntactic theory examined through analysis of data sets, readings in recent research; emphasis on argument construction, statement of formal principles. Offered spring semesters. Prerequisites: LING:5010 (103:201). Same as SLA:6010 (164:242).

LING:6020 (103:204) Phonological Theory 3 s.h.

Post-SPE phonological theory, including autosegmental phonology, feature geometry, the syllable, optimality theory. Prerequisites: LING:5020 (103:203). Same as SLA:6011 (164:244).

LING:6040 (103:210) Linguistic Structures 3 s.h.

Grammatical and/or phonological structure of a selected language or language family.

LING:6050 (103:217) Language Universals Linguistic Typology 3 s.h.

Proposed universal principles of linguistic structure; approaches to classification of languages on the basis of grammatical and phonological structure. Prerequisites: LING:5010 (103:201).

LING:6080 (103:211) Generative Second Language Acquisition 3 s.h.

Overview of current second-language acquisition research in the generative linguistic framework; focus on characterizing second language learners' linguistic competence and how it is constrained by principles of universal grammar. Offered fall semesters. Prerequisites: LING:3010 (103:111) or LING:5010 (103:201), and LING:3020 (103:112) or LING:5020 (103:203). Same as SLA:6452 (164:246).

LING:6101 (103:273) Cognitive Science of Language Proseminar I 3 s.h.

Survey of five major disciplines within language sciences: formal linguistic, communication disorders, psychological, neuroscience, and computational approaches. Requirements: graduate standing in communication sciences and disorders, linguistics, psychology, or neuroscience. Same as PSY:6101 (031:273), CSD:6101 (003:273).

LING:6102 (103:274) Cognitive Science of Language Proseminar II 3 s.h.

Survey of five major disciplines within language sciences: formal linguistic, communication disorders, psychological, neuroscience, and computational approaches. Requirements: graduate standing in communication sciences and disorders, linguistics, psychology, or neuroscience. Same as PSY:6102 (031:274), CSD:6102 (003:274).

LING:6190 (103:262) Topics in Comparative Romance Linguistics 3 s.h.

Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Recommendations: additional graduate course work in linguistics. Same as SPAN:6190 (035:207), CLSA:6990 (20E:201), SLA:6302 (164:262).

LING:6415 (103:221) Seminar: Language, Gender, and Sexuality 3 s.h.

Role of language and discourse in cultural constructions of gender identities and relations, including domination and subordination; theoretical perspective and methodological approaches that have shaped thought on the language/gender nexus. Same as ANTH:6415 (113:273), GWSS:6415 (131:273).

LING:6900 (103:400) Master's Thesis arr.

LING:7000 (103:300) Seminar: Spanish Linguistics 3 s.h.

Same as SPAN:7000 (035:300).

LING:7010 (103:212) Advanced Syntactic Theory 2-3 s.h.

Recent developments in syntax; comparison of theories, argumentation, and uses of data. Prerequisites: LING:6010 (103:202). Same as SLA:7401 (164:247).

LING:7020 (103:214) Advanced Phonological Theory 2-3 s.h.

Current issues. Prerequisites: LING:6020 (103:204). Same as SLA:7402 (164:248).

LING:7040 (103:205) Topics in Linguistic Theory 2-3 s.h.

Varied topics in linguistic theory; for graduate students.

LING:7090 (103:312) Seminar: Problems in Linguistics 2-3 s.h.

Intensive study of theoretical and practical problems. Same as SLA:7404 (164:342).

LING:7100 (103:390) Special Projects arr.

LING:7900 (103:450) Ph.D. Thesis arr.

Mathematics

Chair

- Daniel D. Anderson

Professors

- Daniel D. Anderson, Frauke Bleher, Victor P. Camillo, Raúl Curto, Charles D. Frohman, Weimin Han, Laurent O. Jay, Palle Jorgensen, Surjit S. Khurana, Philip C. Kutzko, Tong Li, Paul S. Muhly (Mathematics/Statistics and Actuarial Science), David E. Stewart, Gerhard O. Strohmer, Keith D. Stroyan, Lihe Wang, Yangbo Ye

Associate professors

- Bruce Ayati, Richard Baker, Rodica Curtu, Isabel Darcy, Oguz Durumeric, Hao Fang, Muthukrishnan Krishnamurthy, Colleen Mitchell, Walter Seaman, Maggy Tomova, Xiaoyi Zhang

Assistant professors

- Jianfeng Cai, Ionut Chifan, Benjamin Cooper, Miodrag Iovanov, Keiko Kawamuro, Ryan Kinser

Lecturers

- Peter Blanchard, Lavinia Ciungu, Cynthia Farthing, Michael Hero, Olga Sokratova, Denise Szecsei (Computer Science/Mathematics), Guibo Ye

Professors emeriti

- Kendall E. Atkinson, Nguyen P. Cac, Kent R. Fuller, Juan Gatica, Fred Goodman, Herbert W. Hethcote, Eugene W. Johnson, Norman L. Johnson, William A. Kirk, Erwin Kleinfeld, Margaret Kleinfeld, William H. Klink, Bor-Luh Lin, Eugene W. Madison, George C. Nelson, Richard Randell, Dennis M. Roseman, Harold L. Schoen, Jonathan Simon, Tuong Ton-That, Ying-Qing Wu, Marilyn Zweng

Associate professor emeritus

- John P. Lediaeve

Undergraduate major: mathematics (B.A., B.S.)

Undergraduate minor: mathematics

Graduate degrees: M.S. in mathematics; Ph.D. in mathematics

Web site: <http://www.math.uiowa.edu/>

Mathematics is a basic tool for understanding modern society as well as a crucial requirement for many careers in science, engineering, business, and the professions. Research in this living, dynamic subject is at the highest level in history.

An undergraduate degree in mathematics prepares students for a variety of careers in government and business, for secondary teaching, for graduate study, and with proper planning, for a variety of professional programs. Graduate study is advisable for some business and governmental positions and for college and university teaching and research.

Undergraduate Programs of Study

- Major in mathematics (Bachelor of Arts, Bachelor of Science)
- Minor in mathematics

Students majoring in mathematics (either B.A. or B.S.) enroll in one of three programs: Program A is for students who plan to work in business or government or pursue graduate study in mathematics; program B is for students who seek secondary school teaching licensure; and program C is for those seeking specialization in a math-related area, such as actuarial science, biomathematics, business, computer science, economics, physics, statistics, and so forth. Program C may be especially appropriate for students who plan to seek a math-related job after earning a bachelor's degree, rather than going on to graduate study.

B.A. OR B.S. WITH SECOND MAJOR

Students majoring in mathematics may choose to earn a second major in computer science, statistics, actuarial science, or other disciplines. They must satisfy all requirements of program A, program B, or program C in mathematics as well as all requirements for the second major. For more information, consult an advisor and see Declaring or changing a major under For Students/Majors, Minors & Certificates on the College of Liberal Arts and Sciences web site.

TRANSFER FROM ENGINEERING TO MATHEMATICS

Certain engineering students who have completed MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus, MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus, MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra, MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations, or MATH:3550 (22M:037) Engineering Mathematics V: Vector Calculus may count these courses toward the major in mathematics. See the department's Handbook for Undergraduate Majors.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts with a major in mathematics requires a minimum of 120 s.h., including at least 39-41 s.h. (11-12 courses) of work for the major. The Bachelor of Science with a major in mathematics requires a minimum of 120 s.h., including at least 45-47 s.h. (13 courses) of work for the major. (Total credit for the major depends on the student's choice of program A, B, or C.) Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

All students complete the post-calculus mathematics requirement, the upper-level mathematics requirement, and the requirements for program A, B, or C.

For policies concerning transfer credit, correspondence credit, credit by examination, cumulative grade-point average, general rules relating to regression and duplication, and so forth, see For Students on the College of Liberal Arts and Sciences web site. For information

about duplication, regression, and use of the second-grade-only option for mathematics courses, contact the Department of Mathematics.

The department's Handbook for Undergraduate Majors provides details about schedule planning and career options for mathematics students. For more information on admission, financial support, employment opportunities, the faculty, facilities, and other topics, visit The University of Iowa and Department of Mathematics web sites.

The major in mathematics (B.A. or B.S., program A, B, or C) requires the following course work.

POST-CALCULUS MATHEMATICS REQUIREMENT

Students majoring in mathematics (Bachelor of Arts or Bachelor of Science) must earn at least 15 s.h. in post-calculus mathematical sciences courses offered by The University of Iowa; students may not count transfer courses or credit by exam toward this requirement. At least 12 s.h. of the required 15 s.h. in post-calculus courses must be earned in Department of Mathematics courses (prefix MATH) or in courses cross-listed with the department.

Post-calculus courses in the Department of Mathematics are numbered 2000 or above, excluding these:

MATH:3700 (22M:104) Introduction to Matrix Theory;
MATH:3750 (22M:109) Classical Analysis;
MATH:3995 (22M:196) Topics in Mathematics;
MATH:3996 (22M:197) Individual Study and Honors in Mathematics;
MATH:3997 (22M:199) Readings in Mathematics; and
MATH:4010 (22M:105) Basic Analysis.

Post-calculus courses offered by the Department of Computer Science and the Department of Statistics and Actuarial Science must have a calculus prerequisite.

UPPER-LEVEL MATHEMATICS REQUIREMENT

All mathematics majors must take at least one upper-level math course offered by the Department of Mathematics. Upper-level math courses include MATH:3900 (22M:096) Introduction to Mathematics Research and courses numbered 4000 or above, excluding these:

MATH:4010 (22M:105) Basic Analysis; and
MATH:4120 (22M:107) History of Mathematics.

Program A

Program A is primarily for students who plan to work in business or government or to pursue graduate study in mathematics.

PROGRAM A: CORE COURSES

Students must complete a two-semester sequence of calculus I-II (8 s.h.). Advanced placement credit, CLEP credit, and credit granted through the Mathematics Incentive Program is accepted for all or part of the calculus requirement. B.A. and B.S. students complete the following core courses.

MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.
MATH:2700 (22M:027) Introduction to Linear Algebra	4 s.h.
MATH:2850 (22M:028) Calculus III	4 s.h.
MATH:3600 (22M:100) Introduction to Ordinary Differential Equations	3 s.h.

MATH:3720 (22M:050) Introduction to Abstract Algebra I	4 s.h.
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MATH:3770 (22M:055) Fundamental Properties of Spaces and Functions I	4 s.h.
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More advanced courses may be substituted for the core courses, with Department of Mathematics approval.

PROGRAM A: ELECTIVES

B.A. students complete four electives (each 3-4 s.h.) chosen from the following lists, including at least one upper-level mathematics course.

B.S. students complete six electives (each 3-4 s.h.) chosen from the following lists, including at least three upper-level mathematics courses.

Mathematics

Students may choose from all courses numbered MATH:2150 (22M:070) and above, excluding these:

MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra;
MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations;
MATH:2995 (22M:095) Introduction to Research Opportunities;
MATH:3550 (22M:037) Engineering Mathematics V: Vector Calculus;
MATH:3700 (22M:104) Introduction to Matrix Theory;
MATH:3750 (22M:109) Classical Analysis; and
MATH:4010 (22M:105) Basic Analysis.

Computer Science

CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
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Any course numbered above CS:1210 (22C:016) that counts toward an undergraduate major in computer science, excluding CS:5990 (22C:199).

Statistics and Actuarial Science

ACTS:3080 (22S:180) Mathematics of Finance I	3 s.h.
ACTS:4130 (22S:174) Quantitative Methods for Actuaries	3 s.h.
ACTS:4180 (22S:181) Life Contingencies I	3 s.h.
ACTS:4280 (22S:182) Life Contingencies II	3 s.h.
ACTS:6580 (22S:176) Credibility and Survival Analysis	3 s.h.
STAT:3101 (22S:131) Introduction to Mathematical Statistics II	3 s.h.
STAT:3210 (22S:158) Experimental Design and Analysis	3 s.h.
STAT:4100 (22S:153) Mathematical Statistics I	3 s.h.
STAT:4101 (22S:154) Mathematical Statistics II	3 s.h.
STAT:4510 (22S:150) Regression, Time Series, and Forecasting	3 s.h.
STAT:4520 (22S:138) Bayesian Statistics	3 s.h.
STAT:5100 (22S:193) Statistical Inference I	3 s.h.
STAT:5101 (22S:194) Statistical Inference II	3 s.h.
STAT:6300 (22S:195) Probability and Stochastic Processes I	3 s.h.
STAT:6301 (22S:196) Probability and Stochastic Processes II	3 s.h.

STAT:6560 (22S:156) Applied Time Series Analysis 3 s.h.

May include one of these, if taken before STAT:4100 (22S:153) Mathematical Statistics I:

STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences 3 s.h.

STAT:3100 (22S:130) Introduction to Mathematical Statistics I 3 s.h.

STAT:3120 (22S:120) Probability and Statistics 4 s.h.

Program B

Program B is intended for students seeking secondary school teaching licensure. In addition to earning a Bachelor of Arts or Bachelor of Science with a major in mathematics, students must complete the Teacher Education Program (TEP); see "B.A. or B.S. with Teacher Licensure" below.

PROGRAM B: CORE COURSES

Students must complete a two-semester sequence of calculus I-II (8 s.h.). Advanced placement credit, CLEP credit, and credit earned through the Mathematics Incentive Program is accepted for part or all of the calculus requirement. B.A. and B.S. students complete the following core courses.

All of these:

MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II 8 s.h.

MATH:2150 (22M:070) Foundations of Geometry 3 s.h.

MATH:2700 (22M:027) Introduction to Linear Algebra 4 s.h.

MATH:2850 (22M:028) Calculus III 4 s.h.

MATH:3720 (22M:050) Introduction to Abstract Algebra I 4 s.h.

MATH:3770 (22M:055) Fundamental Properties of Spaces and Functions I 4 s.h.

CS:1210 (22C:016) Computer Science I: Fundamentals 4 s.h.

STAT:3120 (22S:120) Probability and Statistics 4 s.h.

One of these:

MATH:4050 (22M:150) Introduction to Discrete Mathematics 3 s.h.

MATH:4060 (22M:151) Discrete Mathematical Models 3 s.h.

More advanced courses may be substituted for the core courses, with Department of Mathematics approval.

PROGRAM B: ELECTIVES

B.A. students in Program B must take at least one additional Department of Mathematics post-calculus course (3-4 s.h.). B.S. students in Program B must take at least three additional Department of Mathematics post-calculus courses (3-4 s.h. each), including two chosen from MATH:4120 (22M:107) History of Mathematics and other upper-level math courses. With the department's approval, capable students are encouraged to substitute more advanced courses in the same subject area for any of the electives. The Handbook for Undergraduate Majors offers advice on course selection.

Program C

Program C enables students to specialize in a math-related subtrack, such as the mathematics of making optimal business decisions, risk management and insurance, economics, finance, physics, chemistry, biostatistics, biomathematics, computer science, or statistics and actuarial science. In consultation with the faculty advisor, each student builds on the Program C core to prepare a subtrack plan of study tailor-made to his or her interests and academic or career goals. The proposed study plan must be approved by the Department of Mathematics undergraduate committee.

Students must file their subtrack plan of study before they begin their senior year; they use the Program C Plan of Study form, available at the Department of Mathematics office. The Handbook for Undergraduate Majors has plans for choosing electives in several areas; students may use these or propose other plans.

PROGRAM C: CORE COURSES

Students must complete a two-semester sequence of calculus I-II (8 s.h.). Advanced placement credit, CLEP credit, and credit earned through the Mathematics Incentive Program is accepted for part or all of the calculus requirement. B.A. and B.S. students complete the following core courses.

MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II 8 s.h.

MATH:2700 (22M:027) Introduction to Linear Algebra 4 s.h.

MATH:2850 (22M:028) Calculus III 4 s.h.

One additional proof course such as MATH:3720 (22M:050) or MATH:3770 (22M:055) 4 s.h.

Some subtracks require additional core courses; consult the Handbook for Undergraduate Majors. Additional core courses count as required electives (see "Program C: Electives" below). Students who specialize in engineering should consult the Department of Mathematics.

More advanced courses may be substituted for the core courses, with Department of Mathematics approval.

PROGRAM C: ELECTIVES

B.A. students choose six or seven electives, depending on their subtrack. B.S. students choose eight approved electives. All electives must be offered for 3-4 s.h. of credit. At least three of the electives must be offered by the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science (prefixes CS, MATH, and STAT or ACTS).

Some subtracks require additional core courses (see "Program C: Core Courses" above); the additional core courses count as required electives. For a list of suggested subtracks and restrictions on electives in each subtrack, consult the Handbook for Undergraduate Majors.

All mathematics majors must take 15 s.h. of post-calculus math courses and at least one upper-level math course; see "Post-Calculus Mathematics Requirement" and "Upper-Level Mathematics Requirement" above.

B.A. or B.S. with Teacher Licensure

Mathematics majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students majoring in mathematics who wish to earn teacher licensure should choose program B in the mathematics major (Bachelor of Arts or Bachelor of Science); see "Program B" above.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Many mathematics courses must be taken in sequence, so students must begin major requirements as early as possible, and individual plans of study must be constructed carefully. The mathematics major typically requires 11 or 12 courses for Bachelor of Arts students and 13 courses for Bachelor of Science students. Students must choose program A, B, or C by the end of the third semester and must remain in their chosen program until they graduate in order to stay on track for the four-year graduation plan.

Before the third semester begins: course work in the major through second-semester calculus

Before the fifth semester begins: two or three more courses in the major

Before the seventh semester begins: three or four more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in mathematics have the opportunity to graduate with honors in the major. Departmental honors students must complete all requirements for the major and must maintain a g.p.a. of at least 3.40 in the major and overall. To graduate with honors in the major, they must complete one of the options below.

Option 1: complete four of the courses below, including a two-course sequence, with a B average for the four courses.

MATH:4090 (22M:114) A Rigorous Introduction to Abstract Algebra	4 s.h.
MATH:4210 (22M:113) Foundations of Analysis	4 s.h.
MATH:5000 (22M:120) & MATH:5010 (22M:121) Abstract Algebra I-II	8 s.h.
MATH:5200 (22M:115) & MATH:5210 (22M:116) Introduction to Analysis I-II	8 s.h.
MATH:5400 (22M:132) & MATH:5410 (22M:133) General Topology - Introduction to Smooth Manifolds	8 s.h.
MATH:5600 (22M:142) & MATH:5700 (22M:144) Nonlinear Dynamics with Numerical Methods - Partial Differential Equations with Numerical Methods	8 s.h.
MATH:5800 (22M:170) & MATH:5810 (22M:171) Numerical Analysis: Nonlinear Equations and Approximation Theory - Numerical Analysis: Differential Equations and Linear Algebra	8 s.h.

Mathematics courses (prefix MATH) numbered 6000 or above, approved by the honors advisor

Option 2: complete an honors project comparable to taking several of the courses above, approved by the honors advisor and the thesis supervisor. Students who choose this option typically register for MATH:3996 (22M:197) Individual Study and Honors in Mathematics for 3 s.h. or more. They must find a faculty member willing to supervise their project; contact the department for help finding a project supervisor. Contact the Department of Mathematics honors advisor for more information.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in mathematics requires a minimum of 15 s.h. in mathematics courses, including 12 s.h. earned in post-calculus courses taken in the Department of Mathematics at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Transfer credit and credit by examination do not count toward the 12 s.h. of post-calculus courses.

Courses numbered 2000 or above are considered post-calculus, excluding these:

MATH:3700 (22M:104) Introduction to Matrix Theory;
 MATH:3750 (22M:109) Classical Analysis;
 MATH:3995 (22M:196) Topics in Mathematics;
 MATH:3996 (22M:197) Individual Study and Honors in Mathematics;
 MATH:3997 (22M:199) Readings in Mathematics; and
 MATH:4010 (22M:105) Basic Analysis.

Students who have taken MATH:1560 (22M:032), MATH:2550 (22M:033), MATH:2560 (22M:034), and MATH:3550 (22M:037) at The University of Iowa may satisfy the minor's post-calculus course requirement by taking one additional course chosen from MATH:2150 (22M:070) or courses numbered MATH:3720 (22M:050) or above, excluding these:

MATH:3750 (22M:109) Classical Analysis;
 MATH:3995 (22M:196) Topics in Mathematics;
 MATH:3996 (22M:197) Individual Study and Honors in
 Mathematics;
 MATH:3997 (22M:199) Readings in Mathematics; and
 MATH:4010 (22M:105) Basic Analysis.

For more information, see the department's Handbook for Undergraduate Majors.

Graduate Programs of Study

- Master of Science in mathematics
- Doctor of Philosophy in mathematics

Master of Science

The Master of Science in mathematics requires a minimum of 30 s.h. of graduate credit. Students earn the degree through courses and comprehensive examinations. There is no M.S. thesis. Requirements (courses and comprehensive examination areas) may be modified with the department's consent.

Four different programs (I, II, III, and IV) lead to the M.S. in mathematics. Program II is designed for secondary school teachers.

Program I

Program I prepares students for further study of pure and applied mathematics and for employment in government and business. M.S. students in program I take several courses and pass two comprehensive examinations. Students must earn a grade of B-minus or higher in six of the courses and maintain a g.p.a. of at least 2.75 in all mathematics courses taken for the degree.

Program I requires the following courses.

MATH:5000 (22M:120) & MATH:5010 (22M:121) Abstract Algebra I-II	8 s.h.
MATH:5200 (22M:115) & MATH:5210 (22M:116) Introduction to Analysis I-II	8 s.h.
MATH:5400 (22M:132) General Topology	4 s.h.
MATH:5410 (22M:133) Introduction to Smooth Manifolds	4 s.h.
MATH:5600 (22M:142) Nonlinear Dynamics with Numerical Methods	4 s.h.
MATH:5700 (22M:144) Partial Differential Equations with Numerical Methods	4 s.h.

The two comprehensive examinations are chosen from algebra, analysis, differential equations with numerical methods, and topology.

Program II

Program II is designed for secondary school teachers. Program II requirements are similar to those for programs I and III, but program II students complete two mathematics education courses and a minimum of 24 s.h. in Department of Mathematics courses. The following courses may be used to satisfy the program II mathematics course requirements.

MATH:3600 (22M:100) Introduction to Ordinary Differential Equations	2-3 s.h.
MATH:3700 (22M:104) Introduction to Matrix Theory	3 s.h.
MATH:3750 (22M:109) Classical Analysis	3 s.h.

Mathematics courses (prefix MATH) numbered 4000 or above

Students are encouraged to consult with the mathematics education faculty when planning their course of study.

Program III

Program III focuses on applied mathematics. Students in program III take several courses and pass two comprehensive examinations. Students must earn a grade of B-minus or higher in six of the courses and maintain a g.p.a. of at least 2.75 in all mathematics courses taken for the M.S.

Program III requires the following courses.

All of these:

MATH:5200 (22M:115) & MATH:5210 (22M:116) Introduction to Analysis I-II	8 s.h.
MATH:5600 (22M:142) Nonlinear Dynamics with Numerical Methods	4 s.h.
MATH:5700 (22M:144) Partial Differential Equations with Numerical Methods	4 s.h.
MATH:5800 (22M:170) Numerical Analysis: Nonlinear Equations and Approximation Theory	4 s.h.
MATH:5810 (22M:171) Numerical Analysis: Differential Equations and Linear Algebra	4 s.h.

Both courses in group A, or two courses from group B:

Group A

MATH:5400 (22M:132) General Topology	4 s.h.
MATH:5410 (22M:133) Introduction to Smooth Manifolds	4 s.h.

Group B

MATH:4060 (22M:151) Discrete Mathematical Models	3 s.h.
MATH:4610 (22M:140) Continuous Mathematical Models	3 s.h.
MATH:4820 (22M:174) Optimization Techniques	3 s.h.

The two comprehensive examinations are chosen from analysis, differential equations with numerical methods, numerical analysis, and topology.

Program IV

Program IV is designed for nondepartmental students working toward a Ph.D. in areas of study that require mathematical knowledge. The program has no specific required courses.

Students in program IV are considered to have passed the comprehensive examination for the master's degree in mathematics if they have maintained a g.p.a. of at least 3.00 in all mathematics courses taken for the M.S. in mathematics and have successfully completed the Ph.D. comprehensive examination in their area of study.

Students in program IV are assigned a mathematics advisor, who works with them and their major advisor to plan an appropriate curriculum for the M.S. in mathematics. A suitable program of study should be approved by a mathematics advisor before the student takes the Ph.D. comprehensive examination, and a

member of the mathematics faculty should serve on the Ph.D. comprehensive examination committee.

Doctor of Philosophy

The Doctor of Philosophy in mathematics requires a minimum of 72 s.h. of graduate credit. The program places strong emphasis on preparation for research and teaching. The department maintains no division between pure and applied mathematics. It cooperates in interdisciplinary doctoral programs with the College of Education (see Teaching and Learning (p. 814) in the Catalog) and the Program in Applied Mathematical and Computational Sciences (p. 949).

Ph.D. students in mathematics must satisfy the following requirements for course work (credits and breadth), examinations, foreign language, and the Ph.D. thesis.

Students must spend at least three years in residence at a graduate college, including at least one year at The University of Iowa. They also should enroll in specific courses designated as preparatory for the Ph.D. examinations (consult the Department of Mathematics graduate studies director).

To further encourage mathematical breadth, students must earn at least 33 s.h. of graduate credit in regular courses equivalent to or more advanced than Ph.D. comprehensive examination preparatory courses. For a list of accepted Department of Mathematics courses numbered 6000 or above and rules to ensure proper distribution, contact the department.

The Ph.D. examinations consist of a qualifying exam and a comprehensive exam. Students choose three areas from the department's list of qualifying examination areas: algebra, analysis, differential equations with numerical methods, and topology. For each qualifying area, there is a two-semester course sequence numbered 5000 or above that is designated as preparatory, although exams may differ from course content. The three parts of the qualifying exam are taken over a two-week period. An exam committee gives one grade (pass, fail, conditional pass) on the entire three-part qualifying examination (the committee has at least six faculty members, with at least two from each exam area). If the grade is fail, the committee has the option to consider each part of the exam separately, offering the student the option of pass in one or two of the areas and fail in the other(s).

The Ph.D. comprehensive exam tests students on research-related topics.

Candidates also take an oral final examination on their dissertation material.

Ph.D. students are required to demonstrate reading proficiency in French, German, or Russian by passing a reading test administered by the appropriate language department, earning a grade of B or higher in the second semester of a sequence offered by the appropriate language department, or passing a special examination approved by the Department of Mathematics graduate committee. Courses that do not carry graduate credit may be used to satisfy this requirement, but they do not count toward the required 72 s.h. of graduate credit. Students must demonstrate language competence after enrolling in graduate school.

The most distinctive aspect of a Ph.D. is the thesis. The department expects the thesis to be an original

mathematical work comparable in content and writing quality to that found in standard published research journals. The thesis is written under the supervision of a mathematics department faculty member and must be approved by the Ph.D. defense committee.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. Applicants to the Ph.D. program have preference for admission and funding.

Master of Science

Admission to M.S. programs I, II, and III is based on a combination of undergraduate course work and grades, letters of recommendation, and test scores. Numerical standards change every year or so; exceptions may be made to the following guidelines.

Applicants must have completed work in an undergraduate program equivalent to the major in mathematics offered by the University of Iowa Department of Mathematics, with an undergraduate g.p.a. of at least 3.20. Relevance and difficulty of courses are considered when evaluating grades; grades of C or lower in mathematics courses must be balanced by grades of A. Individuals whose preparation does not meet this requirement may be admitted conditionally and are asked to take specific courses that cover deficiencies.

Applicants must score at least 155 on the quantitative section of the revised Graduate Record Exam (GRE) General Test (700 on the old GRE). Applicants whose first language is not English are required to demonstrate their competence in English, normally by scoring at least 105 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applicants must submit three letters of recommendation.

Doctor of Philosophy

Admission to the Ph.D. program is based on a combination of undergraduate or graduate course work and grades, letters of recommendation, and test scores. Required scores on the GRE quantitative section and TOEFL are the same as those for admission to the M.S. program, but applicants to the Ph.D. program must have an undergraduate or graduate g.p.a. of at least 3.40.

Courses

Courses numbered below 3000 are not open to graduate students.

Pre-Lower Level Undergraduate

Credit earned in MATH:0100 (22M:001) Basic Algebra I and MATH:0300 (22M:003) Basic Geometry does not count toward graduation.

MATH:0100 (22M:001) Basic Algebra I 3 s.h.

Percents, ratio and proportion, algebraic expressions and operations, simple products, linear and quadratic equations, simultaneous equations, exponents and radicals; emphasis on verbal problems. GE: Algebra I - Developmental.

MATH:0300 (22M:003) Basic Geometry 3 s.h.
Angles, triangles, polygons, areas, Pythagorean theorem, similar triangles, circles, loci, related topics. Offered spring semesters. Requirements: grade of C- or higher in MATH:0100 (22M:001) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Geometry - Developmental.

Lower-Level Undergraduate

The sequences MATH:1850 (22M:025) Calculus I and MATH:1860 (22M:026) Calculus II, and MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus and MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus are similar, but they cover the material in a different order and with different emphases. Students who have taken the first semester or one sequence must consult with their advisor before taking the second semester of the other sequence; they also must take a math placement test.

Students who consider taking MATH:1860 (22M:026) Calculus II after MATH:1380 (22M:017) Calculus and Matrix Algebra for Business or MATH:1460 (22M:016) Calculus for the Biological Sciences must consult with their advisor.

MATH:1000 (22M:014) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

MATH:1005 (22M:008) College Algebra 4 s.h.
Algebraic techniques, equations and inequalities, functions and graphs, exponential and logarithmic functions, systems of equations and inequalities. Requirements: grade of C- or higher in MATH:0100 (22M:001) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course.

MATH:1010 (22M:005) Trigonometry 3 s.h.
Trigonometric functions, solutions of right and oblique triangles, complex numbers. Requirements: grade of C- or higher in MATH:1005 (22M:008) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course.

MATH:1020 (22M:009) Elementary Functions 4 s.h.

Functions, relations, coordinate systems; properties and graphs of algebraic, trigonometric, logarithmic, exponential functions; inverse trigonometric functions; properties of lines, conic sections. Requirements: grade of C- or higher in MATH:1005 (22M:008) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1120 (22M:006) Logic of Arithmetic 4 s.h.
Mathematical and conceptual foundations of the natural numbers used in elementary school arithmetic teaching; multiple algorithmic approaches to arithmetic and its mathematical and contextual relationships, extensions to integers, rational and irrational numbers, multiple representations. Requirements: grade of C- or higher in MATH:0100 (22M:001) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1130 (22M:012) Theory of Arithmetic 3 s.h.
Sets, cardinalities, reasoning in proofs, counterexamples, arithmetic with integers, rationals, irrationals, number theory, functions, algebraic expressions. Requirements: grade of C- or higher in MATH:1020 (22M:009) or a more advanced math course, or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1140 (22M:081) Geometry for Elementary Teachers 3 s.h.
Points, lines, planes; measurement, two- and three-dimensional coordinate geometry, transformational geometry and vectors; applications of geometry to solve real-world problems. Requirements: elementary teacher certificate candidacy or certification, and grade of C- or higher in MATH:0100 (22M:001) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course.

MATH:1240 (22M:010) Finite Mathematics 4 s.h.
Introduction to logic, set theory, linear equations and inequalities, linear programming, matrix algebra, combinatorial probability. Requirements: MATH:1005 (22M:008) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1340 (22M:013) Mathematics for Business 4 s.h.

Algebraic techniques, functions and functional models, exponential and logarithmic functions and models, linear programming, informal introduction to calculus; examples and applications from management, economic sciences, related areas. Requirements: grade of C- or higher in MATH:1005 (22M:008) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1380 (22M:017) Calculus and Matrix Algebra for Business 4 s.h.

Quantitative methods for treating problems arising in management, economic sciences, related areas; introduction to differential and integral calculus, systems of linear equations and matrix operations. Requirements: grade of C- in MATH:1005 (22M:008) or MATH:1340 (22M:013), or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1440 (22M:015) Mathematics for the Biological Sciences 4 s.h.

Relations, functions, coordinate systems, graphing, polynomials, trigonometric functions, logarithmic and exponential functions; discrete mathematics, probability; examples and applications from biological sciences. Requirements: grade of C- or higher in MATH:1005 (22M:008) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1460 (22M:016) Calculus for the Biological Sciences 4 s.h.

Differential, integral calculus; differential equations, multivariable calculus; applications to life sciences. Requirements: grade of C- or higher in MATH:1440 (22M:015) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus 4 s.h.

Limits, derivatives, max/min, other applications, mean-value theorem, approximating functions, concavity, curve sketching, exponential models; Riemann sums, fundamental theorem; integration techniques, improper integrals, approximations. Requirements: grade of C- or higher in MATH:1020 (22M:009), or grades of C- or higher in MATH:1005 (22M:008) and MATH:1010 (22M:005), or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus 4 s.h.

Vector geometry; functions of several variables; polar coordinates; partial derivatives, gradients, directional derivatives; tangent lines and planes; max/min/parametric curves, curvilinear motion; multiple integrals; vector fields, flows; integration on curves, work; divergence, flux, Green's theorem. Requirements: MATH:1550 (22M:031), or score of 4 or higher on AP Calc (AB) exam, or score of 3 or higher on AP Calc (BC) exam.

MATH:1850 (22M:025) Calculus I 4 s.h.

Fundamental concepts, limits, methods, and techniques of differential calculus of a single variable; definite and indefinite integrals, substitution rule, fundamental theorem of calculus; applications including graphing, extreme values, areas, and volumes. Requirements: grade of C- or higher in MATH:1020 (22M:009), or grades of C- or higher in MATH:1005 (22M:008) and MATH:1010 (22M:005), or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course. GE: Quantitative or Formal Reasoning.

MATH:1860 (22M:026) Calculus II 4 s.h.

Techniques of integration including by-parts, trigonometric Integrals, trigonometric substitutions, partial fractions, improper integrals; applications (i.e., arclength), area surfaces of revolutions, application to physics; introduction to differential equations; parametric equations and polar coordinates; infinite sequences and series, convergence tests, power series, Taylor polynomials and series. Requirements: grade of C- or higher in MATH:1850 (22M:025) or satisfactory score on math placement exam. Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course.

Core Undergraduate

Graduate students in mathematics must have departmental approval to earn credit for any of the courses listed below numbered 3000 or above, except MATH:3995 (22M:196) Topics in Mathematics. Graduate students in other disciplines may earn credit for any course numbered 3000 or above.

MATH:2150 (22M:070) Foundations of Geometry 3 s.h.

Axiomatic development of common foundation for Euclidean, non-Euclidean geometry; constructions of non-Euclidean models, independence of parallel postulate. Prerequisites: MATH:1860 (22M:026).

MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra 2 s.h.

Applications, computers for matrix calculations; matrix, vector arithmetic; linear independence, basis, subspace (in R^2 , R^3); systems of equations, matrix reduction; rank, dimension; determinants, applications; eigenvalues, eigenvectors; diagonalization, principal axis theorem. Prerequisites: MATH:1550 (22M:031).

MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations 3 s.h.

Ordinary differential equations and applications, with integrated use of computing, student projects; first-order equations; higher order linear equations; systems of linear equations, Laplace transforms; introduction to nonlinear equations and systems, phase plane, stability. Prerequisites: MATH:1560 (22M:032) and MATH:2550 (22M:033).

MATH:2700 (22M:027) Introduction to Linear Algebra 4 s.h.

Vector algebra and geometry of three-dimensional Euclidean space and extensions to n-space and vector spaces; lines and planes, matrices, linear transformations, systems of linear equations, reduction to row echelon form, dimension, rank, determinants, eigenvalues and eigenvectors. Prerequisites: MATH:1550 (22M:031) or MATH:1850 (22M:025).

MATH:2850 (22M:028) Calculus III 4 s.h.

Multivariable calculus; vector functions, line integrals, total differentials, gradient, implicit functions, coordinate systems, Taylor's expansion, extrema, multiple integrals, vector fields, surface integrals, Stokes' theorem. Requirements: grade of C- or higher in MATH:1860 (22M:026).

MATH:2995 (22M:095) Introduction to Research Opportunities 1 s.h.

Modern mathematics research areas and activities; seminar. Prerequisites: MATH:1860 (22M:026) and MATH:2700 (22M:027).

MATH:3550 (22M:037) Engineering Mathematics V: Vector Calculus 3 s.h.

Partial derivatives, max-min problems, integrals along curves, surfaces and solids, vector fields and conservation of energy; curl, divergence, Stokes' theorem and the divergence theorem; the classical partial differential equations and qualitative behavior of their solutions. Prerequisites: MATH:1560 (22M:032) and MATH:2550 (22M:033). Corequisites: MATH:2560 (22M:034).

MATH:3600 (22M:100) Introduction to Ordinary Differential Equations 2-3 s.h.

First-order ordinary differential equations; second-order linear differential equations; series solutions; higher-order linear and matrix differential equations; existence and uniqueness theorems. Prerequisites: MATH:2700 (22M:027) and MATH:2850 (22M:028).

MATH:3700 (22M:104) Introduction to Matrix Theory 3 s.h.

Vector algebra and geometry of three-dimensional Euclidean space and extensions to n-space and vector spaces; lines and planes, matrices, linear transformations, systems of linear equations, reduction to row-echelon form, dimension, rank, determinants, eigenvalues, eigenvectors. Requirements: graduate standing.

MATH:3720 (22M:050) Introduction to Abstract Algebra I 4 s.h.

Basic logic, proof methods, sets, functions, relations, mathematical induction; gradual transition from familiar number systems to abstract structures—division algorithm, unique factorization theorems; groups, subgroups, quotient groups, homomorphisms. Prerequisites: MATH:2700 (22M:027). Corequisites: MATH:1860 (22M:026).

MATH:3750 (22M:109) Classical Analysis 3 s.h.

Multivariable calculus, vector functions, line integral, total differentials, gradient, implicit functions, coordinate systems, Taylor's expansion, extrema, multiple integrals, vector fields, surface integrals, Stokes' theorem. Requirements: graduate standing and one year of calculus.

MATH:3770 (22M:055) Fundamental Properties of Spaces and Functions I 4 s.h.

Elementary topological and analytic properties of real numbers; emphasis on ability to handle definitions, theorems, proofs. Corequisites: MATH:2700 (22M:027). Requirements: second-semester calculus.

MATH:3800 (22M:072) Elementary Numerical Analysis 3 s.h.

Computer arithmetic, root finding, polynomial approximation, numerical integration, systems of linear equations, ordinary differential equations; use of higher-level computer language such as Matlab, Maple, Mathematica. Prerequisites: MATH:1560 (22M:032) or MATH:1860 (22M:026). Same as CS:3700 (22C:072).

MATH:3900 (22M:096) Introduction to Mathematics Research 3 s.h.

Research experience; students study an elementary topic of active research, then work in groups under faculty supervision. Prerequisites: MATH:1860 (22M:026) and MATH:2700 (22M:027).

MATH:3995 (22M:196) Topics in Mathematics 3 s.h.

Varied topics. Recommendations: junior, senior, or graduate standing in mathematics, classics, or related fields.

MATH:3996 (22M:197) Individual Study and Honors in Mathematics arr.

MATH:3997 (22M:199) Readings in Mathematics arr.

Upper-Level Undergraduate

Graduate students in mathematics may not earn credit for MATH:4010 (22M:105) Basic Analysis.

MATH:4010 (22M:105) Basic Analysis 3 s.h.

Elementary topological and analytical properties of real numbers; emphasis on ability to handle definitions, theorems, proofs; same material as MATH:3770 (22M:055) for non-mathematics graduate students. Requirements: graduate standing, one year of calculus, and one semester of linear algebra.

- MATH:4040 (22M:127) Matrix Theory** 3 s.h.
Vector spaces, linear transformations, matrices, equivalence of matrices, eigenvalues and eigenvectors, canonical forms, similarity, orthogonal transformations, bilinear and quadratic forms. Prerequisites: MATH:2700 (22M:027) or MATH:3700 (22M:104).
- MATH:4050 (22M:150) Introduction to Discrete Mathematics** 3 s.h.
Basic methods of enumerative combinatorics, inclusion-exclusion and generating functions, applications of group theory (Polya-Burnside theorem). Offered fall semesters. Prerequisites: MATH:1860 (22M:026) and MATH:2700 (22M:027).
- MATH:4060 (22M:151) Discrete Mathematical Models** 3 s.h.
Case history approach to discrete models from various fields (e.g., genetics, psychology, health care, scheduling); construction, interpretation, analysis, simulation, testing of models; development of discrete mathematics. Prerequisites: MATH:2700 (22M:027).
- MATH:4080 (22M:126) Elementary Theory of Numbers** 3 s.h.
Factorization, congruence, Diophantine equations, law of quadratic reciprocity. Prerequisites: MATH:1860 (22M:026) and MATH:2700 (22M:027).
- MATH:4090 (22M:114) A Rigorous Introduction to Abstract Algebra** 4 s.h.
Rigorous review of groups including homomorphisms and quotient groups; group actions; Sylow's theorems; rigorous review of rings; ideals, ring homomorphisms, quotient rings; polynomial rings; vector spaces and linear transformations; basic field theory; serves as a bridge between MATH:3720 (22M:050) and MATH:5000 (22M:120). Requirements: MATH:3720 (22M:050) or graduate standing.
- MATH:4120 (22M:107) History of Mathematics** 3 s.h.
May include numerical systems; Babylonian, Egyptian, and Greek mathematics; mathematics of other cultures; calculus; 19th- and 20th-century mathematics. Requirements: two semesters of calculus and one semester of linear algebra.
- MATH:4200 (22M:118) Complex Variables** 3 s.h.
Geometry of complex plane, analytic functions; Cauchy-Goursat theorem, applications; Laurent series, residues, elementary conformal mapping. Prerequisites: MATH:2850 (22M:028) or MATH:3750 (22M:109).
- MATH:4210 (22M:113) Foundations of Analysis** 4 s.h.
Introduction to fundamental ideas of analysis; emphasis on understanding and constructing definitions, theorems, and proofs; real and complex numbers, set theory in metric spaces, compactness and connectedness, sequences, Cauchy sequences, series, and continuity; elements of differential and integral calculus; sequences and series of functions; modes of convergence; equicontinuity; serves as a bridge between MATH:3770 (22M:055) and MATH:5200 (22M:115). Requirements: MATH:3770 (22M:055) or graduate standing.
- MATH:4250 (22M:181) Introduction to Financial Mathematics** 2-3 s.h.
Financial mathematics; option pricing and portfolio optimization, stochastic integration, methods due to Ito and Feynman-Kac, Monte-Carlo simulation. Prerequisites: MATH:2850 (22M:028) or STAT:3120 (22S:120).
- MATH:4500 (22M:160) Introduction to Differential Geometry I** 3 s.h.
Space curves, Frenet frames, intrinsic and extrinsic geometry of surfaces, first and second fundamental forms, isometries, Gauss map, Gaussian curvature, Theorema Egregium, geodesics, covariant differentiation; may include global theory of curves and Gauss-bonnet theorem. Prerequisites: MATH:2850 (22M:028) and MATH:3770 (22M:055), or MATH:3600 (22M:100).
- MATH:4510 (22M:161) Introduction to Differential Geometry II** 3 s.h.
Continuation of MATH:4500 (22M:160); geometry of surfaces in Euclidean space, Gauss-Bonnet theorem and its applications, minimal surfaces, abstract surfaces; may include Riemannian manifolds, connections, elementary Lie groups, applications of differential geometry to other disciplines (physics, engineering). Prerequisites: MATH:4500 (22M:160).
- MATH:4610 (22M:140) Continuous Mathematical Models** 3 s.h.
Building and analyzing mathematical models involving differential equations for specific problems from engineering and the sciences; modeling project. Prerequisites: MATH:3600 (22M:100).
- MATH:4740 (22M:179) Large Data Analysis** 3 s.h.
Current areas that deal with problem of Big Data; techniques from computer science, mathematics, statistics; high performance and parallel computing, matrix techniques, cluster analysis, visualization; variety of applications including Google PageRank, seismology, Netflix-type problems, weather forecasting; fusion of data with simulation; projects. Prerequisites: CS:1210 (22C:016) and STAT:3200 (22S:152). Corequisites: MATH:3800 (22M:072). Same as CS:4740 (22C:179), STAT:4740 (22S:169).
- MATH:4820 (22M:174) Optimization Techniques** 3 s.h.
Basic theory of optimization, use of numerical algorithms in solution of optimization problems; linear and nonlinear programming, sensitivity analysis, convexity, optimal control theory, dynamic programming, calculus of variations. Prerequisites: MATH:2700 (22M:027), MATH:2850 (22M:028), and MATH:3800 (22M:072). Same as CS:4720 (22C:174).
- MATH:4860 (22M:178) High Performance and Parallel Computing** 3 s.h.
Parallel scientific computing methods such as parallel algorithms for dense and sparse matrices; implementation using libraries such as MPI; current topics such as grid computing. Prerequisites: CS:2630 (22C:060) and MATH:2700 (22M:027). Same as CS:4700 (22C:177).

Core Graduate

- MATH:5000 (22M:120) Abstract Algebra I** 4 s.h.
Groups and homomorphisms, Sylow Theorems, rings, finitely generated modules over a PID, Galois theory, vector spaces, linear transformations and matrices, canonical forms. Prerequisites: MATH:3720 (22M:050).
- MATH:5010 (22M:121) Abstract Algebra II** 4 s.h.
Continuation of MATH:5000 (22M:120). Prerequisites: MATH:5000 (22M:120).
- MATH:5200 (22M:115) Introduction to Analysis I** 4 s.h.
Real numbers, fundamentals of limits and continuity in the context of metric spaces; Lebesgue theory of functions of one real variable. Requirements: MATH:3770 (22M:055) or graduate standing.
- MATH:5210 (22M:116) Introduction to Analysis II** 4 s.h.
Local theory of analytic functions of one complex variable, power series, classical transcendental functions; spaces of functions. Prerequisites: MATH:5200 (22M:115).
- MATH:5400 (22M:132) General Topology** 4 s.h.
Basic concepts of general topological spaces and continuous functions: countability of sets, topological space, comparing topologies; subspace, order, and product topologies; closed sets and limit points, continuous functions, metric topology, quotient topology (including projective spaces and gluing cells), connectedness in the real line and in general spaces, components and local connectedness, compactness in Euclidean and general spaces, limit point compactness, local compactness, countability axioms, separation axioms, normal spaces and Urysohn's Lemma, complete metric spaces, convergence in function spaces. Prerequisites: MATH:3770 (22M:055).
- MATH:5410 (22M:133) Introduction to Smooth Manifolds** 4 s.h.
Calculus on smooth manifolds; smooth functions, mean value theorem, chain rule, smooth manifolds, tangent vectors, tangent spaces, inverse and implicit functions theorems, submersions and immersions, vector fields, flows, multilinear algebra, differential forms, Stokes theorem. Prerequisites: MATH:2700 (22M:027), MATH:2850 (22M:028), and MATH:5400 (22M:132).
- MATH:5600 (22M:142) Nonlinear Dynamics with Numerical Methods** 4 s.h.
Nonlinear differential equations, one- and two-dimensional flows, stability, phase plane analysis, limit cycles, bifurcations, chaos, fractals; Euler's, multistep, and Runge-Kutta numerical methods. Prerequisites: MATH:3600 (22M:100) and MATH:3770 (22M:055).
- MATH:5700 (22M:144) Partial Differential Equations with Numerical Methods** 4 s.h.
Conservation laws, weak solutions, diffusion equation, Laplace's equation, finite difference methods, variational methods, finite element method. Prerequisites: MATH:2850 (22M:028), MATH:3600 (22M:100), and MATH:3770 (22M:055).
- MATH:5800 (22M:170) Numerical Analysis: Nonlinear Equations and Approximation Theory** 4 s.h.
Root finding for nonlinear equations; polynomial interpolation; polynomial approximation of functions; numerical integration. Prerequisites: MATH:2700 (22M:027) and MATH:2850 (22M:028), or MATH:3550 (22M:037). Requirements: knowledge of computer programming. Same as CS:5710 (22C:170).
- MATH:5810 (22M:171) Numerical Analysis: Differential Equations and Linear Algebra** 4 s.h.
Numerical methods for initial value problems for ordinary differential equations; direct and iterative methods for linear systems of equations; eigenvalue problems for matrices. Prerequisites: MATH:2700 (22M:027) and MATH:2850 (22M:028), or MATH:3550 (22M:037); and MATH:3600 (22M:100). Requirements: knowledge of computer programming. Same as CS:5720 (22C:171).
- MATH:5900 (22M:224) First-Year Graduate Seminar** 1 s.h.
Introduction to mathematics graduate program. Requirements: first-year graduate standing in mathematics.
- MATH:5950 (22M:125) Qualifying Exam Preparation Seminars** 0 s.h.
Exam preparation in pure and applied mathematics.

Graduate

- MATH:6000 (22M:205) Introduction to Algebra I** 3 s.h.
Abstract algebra: semigroups, groups, rings, integral domains, polynomial rings, division rings, fields, vector spaces, matrices, modules over rings, lattices, categories. Prerequisites: MATH:5000 (22M:120).
- MATH:6010 (22M:206) Introduction to Algebra II** 3 s.h.
Continuation of MATH:6000 (22M:205). Prerequisites: MATH:6000 (22M:205).
- MATH:6200 (22M:210) Analysis I** 3 s.h.
Lebesgue measure and integral, fundamental theorem of calculus, abstract measures and integration, Fubini's theorem, Radon-Nikodym theorem, Riesz representation theorem, L-p spaces. Prerequisites: MATH:5210 (22M:116).
- MATH:6210 (22M:211) Analysis II** 3 s.h.
Hilbert space, Banach space techniques; Hahn-Banach theorem, open mapping theorem, principle of uniform boundedness; reflexivity, H-p spaces, Paley-Wiener theorem, space of functions analytic on the open unit disk. Prerequisites: MATH:4200 (22M:118) and MATH:6200 (22M:210).
- MATH:6400 (22M:201) Introduction to Algebraic Topology** 3 s.h.
Homotopy, fundamental group and covering spaces, CW and simplicial complexes, simplicial homology, Euler characteristic. Prerequisites: MATH:5400 (22M:132).
- MATH:6410 (22M:200) Introduction to Differential Topology** 3 s.h.

Manifolds, functions: tangent bundle, Morse-Sard theorem, transversality, submanifolds, tubular neighborhoods, normal bundles, vector fields, degree and intersection theory, fixed-point theory, Morse theory. Prerequisites: MATH:5410 (22M:133).

MATH:6500 (22M:260) Differential Geometry I 3 s.h.

Differentiable manifolds, forms, tensors, Riemannian metrics, isometries, connections, geodesics, curvature, related topics.

MATH:6510 (22M:261) Differential Geometry II 3 s.h.

Continuation of MATH:6500 (22M:260); varied topics, may include study of existence and uniqueness of solutions to differential equations and systems related to geometry, indefinite metrics, Lie groups, attributes of manifolds with particular curvature properties, global Riemannian geometry, Kahler geometry, applications of differential geometry to other disciplines. Prerequisites: MATH:6500 (22M:260).

MATH:6600 (22M:213) Ordinary Differential Equations I 3 s.h.

Existence, uniqueness, continuous dependence of solutions to initial value problems, variational calculus, Lagrangian and Hamiltonian systems, differential inequalities, perturbation theory, normal forms, invariant manifolds, KAM theory, bifurcation theory, boundary value problems. Prerequisites: MATH:5210 (22M:116).

MATH:6610 (22M:214) Ordinary Differential Equations II 3 s.h.

Continuation of MATH:6600 (22M:213). Prerequisites: MATH:6600 (22M:213).

MATH:6700 (22M:216) Partial Differential Equations I 3 s.h.

Elliptic equations; potential theory, maximum principle, a priori estimate, Dirichlet problem; initial value problem for parabolic equations; hyperbolic equations; Duhamel's principle, Cauchy problem; nonlinear equations, characteristics, canonical form, first-order systems. Prerequisites: MATH:5210 (22M:116).

MATH:6710 (22M:217) Partial Differential Equations II 3 s.h.

Continuation of MATH:6700 (22M:216). Prerequisites: MATH:6700 (22M:216).

MATH:6850 (22M:270) Theoretical Numerical Analysis I 3 s.h.

Theoretical foundations of numerical analysis, within framework of functional analysis; application areas including approximation theory, numerical methods for partial differential equations, integral equations; introduction to functional analysis. Prerequisites: MATH:5200 (22M:115), MATH:5210 (22M:116), MATH:5800 (22M:170), and MATH:5810 (22M:171).

MATH:6860 (22M:271) Theoretical Numerical Analysis II 3 s.h.

Continuation of MATH:6850 (22M:270). Prerequisites: MATH:6850 (22M:270).

Advanced Graduate

MATH:7000 (22M:340) Homological Algebra 2-3 s.h.

Modules, tensor products, groups of homomorphisms, categories, functors, homology functors, projective and injective modules, derived functors, torsion and extension functors, homological dimension. Prerequisites: MATH:6010 (22M:206).

MATH:7030 (22M:330) Topics in Algebra 2-3 s.h.

May include algebraic number theory, groups, representation theory, algebras, ideal theory, lattice theory. Prerequisites: MATH:6010 (22M:206).

MATH:7070 (22M:389) Seminar: Algebra arr.

MATH:7080 (22M:383) Seminar: Commutative Ring Theory arr.

MATH:7090 (22M:385) Seminar: Representation Theory arr.

MATH:7200 (22M:313) Functional Analysis I 2-3 s.h.

Locally convex topological vector spaces, duality, tensor products and nuclear spaces; Krein-Millman theorem, Choquet's theory; geometry of Banach spaces, nonlinear functional analysis; operators on Hilbert spaces, spectral theorem, algebras of operators. Prerequisites: MATH:6210 (22M:211).

MATH:7210 (22M:314) Functional Analysis II 2-3 s.h.

Continuation of MATH:7200 (22M:313). Prerequisites: MATH:7200 (22M:313).

MATH:7250 (22M:303) Topics in Analysis 2-3 s.h.

Measure theory, integration, general topology.

MATH:7290 (22M:390) Seminar: Operator Theory arr.

MATH:7400 (22M:203) Topology of Manifolds 3 s.h.

Embedding, knotting, immersions; isotopy, homotopy, regular neighborhoods, engulfing, surgery, cobordism; three-, four-, and higher dimensional manifolds. Prerequisites: MATH:6400 (22M:201) and MATH:6410 (22M:200).

MATH:7450 (22M:305) Topics in Topology 2-3 s.h.

May include homotopy theory, topology of 3-manifolds, 4-manifolds, or higher-dimensional manifolds, knotting and embedding problems, fiber bundles and characteristic classes, K-theory, PL manifolds, infinite-dimensional manifolds.

MATH:7470 (22M:392) Seminar: Topology arr.

MATH:7570 (22M:387) Seminar: Differential Geometry arr.

MATH:7580 (22M:393) Seminar: Mathematical Physics arr.

MATH:7630 (22M:360) Topics in Mathematical Biology	2-3 s.h.
Application of mathematics to biology.	
MATH:7660 (22M:382) Seminar: Nonlinear Dynamics and Differential Equations	arr.
MATH:7670 (22M:394) Seminar: Mathematical Biology	arr.
MATH:7730 (22M:324) Topics in Partial Differential Equations	2-3 s.h.
Regularity theory, nonlinear analysis in partial differential equations, fluid dynamics, harmonic analysis, conservation laws, other topics.	
MATH:7770 (22M:397) Seminar: Partial Differential Equations	arr.
MATH:7830 (22M:321) Topics in Applied Mathematics	arr.
Application of mathematics to other disciplines.	
MATH:7870 (22M:398) Seminar: Numerical Analysis	arr.
MATH:7990 (22M:399) Reading Research	arr.

Medieval Studies

Chair

- John Finamore

Coordinator

- Jonathan Wilcox

Undergraduate certificate: medieval studies

Web site: <http://clas.uiowa.edu/classics/undergraduate-program/medieval-studies-program>

The Medieval Studies Program offers an undergraduate program of study and a selection of courses open to students in all majors.

Undergraduate Program of Study

- Certificate in Medieval Studies

Certificate

The Certificate in Medieval Studies requires a minimum of 21 s.h. in medieval studies course work. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

The program enables students to combine study in three or more disciplines into an organized investigation of the Middle Ages, a rich historical period that continues to influence today's culture. Students may earn the Certificate in Medieval Studies as a distinct interest or combine it with focused study in areas such as art history; classics; comparative literature; gender, women's, and sexuality studies; languages (e.g., French, German, Italian, Portuguese, Spanish); music; philosophy; religion; and theater.

Students must include courses from at least three different departments in their work for the certificate; they may count a maximum of 10 s.h. from a single department or program. Courses used to fulfill General Education Program (p. 323) requirements or the requirements of a major or minor may be counted toward the certificate in most cases. Up to 6 s.h. of transfer credit may be counted toward certificate requirements, with the Certificate in Medieval Studies coordinating committee's approval; contact the certificate program's coordinator.

All certificate students must complete one of the following two courses and should do so early in their program of study.

MDVL:3409 (162:109) Medieval Civilization I	3 s.h.
MDVL:3410 (162:110) Medieval Civilization II	3 s.h.

Remaining courses may be chosen from the lists under "Associated Courses" and "Courses" below. Students should consult regularly with a medieval studies advisor while planning and completing their program of study.

The Medieval Studies Program strongly encourages students to complete course work in a language relevant to the medieval period. Latin is recommended for anyone intending to pursue graduate study in the field. Many language courses have prerequisites, and some are offered

irregularly, so students should complete their language course work as early as possible. The following language courses are approved for the medieval studies certificate.

ARAB:2001 (195:111)-ARAB:2002 (195:112) Intermediate Modern Standard Arabic I-II	10 s.h.
CLSL:2001 (20L:011)-CLSL:2002 (20L:012) World of Cicero - Golden Age of Roman Poetry	6 s.h.
ENGL:3256 (008:140) Elementary Old English	3 s.h.
RELS:4001 (032:100)-RELS:4002 (032:101) Biblical Hebrew I-II	8 s.h.

Sample Study Plans

Both of these sample study plans fulfill the certificate's requirements.

Sample plan for a student planning graduate work in medieval studies:

MDVL:3226 (162:101)/ENGL:3226 (008:101) Literature and Culture of the Middle Ages	3 s.h.
MDVL:3410 (162:110)/HIST:3410 (16E:110) Medieval Civilization II	3 s.h.
ARTH:2420 (01H:040) Introduction to Medieval Art	3 s.h.
CLSL:2001 (20L:011) World of Cicero	3 s.h.
CLSL:2002 (20L:012) Golden Age of Roman Poetry	3 s.h.
HIST:4418 (16E:112) Medieval Intellectual History 1150-1500	3 s.h.
RELS:1225 (032:025) Medieval Religion and Culture	3 s.h.

Sample plan for a student with a general interest in medieval studies:

MDVL:3409 (162:109) Medieval Civilization I	3 s.h.
ENGL:3256 (008:140) Elementary Old English	3 s.h.
ENGL:3286 (008:146) Chaucer	3 s.h.
HIST:4412 (16E:117) History of the Medieval Church	3 s.h.
HIST:4426 (16E:119) Women, Power, and Society in Medieval Europe	3 s.h.
MUS:3301 (025:144) History of Music I	3 s.h.
SPAN:3700 (035:160) The Cid in History and Legend	3 s.h.

Associated Courses

The following courses are approved for the medieval studies certificate. Other courses may be approved for satisfaction of certificate requirements; students who wish to have a course approved should make a request to the Certificate in Medieval Studies coordinating committee. The coordinating committee revises the list of approved courses as necessary.

ARABIC LANGUAGE AND LITERATURE

ARAB:2001 (195:111) Intermediate Modern Standard Arabic I	5 s.h.
ARAB:2002 (195:112) Intermediate Modern Standard Arabic II	5 s.h.

ART AND ART HISTORY

ARTH:2420 (01H:040) Introduction to Medieval Art	3 s.h.
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ARTH:3391 (01H:137) Themes in Medieval Art 3 s.h.
 ARTH:3990 (01H:199) Topics in Art History 3 s.h.
 (when topic is medieval)

CENTER FOR THE BOOK

UICB:4910 (108:182)/HIST:4910 (16E:120) The Book in the Middle Ages 3 s.h.
 UICB:4920 (108:183)/HIST:4920 (16E:118)/SLIS:4920 (021:258) The Transition from Manuscript to Print 3 s.h.

CLASSICS

CLSL:2001 (20L:011) World of Cicero 3 s.h.
 CLSL:2002 (20L:012) Golden Age of Roman Poetry 3 s.h.

ENGLISH

ENGL:2216 (008:060) Selected Works of the Middle Ages 3 s.h.
 ENGL:3226 (008:101) Literature and Culture of the Middle Ages 3 s.h.
 ENGL:3256 (008:140) Elementary Old English 3 s.h.
 ENGL:3257 (008:141) Old English Beowulf 3 s.h.
 ENGL:3266 (008:142) Medieval Celtic Literature 3 s.h.
 ENGL:3276 (008:144)/THTR:3276 (049:181) Medieval Drama 3 s.h.
 ENGL:3286 (008:146) Chaucer 3 s.h.

FRENCH

FREN:3110 (009:113) French Civilization 3 s.h.

GERMAN

GRMN:2780 (13E:080) King Arthur Through the Ages 3 s.h.

HISTORY

HIST:2151 (16W:051) Introduction to the History Major (when topic is medieval) 3 s.h.
 HIST:3409 (16E:109) Medieval Civilization I 3 s.h.
 HIST:3410 (16E:110) Medieval Civilization II 3 s.h.
 HIST:4408 (16E:108) The Twelfth-Century Renaissance 3 s.h.
 HIST:4411 (16E:113) Economic and Social History of Medieval Europe 3 s.h.
 HIST:4412 (16E:117) History of the Medieval Church 3 s.h.
 HIST:4417 (16E:111) Medieval Intellectual History 300-1150 3 s.h.
 HIST:4418 (16E:112) Medieval Intellectual History 1150-1500 3 s.h.
 HIST:4419 (16E:139) Ancient and Medieval Science 3 s.h.
 HIST:4920 (16E:118)/UICB:4920 (108:183)/SLIS:4920 (021:258) The Transition from Manuscript to Print 3 s.h.
 HIST:4421 (16E:121) The Middle Ages in Film 3 s.h.
 HIST:4423 (16E:116) Ireland in the Early Middle Ages 3 s.h.
 HIST:4426 (16E:119) Women, Power, and Society in Medieval Europe 3 s.h.

HIST:4910 (16E:120)/UICB:4910 (108:182) The Book in the Middle Ages 3 s.h.

ITALIAN

ITAL:4633 (018:119) Medieval Italian Literature 3 s.h.
 ITAL:4634 (018:120) Medieval and Renaissance Italian Literature 3 s.h.

MUSIC

MUS:3301 (025:144) History of Music I 3 s.h.
 MUS:4200 (025:145) Counterpoint Before 1600 3 s.h.

PHILOSOPHY

PHIL:3112 (026:112) Medieval Philosophy 3 s.h.

RELIGIOUS STUDIES

RELS:1225 (032:025) Medieval Religion and Culture 3 s.h.
 RELS:4001 (032:100) Biblical Hebrew I 4 s.h.
 RELS:4002 (032:101) Biblical Hebrew II 4 s.h.

SPANISH AND PORTUGUESE

SPAN:3700 (035:160) The Cid in History and Legend 3 s.h.
 SPAN:4690 (035:181) Topics in Spanish Literature (when topic is medieval) 3 s.h.

THEATRE ARTS

THTR:3276 (049:181)/ENGL:3276 (008:144) Medieval Drama 3 s.h.

Courses

MDVL:3226 (162:101) Literature and Culture of the Middle Ages 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as ENGL:3226 (008:101).

MDVL:3409 (162:109) Medieval Civilization I 3 s.h.

Europe from the decline of Roman empire to the eleventh century; cultural, political, economic, artistic and architectural foundations of Western civilization. Same as HIST:3409 (16E:109).

MDVL:3410 (162:110) Medieval Civilization II 3 s.h.

Europe from the eleventh century to the Italian Renaissance; cultural, political, economic, artistic, and architectural foundations of Western civilization. GE: Historical Perspectives. Same as HIST:3410 (16E:110).

MDVL:4408 (162:108) The Twelfth-Century Renaissance 3 s.h.

Social, economic, intellectual, and cultural rebirth of Europe in the 12th century; Latin learning and education; developments in vernacular literature, art, architecture, new religious orders and institutions, pilgrimage and Crusade. Same as HIST:4408 (16E:108).

MDVL:4411 (162:113) Economic and Social History of Medieval Europe 3 s.h.

Changes in western Europe from 300 to 1500 A.D.; feudalism, manorialism, revival of towns, heresy, women, monasticism, agricultural and commercial revolutions, Black Death. GE: Historical Perspectives. Same as HIST:4411 (16E:113).

MDVL:4412 (162:117) History of the Medieval Church 3 s.h.

Development of Christianity to end of great schism; rise of Roman primacy, development of monasticism, orthodox and heterodox groups. GE: Historical Perspectives. Same as HIST:4412 (16E:117).

MDVL:4417 (162:111) Medieval Intellectual History 300-1150 3 s.h.

Philosophy, art, literature, religious culture of Europe from waning of classical intellectual modes of culture in late antiquity, to their recovery in 12th century. Same as HIST:4417 (16E:111).

MDVL:4418 (162:112) Medieval Intellectual History 1150-1500 3 s.h.

European philosophy, religion, literature, art from 12th-century rise of scholasticism; their transformation in period of Copernicus, Luther. Same as HIST:4418 (16E:112).

MDVL:4419 (162:139) Ancient and Medieval Science 3 s.h.

Greeks' initiation of scientific inquiry; developments in astronomy, cosmology, optics, mathematics, physics, medicine, psychology in ancient and medieval societies of Middle East, Europe. Same as HIST:4419 (16E:139).

MDVL:4421 (162:121) The Middle Ages in Film 3 s.h.

How films that represent medieval events and literature may be analyzed to reveal the culture and times in which the films were made; Middle Ages and European nationalistic mythmaking as represented in film. Same as HIST:4421 (16E:121).

MDVL:4423 (162:116) Ireland in the Early Middle Ages 3 s.h.

Ireland and the northern British islands 400-1000 CE, a region of small kingdoms and thin population, lacking natural resources, far from Rome and ancient centers of Mediterranean culture; development of civilization, including monastic, legal, theological, and scholarly traditions that had a major impact on continental Europe; early medieval Irish history; introduction to the world of historical scholarship. Same as HIST:4423 (16E:116).

MDVL:4426 (162:119) Women, Power, and Society in Medieval Europe 3 s.h.

Same as HIST:4426 (16E:119).

Museum Studies

Chair

- James Enloe (Anthropology)

Coordinator

- Russell Ciochon (Anthropology/Pediatric Dentistry)

Affiliated faculty

- Tiffany Adrain (Anthropology/Earth and Environmental Sciences), Shalla Ashworth (Anthropology), David McCartney (Anthropology/History), Cindy Opitz (Anthropology), Trina Roberts (Anthropology), William Thomson (Anthropology), Sean Ulmer (Anthropology)

Undergraduate certificate: museum studies

Web site: <http://www.uiowa.edu/~mstudies/>

Museum studies has a long history at The University of Iowa, with courses offered continuously since 1910. Iowa's museum studies students have become directors, curators, educators, and exhibit specialists in museums throughout the country.

Museums embrace every aspect of human experience. Iowa's Museum Studies Program reflects this multiplicity, offering courses related to many fields, including American studies, anthropology and archaeology, art, biology, business, communication studies, earth and environmental sciences, elementary and secondary education, English, world languages, history, and library and information science.

Instructors for museum studies courses reflect the program's interdisciplinary nature. They include faculty members from anthropology, art and art history, business, history, law, library and information science, and other related fields. The University archivist for University of Iowa Libraries is an affiliated faculty member of the Museum Studies Program, as are the collections management specialists for the University's Museum of Natural History and Old Capitol Museum.

The Museum Studies Program is administered by the Department of Anthropology (p. 55).

Undergraduate Program of Study

- Certificate in Museum Studies

College of Liberal Arts and Sciences students who are interested in museum studies may earn the certificate, or they may use the individualized plan of study track in the interdepartmental studies major to create a museum studies concentration relevant to their academic and professional interests.

Certificate

The Certificate in Museum Studies requires 18 s.h. The program provides a broad foundation of knowledge increasingly valued in the museum field.

The certificate is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Completion of the certificate is noted on the student's transcript.

Museum studies courses introduce students to the spectrum of museum endeavors, from organization

and mission planning to institutional histories and current developments in the field. Most courses developed by the program offer hands-on experience in exhibition planning and design, collection management, educational programming, community development, and administration.

A major in one of the natural sciences (e.g., biology, geoscience), anthropology, science education, art history, American studies, or history is recommended for students preparing for museum careers.

Students may count a maximum of 6 s.h. completed for a major, a minor, or another certificate offered by the College of Liberal Arts and Sciences toward the Certificate in Museum Studies.

Work for the certificate consists of an introductory course, a minimum of four courses on specific museum studies topics, and an internship. Students must request permission from the coordinator of the museum studies certificate to use courses that are not included in the program, and the proposed course content and requirements must fit into one of the program's defined areas.

Students must maintain a g.p.a. of at least 2.00 in work for the certificate.

The Certificate in Museum Studies requires the following course work.

INTRODUCTORY COURSE

Students should begin the certificate with MUSM:3001 (024:102) Introduction to Museum Studies, which is prerequisite to some of the program's more advanced courses and is approved for the Social Sciences area of the General Education Program. The course provides a historical overview of museum development and function while introducing students to issues such as museum governance and financing, ethics and law, collection management, exhibition and educational programming, interpretation, and audience research.

MUSM:3001 (024:102) Introduction to Museum Studies	3 s.h.
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MUSEUM STUDIES TOPIC AREAS

Students complete a minimum of four courses in museum studies topic areas, choosing from the lists below. The areas are collection care and management; exhibition development and public education; history, theory, and culture; and museum administration and management. Students must select one course from each of three of the four topic areas (9 s.h. total). They also must complete a fourth course (3 s.h.) from any of the four topic areas.

Collection Care and Management

MUSM:3003 (024:103) Natural History Research Collections	3 s.h.
MUSM:3090 (024:190) Topics in Museum Studies	1 s.h.
MUSM:3200 (024:120) Collection Care and Management	3 s.h.
MUSM:4200 (024:140) Advanced Collection Care and Management	3 s.h.

Exhibition Development and Public Education

MUSM:3004 (024:104) Exhibition Planning	3 s.h.
MUSM:3110 (024:110) Learning in Museums	3 s.h.

MUSM:4000 (024:121) Art and the Power of Placement 3 s.h.

History, Theory, and Culture

MUSM:3120 (024:106) The Natural History Museum: A Museological History 3 s.h.

MUSM:3237 (024:124) Politics of the Archaeological Past 3 s.h.

MUSM:4081 (024:162) The Art Museum: Theory and Practice 3 s.h.

Museum Administration and Management

MUSM:3080 (024:181) Marketing, Promoting, Politicking Contemporary Public Art 3 s.h.

MUSM:3100 (024:100) Historic House Management and Preservation 3 s.h.

MUSM:3500 (024:147) Nonprofit Organizational Effectiveness I 3 s.h.

MUSM:6010 (024:247) Nonprofit Organizational Effectiveness I 3 s.h.

MUSEUM STUDIES INTERNSHIP

After completing at least 12 s.h. of the required course work above, students must complete the following internship, earning a minimum of 3 s.h.

MUSM:4080 (024:180) Museum Internship arr.

The Certificate in Museum Studies coordinator works closely with students and affiliated faculty members to ensure that the internship provides students with the instruction and experience they need.

Facilities and Resources

Museum studies students have access to a wide variety of museums and related resources, including the following University of Iowa museums: the Museum of Natural History, the Museum of Art, the Old Capitol Museum, the Medical Museum, and the Athletics Hall of Fame.

The Museum Studies Program maintains close connections with a number of local, community-based museums and organizations, including the State Historical Society of Iowa, the Herbert Hoover Presidential Library and Museum, the African American Museum of Iowa, the Iowa Children's Museum, and the Johnson County Historical Society.

The University of Iowa Collections Coalition, consisting of 19 collections and collection-support organizations, is an essential resource for the Museum Studies Program. It provides museum studies internships, directed study projects, opportunities for site visits, and volunteer experiences for students as well as guest speakers.

Courses

Introduction

MUSM:3001 (024:102) Introduction to Museum Studies 3 s.h.

Overview of museum history, function, philosophy, collection, and curatorial practices; governance and funding issues; exhibition evaluation and audience studies; examples from Museum of Art, Museum of Natural History, Old Capitol Museum, and Medical Museum. GE: Social Sciences. Same as EDTL:3001 (07S:112), SIED:3001 (097:115), ANTH:3001 (113:103).

Collection Care and Management

MUSM:3003 (024:103) Natural History Research Collections 3 s.h.

Techniques, methods, and issues specific to natural history research collections; practice in preparing and cleaning specimens; role of natural history specimens in modern scientific research. Recommendations: basic understanding of the diversity of plants and animals and natural history museum collections, MUSM:3001 (024:102) or MUSM:3200 (024:120), and BIOL:1411 (002:031) or BIOL:1412 (002:032); or other experience.

MUSM:3090 (024:190) Topics in Museum Studies 1 s.h.

Systematic and analytic methods used for research in physical collections; tutorials in collection building, curation, and preservation; designed by members of the University of Iowa Collections Coalition. Same as EES:3090 (012:159).

MUSM:3200 (024:120) Collection Care and Management 3 s.h.

How a museum's management policy relates to its administrative, legal, and ethical obligations to its collections; acquisitions, deaccessions, collection use, data standards, storage environment, health, safety, documentation. Same as EES:3200 (012:120).

MUSM:4200 (024:140) Advanced Collection Care and Management 3 s.h.

Builds on MUSM:3200 (024:120); types of museum objects and materials, their care and management; care, storage, and use of paper, books, photographs, works of art, electronic information media, textiles, furniture, archaeological artifacts, natural history specimens, archives; digitization projects, integrated pest management, risk assessment, museum security, museum construction and renovation, grant writing; for students planning museum careers or for professions that require care of collections. Prerequisites: MUSM:3200 (024:120) or EES:3200 (012:120). Same as EES:4200 (012:160).

Exhibition Development and Public Education

MUSM:3004 (024:104) Exhibition Planning 3 s.h.

Preliminary work for and process of developing museum exhibitions; history of exhibit design, evaluation, budgets, teams and team member roles, working with community and special interest groups, methods of production and display; students research a topic, choose artifacts and images, and create a narrative and exhibit script. Prerequisites: MUSM:3001 (024:102).

MUSM:3110 (024:110) Learning in Museums 3 s.h.

Introduction to theory and practice of learning in museums; identification of institutional objectives; goals that facilitate learning in museum setting; development of educational materials and programs. Prerequisites: MUSM:3001 (024:102). Recommendations: good writing skills.

MUSM:4000 (024:121) Art and the Power of Placement 3 s.h.

How placement of artworks in a setting and their relationship to each other affect the way viewers understand the works; influence of curator's choice of placement, sequence, height, wall color, and so forth; varied settings, with focus on display issues in art museums; includes gallery and museum experiences. Prerequisites: MUSM:3001 (024:102).

History, Theory, and Culture

MUSM:3120 (024:106) The Natural History Museum: A Museological History 3 s.h.

History of the natural history museum; origin, character, and evolution; anecdotes and personalities; how natural history museums influenced society and their continuing relevance to a technological world. Recommendations: at least one course in museum studies, such as MUSM:3001 (024:102).

MUSM:3237 (024:124) Politics of the Archaeological Past 3 s.h.

How control over management of material remains of the ancient past, and representations of that past, intersect with the identity of diverse groups, including archaeologists, indigenous peoples, national governments, collectors, ethnic minorities and majorities, museum curators; struggles for control of the archaeological past at different scales (artifacts, skeletal remains, sites, imagery, narratives) and in different regions of the world. Same as ANTH:3237 (113:124).

MUSM:4081 (024:162) The Art Museum: Theory and Practice 3 s.h.

Introduction to different aspects of art museums; emphasis on roles of art historians, especially curatorial practice; current and historical theories and practices of art exhibitions; varying debates of the politics of display; art museum professions; the many facets of art exhibition preparation; the University of Iowa Museum of Art collections. Same as ARTH:4081 (01H:181).

MUSM:4130 (024:115) Museum Literacy and Historical Memory 3 s.h.

Concepts and methods for understanding the role of museums in shaping knowledge and collective memory of history; institutionally based exhibits and collections, historical markers and public monuments, public holidays and events, media and artistic works that interpret the past; how events, people, and civic ambitions are memorialized and how memories of them are shaped; appearance of museums and related practices in the non-Western world after 1850. Same as HIST:4130 (016:120).

Museum Administration and Management

MUSM:3080 (024:181) Marketing, Promoting, Politicking Contemporary Public Art 3 s.h.

How public art projects are conceived, created, and paid for; projects sponsored and funded by federal, state, and local governments and private businesses 1960 to present; projects' operational structures, how artists are selected; Vietnam Veterans Memorial, Serra's *Tilted Arc*, recent projects. Same as ARTH:3080 (01H:180).

MUSM:3100 (024:100) Historic House Management and Preservation 3 s.h.

Management, preservation, interpretation, and basic operations of historic structures and the museums they serve.

MUSM:3500 (024:147) Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financial aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as ENTR:3595 (06T:144), SSW:3500 (042:157), NURS:3595 (096:168), MGMT:3500 (06J:147), RELS:3700 (032:127).

MUSM:3600 (024:148) Nonprofit Organizational Effectiveness II 3 s.h.

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as MGMT:3600 (06J:148), NURS:3600 (096:169), SSW:3600 (042:158), RELS:3701 (032:128).

MUSM:6010 (024:247) Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as SLIS:6430 (021:263), MGMT:9150 (06J:247), LAW:8751 (091:320), HMP:6360 (174:247), SSW:6247 (042:247), URP:6278 (102:278), SPST:6010 (028:257), RELS:6070 (032:227).

MUSM:6020 (024:248) Nonprofit Organizational Effectiveness II 3 s.h.

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Requirements: for LAW:8752 (091:322) — LAW:8751 (091:320); for HMP:6365 (174:248) — HMP:6360 (174:247) or MGMT:9150 (06J:247) or MUSM:6010 (024:247). Same as MGMT:9160 (06J:248), LAW:8752 (091:322), SLIS:6435 (021:265), SSW:6248 (042:248), HMP:6365 (174:248), URP:6279 (102:279), SPST:6020 (028:258), RELS:6075 (032:228).

Directed Studies and Internship

MUSM:4050 (024:150) Directed Studies and Projects arr.

Advanced readings in historical development, educational philosophy, programs, operations of museums; individual projects coordinated with programs, exhibits, or collections of campus and area museums. Prerequisites: MUSM:3001 (024:102) or MUSM:3004 (024:104) or MUSM:3200 (024:120).

MUSM:4080 (024:180) Museum Internship arr.

Working experience in functions, departments, programs of the sponsoring museum; relation to museum's overall mission and museum field in general.

Music

Director, Division of Performing Arts

- Alan MacVey

Director, School of Music

- David Gier

Director of planning

- Kristin Thelander

Associate directors

- Benjamin Coelho, Christine Getz, Dan Moore

Professors

- Mary Adamek, Benjamin Coelho, Katherine Eberle, Michael Eckert, Lawrence Fritts, Christine Getz, Kate Gfeller (Music/Communication Sciences and Disorders), David Gier, David K. Gompper, William LaRue Jones, Kevin Kastens, Réne Lecuona, Maurita Murphy Mead, Dan Moore, John Muriello, Ksenia Nosikova, Volkan Orhon, John Rapson, Christine Rutledge, Timothy Stalter, Stephen Swanson, Kristin Thelander, Ingo Titze (Communication Sciences and Disorders/Music), Uriel Tsachor, Kenneth Tse

Associate professors

- Jeffrey Agrell, Anthony Arnone, Mary Cohen (Teaching and Learning/Music), Scott Conklin, Robert Cook, Nicole Esposito, Richard Mark Heidel, Alan Huckleberry, Rachel Joselson, John Manning, David Puderbaugh, Bill Theisen, Marian Wilson Kimber, Katherine Wolfe

Assistant professors

- Matthew Arndt, Gregory Hand, Jennifer Iverson, Jeremy Manternach (Teaching and Learning/Music), Andrew Parker, Damani Phillips, Nathan Platte, Amy Schendel, Erin Wehr (Teaching and Learning/Music)

Lecturers

- Jonathan Allen, James Dreier, Steven Grismore, Trevor Harvey, Susan Jones, Elizabeth Oakes, Donna Parsons

Adjunct assistant professor

- Joey Walker

Professors emeriti

- Kenneth Amada, Paul Anderson, Elizabeth Aubrey, Lowell Cross, Delbert Disselhorst, David Greenhoe, Sven Hansell, William Hatcher, Edward L. Kottick, Betty Bang Mather, Allen Ohmes, Kenneth Phillips, William Preucil, Myron D. Welch

Associate professors emeriti

- Richard J. Bloesch, Don Haines, T.M. Scruggs, Carole Thomas, Robert Yeats

Undergraduate major: music (B.A., B.M.)

Undergraduate minor: music

Graduate degrees: M.A. in music; M.F.A. in music; Ph.D. in music; D.M.A.

Graduate minor: theory pedagogy

Graduate certificate: sacred music

Web site: <http://music.uiowa.edu/>

The University of Iowa School of Music is prominent in a fine arts community of international repute. It has long

been recognized as one of the excellent university-based music schools in the United States.

The school's on-campus enrollment of approximately 470 music majors is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student's development.

The faculty consists of highly trained artist-teachers in each specialization area and scholars of international distinction. Faculty ensembles in residence include the Iowa Woodwind Quintet and the Iowa Brass Quintet. Private lessons with faculty members are offered in all band and orchestra instruments, voice, piano, and organ.

The school's undergraduate programs offer all qualified students, whether music majors or nonmajors, the opportunity for further study of music. In addition to its comprehensive course offerings for majors, the school provides a substantial selection of courses especially recommended for nonmajors and several approved for the General Education Program (p. 323) (see "Courses for Nonmajors" below).

Graduate programs in music are designed primarily to prepare students for teaching in secondary schools, colleges, and universities and for careers in performance and music therapy.

The School of Music is a charter member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the association's published standards.

The department is one of three academic units in the Division of Performing Arts (p. 234). It participates in offering the division's Certificate in Performing Arts Entrepreneurship (p. 512).

Undergraduate Programs of Study

- Major in music (Bachelor of Arts, Bachelor of Music)
- Minor in music

The Bachelor of Music program offers concentrations in composition, music education, music therapy, and performance; a second emphasis in jazz studies may be added to the performance concentration. Professional certification in music education and music therapy are available only through the B.M.

The Bachelor of Arts is a nonprofessional degree for students who are not planning careers as musicians or who plan to earn more than one bachelor's degree or a B.A. with more than one major, including a second major in a performing arts area.

All undergraduate enrollments require School of Music approval. Entering first-year and transfer students who plan to major in music must be accepted into a performance area through audition either in person or by recording before they register. Students who plan to major in composition also must submit examples of creative work; for details, see "Composition Concentration" below. All entering students must complete the online theory diagnostic examination for MUS:1201 (025:002) Musicianship and Theory I and a piano proficiency exam to determine appropriate placement in related courses.

Transfer students admitted to the School of Music must complete a minimum of one year of applied music (lower- or upper-level) and one year of major ensemble at The University of Iowa in order to earn a degree in music. Transfer students who have not completed the equivalent of the four-semester sequence of Musicianship and Theory I-IV [MUS:1201 (025:002) Musicianship and Theory I, MUS:1202 (025:003) Musicianship and Theory II, MUS:2203 (025:004) Musicianship and Theory III, and MUS:2204 (025:005) Musicianship and Theory IV] must complete a theory diagnostic exam to determine appropriate placement in the musicianship and theory sequence. Transfer students who have not completed the equivalent of two semesters of class piano or a piano proficiency exam must meet piano proficiency requirements at The University of Iowa.

Bachelor of Music

The Bachelor of Music requires a minimum of 120 s.h. of credit. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The program offers concentrations in composition, music therapy, and performance; a second emphasis in jazz studies may be added to the performance concentration. Bachelor of Music students may not choose guitar as their major instrument, and Bachelor of Arts students may not transfer to the B.M. program with guitar as their major instrument. Students seeking licensure/certification in music education or music therapy should enroll in the B.M. program.

Many students earn more than 120 s.h. in fulfilling the requirements for their majors—for instance, those who choose the music therapy concentration or seek teacher certification. The College of Liberal Arts and Sciences maximum hours rule does not apply to the Bachelor of Music, so B.M. students may count more than 56 s.h. of course work in music toward the degree.

The Bachelor of Music requires the following School of Music course work.

GENERAL COURSE REQUIREMENTS

All of these:

MUS:1200 (025:001) Fundamentals of Music for Majors (or successful completion of the online theory diagnostic examination for MUS:1201)	3 s.h.
MUS:1201 (025:002) Musicianship and Theory I	4 s.h.
MUS:1202 (025:003) Musicianship and Theory II	4 s.h.
MUS:1211 (025:071) Group Instruction in Piano I (or successful completion of proficiency exam I)	1 s.h.
MUS:1212 (025:072) Group Instruction in Piano II (or successful completion of proficiency exam II)	1 s.h.
MUS:2203 (025:004) Musicianship and Theory III	4 s.h.
MUS:2204 (025:005) Musicianship and Theory IV	4 s.h.

To register for MUS:1201 (025:002), students also must register for MUS:1211 (025:071) or already have

completed that course or have been exempted from it by proficiency exam. To register for MUS:1202 (025:003), students also must register for MUS:1212 (025:072) or already have completed that course or have been exempted from it by proficiency exam. Transfer students should complete the group piano requirement during their first year in residence unless they are exempted by proficiency exam.

This course:

MUS:1210 (025:074) Recital Attendance (six semesters)	6 s.h.
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Six semesters of MUS:1210 (025:074) are required for all B.M. students, except music therapy students, who are required to take four semesters. Transfer students should plan to enroll in this course each of their remaining semesters, or until the requirement is met.

All of these:

MUS:3301 (025:144) History of Music I (western music of the Middle Ages, Renaissance, and Baroque)	3 s.h.
MUS:3302 (025:146) History of Music II (western music 1750-present)	3 s.h.
MUS:3625 (025:107) Techniques of Conducting	2 s.h.
MUS:4900 (025:154) Senior Recital	1 s.h.

To complete the senior recital, students must have achieved upper-level applied status or be enrolled in upper-level applied music courses (see "Applied Music" below). Music therapy students may complete a senior recital or a senior research project. Composition students substitute MUS:4910 (025:099) Bachelor's Thesis for the senior recital. The senior recital, research project, or thesis must be completed at The University of Iowa.

One of these:

MUS:1009 (025:080) Jazz Cultures in America and Abroad	3 s.h.
MUS:3310 (025:103) World Music	3 s.h.
MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
MUS:3312 (025:178) Music, Culture, and Identity	3 s.h.
MUS:3720 (025:141) History of Jazz	3 s.h.

At least 3 s.h. from these:

MUS:2206 (025:006) Form and Analysis	3 s.h.
MUS:2710 (025:101) Introduction to Improvisation	3 s.h.
MUS:3220 (025:148) Instrumentation	2 s.h.
MUS:3665 (025:117) Arranging for Band	2 s.h.
MUS:3710 (025:102) Intermediate Jazz Improvisation	2 s.h.
MUS:3750 (025:118) Jazz Theory	3 s.h.
MUS:4200 (025:145) Counterpoint Before 1600	3 s.h.
MUS:4201 (025:147) Counterpoint After 1600	3 s.h.
MUS:4210 (025:153) Keyboard Harmony	2 s.h.
MUS:4710 (025:243) Advanced Jazz Improvisation	2 s.h.
MUS:4750 (025:244) Transcription	2 s.h.

APPLIED MUSIC

Students must complete four years of applied music. Instruction is provided on two levels, lower and upper. Students must achieve upper-level status before they may present the senior recital. Readiness for upper-level applied music is determined by a jury examination in the area. The eighth semester of applied music may be waived for students who have successfully completed a senior recital, are enrolled in the Teacher Education Program, and are student teaching. Students are allowed a maximum of six semesters (not including summer) in lower-level applied instruction. Those who want to continue lessons beyond the maximum allowable lower-level registration must do so under the nonmajor category.

Composition students are required to take 6 s.h. of lower-level applied music and 2 s.h. of secondary piano.

Music therapy students who complete a senior research project rather than a senior recital are required to take three years of lower-level applied music.

ENSEMBLE PARTICIPATION

Students must complete eight semesters of major ensemble participation. They normally enroll in a major ensemble during consecutive semesters, beginning early in their degree work, to ensure timely completion of the requirement. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String students participate in University Orchestra and Chamber Orchestra. Wind and percussion students participate in the Symphony Band/Concert Band/University Band. Voice students participate in Camerata Singers, University Choir, Kantorei, and/or University Chorale. Keyboard students may substitute accompaniment for major ensemble participation for two semesters during their junior and/or senior years, with their major applied-music teacher's consent. Composition students may, with their advisor's consent, substitute two semesters of other ensembles during their junior and/or senior year.

Music therapy students who complete a senior research project rather than a senior recital are required to complete 6 s.h. of major ensemble participation.

Any student who wants to request adjustment of the major ensemble requirement must submit his or her request in writing to a review committee consisting of the ensemble director(s) involved, the studio instructor, and the associate director for undergraduate studies.

Major ensembles are as follows.

MUS:1176 (025:191) Women's Chorale	1 s.h.
MUS:3160 (025:194) Symphony Band/Concert Band	1 s.h.
MUS:3170 (025:185) Kantorei	1 s.h.
MUS:3172 (025:142) Camerata Singers	1 s.h.
MUS:3174 (025:181) University Choir	1 s.h.
MUS:3180 (025:192) Orchestra	1 s.h.

ELECTIVES

Students may take advanced electives in performance (including chamber music and piano accompaniment), theory, composition, music education, music therapy, music history, diverse music cultures, music literature, conducting, and orchestration.

Performance Concentrations

A performance concentration is available in each of the orchestral areas—strings, brass, woodwinds, and percussion—and in voice, piano, and organ. Students must take at least an additional 17 s.h. beyond the School of Music general course requirements. This course work includes required courses and electives unique to each performance area. Course listings for each of the respective areas are available from the School of Music office.

JAZZ STUDIES EMPHASIS

Students with a performance concentration may add a second emphasis in jazz studies. To be admitted to the jazz studies emphasis, students must audition after they complete their first year. Students admitted to the emphasis are assigned to the jazz studies advisor in addition to their regular faculty advisor.

Senior recital and recital attendance requirements are the same as those for the Bachelor of Music. In addition to satisfying all course requirements for the B.M., jazz studies emphasis students must complete 21 s.h. of jazz course work. Many jazz studies courses fulfill other B.M. course requirements, including music electives.

Music Therapy Concentration

Admission to the music therapy concentration is based on successful completion (grade of C-plus or higher) of MUS:1687 (025:087) Orientation to Music Therapy. In addition to the core courses in music therapy listed below, specific courses are required in biology, anatomy, psychology, and music.

A six-month internship in an approved off-campus clinical facility is required. Following successful completion of the internship, students are eligible to take the board certification examination in music therapy.

The music therapy concentration requires the following course work.

All of these:

MUS:1120 (025:017) Secondary Performance—Voice (taken twice)	2 s.h.
MUS:1210 (025:074) Recital Attendance (four semesters required)	4 s.h.
MUS:1211 (025:071) Group Instruction in Piano I	1 s.h.
MUS:1212 (025:072) Group Instruction in Piano II	1 s.h.
MUS:1687 (025:087) Orientation to Music Therapy	2 s.h.
MUS:2213 (025:073) Group Instruction in Piano III	1 s.h.
MUS:3675 (025:094) Music Therapy Practicum (Section 1 taken twice for 2 s.h. and Section 2 taken once for 1 s.h.)	5 s.h.
MUS:3680 (025:096) Music in Special Education	3 s.h.
MUS:3690 (025:139) Music Therapy with Adults	3 s.h.
MUS:4670 (025:140) Internship in Music Therapy	2 s.h.
MUS:4685 (025:138) Music Therapy with Children	3 s.h.

EDTL:4630 (07S:144) Psychology of Music	2 s.h.
EDTL:4640 (07S:149) Introduction to Music Research	2-3 s.h.

At least two of these (total of 4 s.h.):

MUS:2671 (025:091) Music Foundations in Therapy I	2 s.h.
MUS:2672 (025:092) Music Foundations in Therapy II	1-2 s.h.
MUS:3676 (025:093) Percussion Experience for Teachers and Therapists	1 s.h.

One of these:

MUS:3850 (025:167)/THTR:3850 (049:105)/DANC:3850 (137:160)/DPA:3850 (188:167) Introduction to Laban Movement Studies	2-3 s.h.
MUS:3851 (025:176) Introduction to the Alexander Technique	3 s.h.
DANC:3085 (137:174) Introduction to Afro-Cuban Dance	1 s.h.

One of these:

MUS:1007 (025:007) Garage Band: The Basics	2 s.h.
MUS:3665 (025:117) Arranging for Band	2 s.h.

One of these:

MUS:1121 (025:018) Secondary Performance—Piano	1 s.h.
MUS:2710 (025:101) Introduction to Improvisation	3 s.h.

One of these:

PSY:2930 (031:063) Abnormal Psychology: Health Professions	3 s.h.
PSY:3320 (031:163) Abnormal Psychology	3 s.h.

One of these:

ANTH:1101 (113:003) Cultural Anthropology	3 s.h.
PSY:2301 (031:013) Introduction to Clinical Psychology	3 s.h.
PSY:2601 (031:016) Introduction to Cognitive Psychology	3 s.h.
PSY:2701 (031:002) Biological Psychology	4 s.h.

One of these:

PSQF:4106 (07P:106) Child Development	3 s.h.
PSY:2401 (031:014) Introduction to Developmental Science	3 s.h.

One of these:

CSD:1015 (003:015) Introduction to Speech and Hearing Processes and Disorders	2 s.h.
CSD:2140 (003:140) Manual Communication	1 s.h.
PSQF:1075 (07P:075) Educational Psychology and Measurement	3 s.h.
RCE:4178 (07C:178) Microcounseling	1-3 s.h.
RCE:4199 (07C:199) Counseling for Related Professions	3 s.h.
SSW:1800 (042:085) Basic Aspects of Aging	3 s.h.

One of these:

MUS:4675 (025:098) Senior Project in Music Therapy	1 s.h.
MUS:4900 (025:154) Senior Recital	1 s.h.

Music therapy students who elect the senior recital/performance option must take four years of applied music and attain upper-level status; they also must take 8 s.h. of major ensemble participation. Vocal majors choosing this option also must take MUS:1510 (025:115) Diction for Singers I and MUS:2510 (025:116) Diction for Singers II.

Music therapy students who elect the senior project/clinical option must take three years of applied music and 6 s.h. of major ensemble. They also must take an additional 4 s.h. of music performance courses in areas such as MUS:1120 (025:017) Secondary Performance—Voice, MUS:1121 (025:018) Secondary Performance—Piano, MUS:1137 (025:035) Secondary Performance—Percussion, MUS:3154 (025:173) Introduction to Afro-Cuban Drumming, MUS:3163 (025:163) Steel Band, or other courses approved by the advisor.

In order to satisfy national certification requirements, all music therapy students must fulfill certain CLAS General Education Program requirements with specific courses. Students should consult their music therapy advisor before selecting General Education courses.

Composition Concentration

The composition concentration is open to students who have been admitted to a performance area in the School of Music. Before admission to the concentration, students normally must complete the following four-semester sequence.

MUS:1201 (025:002) Musicianship and Theory I	4 s.h.
MUS:1202 (025:003) Musicianship and Theory II	4 s.h.
MUS:2203 (025:004) Musicianship and Theory III	4 s.h.
MUS:2204 (025:005) Musicianship and Theory IV	4 s.h.

The last course in the sequence, MUS:2204 (025:005), is a prerequisite for MUS:2220 (025:179) Composition (undergraduate composition lessons).

Applicants to the composition concentration must submit a portfolio of creative work to the composition faculty for evaluation and acceptance into the program. Students who wish to prepare a portfolio may register for MUS:1139 (025:036) Secondary Performance—Composition.

Composition students must satisfy the degree requirements stated under "Bachelor of Music." The composition concentration requires additional course work in composition and music theory; contact the School of Music office.

The course MUS:4910 (025:099) Bachelor's Thesis replaces the recital required of applied music students. It consists of one or more compositions, approved by a committee of three faculty members and performed in regularly scheduled School of Music recitals.

B.M. with Teacher Licensure

Music majors who intend to earn licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP)

in addition to the requirements for the Bachelor of Music major and all requirements for graduation.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Undergraduate students seeking teacher licensure/certification must be enrolled in a Bachelor of Music program in performance and must complete the appropriate licensure program (e.g., band, choral, string). Students must be admitted to the Teacher Education Program before they may take required professional education courses. See "Admission to the Teacher Education Program" below.

All students must complete the College of Liberal Arts and Sciences General Education Program (p. 323). In addition to the B.M. requirements in music, TEP students must take General Education courses that fulfill licensure requirements. The certification program requires courses in music methods and techniques, professional education courses, and student teaching.

The following courses are required for all music TEP students.

EDTL:3002 (07E:102) Technology in the Classroom	2 s.h.
EDTL:3090 (07S:190) Orientation to Secondary Education	1 s.h.
EDTL:3095 (07S:195) Teaching Reading in Secondary Content Areas	1 s.h.
EDTL:3610 (07S:096) Introduction and Practicum: Music	2 s.h.
EDTL:3620 (07E:145) Methods and Materials: General Music	3 s.h.
EDTL:4087 (07S:187) Seminar: Curriculum and Student Teaching	1 s.h.
EDTL:4091 (07S:191) Observation and Laboratory Practice in the Secondary School	6 s.h.
EDTL:4192 (07E:192) Special Area Student Teaching	6 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.
PSQF:1075 (07P:075) Educational Psychology and Measurement	3 s.h.
One college-level math course, excluding MATH:0100 (22M:001), MATH:0300 (22M:003), and MATH:1005 (22M:008)	

BRASS, WOODWIND, AND PERCUSSION STUDENTS

Brass, woodwind, and percussion students in the TEP participate in MUS:1165 (025:193) Hawkeye Marching Band for one semester. Exceptions must be approved by the head of the music education area.

The following courses are required.

MUS:1165 (025:193) Hawkeye Marching Band	1 s.h.
MUS:1711 (025:095) Sight Reading Jazz	1 s.h.
MUS:3659 (025:100) Class Strings (Section 1)	1 s.h.

MUS:3666 (025:182) Marching Band Techniques	1 s.h.
MUS:3760 (025:196) Jazz Band Techniques	1 s.h.
EDTL:3605 (07S:143)/MUS:3605 (025:105) Instrumental Techniques (taken three times)	6 s.h.
EDTL:3630 (07S:140)/MUS:3630 (025:164) Band Methods and Materials	3 s.h.
EDTL:3635 (07S:145)/MUS:3635 (025:108) Instrumental Conducting	3 s.h.

STRING STUDENTS

String majors in the TEP take one semester of secondary performance on each of three string instruments other than their primary instrument (total of 3 s.h.).

The following courses are required.

MUS:3659 (025:100) Class Strings (Section 2, taken three times)	3 s.h.
MUS:3664 (025:114) Introduction to Band Instruments	2 s.h.
EDTL:3635 (07S:145)/MUS:3635 (025:108) Instrumental Conducting	3 s.h.
EDTL:3660 (07S:150)/MUS:3660 (025:112) String Methods and Materials	3 s.h.

VOCAL AND KEYBOARD STUDENTS

Vocal majors in the TEP register for MUS:1121 (025:018) Secondary Performance—Piano for one semester. Keyboard students register for MUS:1120 (025:017) Secondary Performance—Voice for two semesters, MUS:1510 (025:115) Diction for Singers I, and MUS:2510 (025:116) Diction for Singers II. Keyboard majors with a choral music emphasis must include choral ensembles in their major ensemble experience.

The following courses are required.

MUS:2213 (025:073) Group Instruction in Piano III	1 s.h.
EDTL:3640 (07S:147)/MUS:3640 (025:109) Choral Methods	3 s.h.
EDTL:3645 (07S:148)/MUS:3645 (025:110) Choral Conducting and Literature	3 s.h.
Secondary performance	1-2 s.h.

KEYBOARD STUDENTS (NONVOCAL)

Keyboard students who plan to teach in nonvocal areas complete the requirements in either the brass-woodwind-percussion area or the string area, as stated above.

Admission to the Teacher Education Program

Application forms for admission to the Teacher Education Program are available from the Office of Education Services at the College of Education. Application deadlines for the secondary Teacher Education Program are October 1 for entry the following spring and March 1 for entry the following fall. The Teacher Education Program in music accepts a limited number of applicants; meeting the minimum requirements (stated below) does not guarantee admission. Application also requires a proficiency exam and a personal statement.

Minimum requirements for admission to the music TEP are:
admission to the School of Music;

a University of Iowa g.p.a. and a cumulative g.p.a. of at least 3.00 at the time of admission to the program;
 a g.p.a. of at least 3.00 on all music course work;
 successful completion of MUS:1201 (025:002) Musicianship and Theory I and MUS:1202 (025:003) Musicianship and Theory II;
 completion of at least 33 s.h. of college credit;
 completion of a 10-hour volunteer practicum in a secondary school setting; and
 an acceptable score on the PRAXIS I exam.

Bachelor of Arts

The Bachelor of Arts with a major in music requires a minimum of 120 s.h., including 42-47 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). Students must satisfy all requirements for graduation with a bachelor's degree; contact the School of Music and the Academic Advising Center to learn more.

The music major for the Bachelor of Arts is designed for students who have strong abilities and interest in music but are not planning on careers as musicians or who wish to pursue a double major or earn more than one bachelor's degree. Students must audition and be accepted into a performance area. They develop musicianship and performance skills and choose from a wide variety of music electives.

Students in many areas, from engineering and physics to history, art, and English, find that a B.A. in music is a good addition to their studies. Other students choose the B.A. in music to complement course work in business (especially the minor in business administration), foreign language and literature, or interdisciplinary fields such as American studies. Some students combine a B.A. in music with undergraduate preparation to study law or medicine.

All music majors with scholarships must participate in a major ensemble and studio lessons each semester.

The major in music (Bachelor of Arts) requires the following course work.

All of these:

MUS:1200 (025:001) Fundamentals of Music for Majors (or successful completion of MUS:1201 online theory diagnostic examination)	3 s.h.
MUS:1201 (025:002) Musicianship and Theory I	4 s.h.
MUS:1202 (025:003) Musicianship and Theory II	4 s.h.
MUS:1211 (025:071) Group Instruction in Piano I (or successful completion of proficiency exam I)	1 s.h.
MUS:1212 (025:072) Group Instruction in Piano II (or successful completion of proficiency exam II)	1 s.h.

To register for MUS:1201 (025:002), students also must register for MUS:1211 (025:071) or already have completed that course or have been exempted from it by proficiency exam. To register for MUS:1202 (025:003),

students also must register for MUS:1212 (025:072) or already have completed that course or have been exempted from it by proficiency exam. Transfer students should complete the group piano requirement during their first year in residence unless they are exempted by proficiency exam.

All of these:

MUS:1210 (025:074) Recital Attendance (two semesters)	2 s.h.
Lower-level applied music	4 s.h.
Major ensemble (minimum of four semesters)	4 s.h.

For a list of major ensembles, see "Ensemble Participation" under "Bachelor of Music" above. With approval, students may use MUS:3730 (025:197) Jazz Band to satisfy the major ensemble requirement. Any student who wishes to request adjustment of the major ensemble requirement must submit his or her request in writing to a review committee consisting of the ensemble director(s) involved, the studio instructor, and the associate director for undergraduate studies.

Two of these:

MUS:3301 (025:144) History of Music I	3 s.h.
MUS:3302 (025:146) History of Music II	3 s.h.
MUS:3720 (025:141) History of Jazz	3 s.h.

At least 6 s.h. from these:

MUS:2203 (025:004) Musicianship and Theory III	4 s.h.
MUS:2204 (025:005) Musicianship and Theory IV	4 s.h.
MUS:3301 (025:144) History of Music I	3 s.h.
MUS:3302 (025:146) History of Music II	3 s.h.
MUS:3310 (025:103) World Music	3 s.h.
MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
MUS:3625 (025:107) Techniques of Conducting	2 s.h.
MUS:3665 (025:117) Arranging for Band	2 s.h.
MUS:3720 (025:141) History of Jazz	3 s.h.
MUS:3750 (025:118) Jazz Theory	3 s.h.
MUS:4200 (025:145) Counterpoint Before 1600	3 s.h.
MUS:4750 (025:244) Transcription	2 s.h.
MUS:4760 (025:231) Jazz Composition and Arranging	2 s.h.

All of these:

Performance electives (lower- or upper-level applied music, ensembles, or improvisation)	6 s.h.
Music electives	6 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

In addition to the requirements listed under the checkpoints, all students must complete 2 s.h. in applied music and 1 s.h. in a major ensemble each semester.

The Four-Year Graduation Plan is not available for music therapy and music education.

Bachelor of Arts

The Bachelor of Arts in music requires 42-47 s.h. in School of Music courses.

Before the third semester begins: 15-18 s.h. of course work in the major, including MUS:1201 (025:002) Musicianship and Theory I, MUS:1202 (025:003) Musicianship and Theory II, MUS:1211 (025:071) Group Instruction in Piano I, and MUS:1212 (025:072) Group Instruction in Piano II

Before the fifth semester begins: at least 23-32 s.h. of course work in the major

Before the seventh semester begins: at least 33-41 s.h. of course work in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least 40-46 s.h. of course work in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Music

Students may apply more than 56 s.h. earned in School of Music courses toward the minimum 120 s.h. required for the B.M.

Before the third semester begins: 18 s.h. of course work in the major, including MUS:1201 (025:002) Musicianship and Theory I, MUS:1202 (025:003) Musicianship and Theory II, MUS:1211 (025:071) Group Instruction in Piano I, and MUS:1212 (025:072) Group Instruction in Piano II

Before the fifth semester begins: at least 34 s.h. of course work in the major, including MUS:2203 (025:004) Musicianship and Theory III and MUS:2204 (025:005) Musicianship and Theory IV

Before the seventh semester begins: at least 50 s.h. of course work in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least 56 s.h. of course work in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in music have the opportunity to graduate with honors in the major. Members of the School of Music honors program must have a g.p.a. of at least 3.80 in music.

To graduate with honors in the music major, students must complete at least 6 s.h. of honors work in music, normally in their junior and senior years. They must earn a minimum of 3 s.h. of the required honors work in MUS:4995 (025:097) Honors in Music by completing one or more honors projects, such as solo or ensemble recitals; compositions, transcriptions, orchestrations, or arrangements; and essays, research papers, editions, or translations. Honors projects must be in addition to the projects normally required for graduation with a major in music.

Students also may earn honors credit in other honors courses (normally upper-level undergraduate courses) or in approved graduate courses (music history and music theory are particularly recommended).

For complete details about requirements for graduation with honors in the music major, visit Honors in Music on the School of Music web site and consult the school's honors advisor.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in music requires a minimum of 15 s.h. in music courses, including 12 s.h. earned in courses considered advanced for the minor (courses numbered MUS:3000 and above) and 8 s.h. taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work for the minor may not be taken pass/nonpass.

Work for the minor must include one music theory course, one music history course, and 3 s.h. of performance courses (applied instruction or ensembles). Auditions with the instructor are required for admission to the lower-level applied instruction courses; admission to the theory courses is determined by results on the theory placement exam or completion of MUS:1200 (025:001) Fundamentals of Music for Majors.

The following courses are also considered advanced for the minor.

MUS:1160 (025:037) University Band	1 s.h.
MUS:1165 (025:193) Hawkeye Marching Band	1 s.h.
MUS:1176 (025:191) Women's Chorale	1 s.h.
MUS:1201 (025:002) Musicianship and Theory I	4 s.h.
MUS:1202 (025:003) Musicianship and Theory II	4 s.h.
MUS:2203 (025:004) Musicianship and Theory III	4 s.h.
MUS:2204 (025:005) Musicianship and Theory IV	4 s.h.
MUS:2710 (025:101) Introduction to Improvisation	3 s.h.

All lower-level applied instruction courses for majors MUS:2020 (025:040)-MUS:2038 (025:043)

Students may count a maximum of 7 s.h. of transfer credit toward the music theory, music history, and elective requirements. No transfer credit may be counted toward music performance requirements.

Courses for Nonmajors

The School of Music offers a wide range of courses that are appropriate for non-music majors. Courses about jazz, music and culture, music history, music software, and other topics are available as well as individual instruction on a number of instruments and voice. See "General Music Courses," "Jazz Studies," and "Music History" under "Courses" later in this Catalog section.

Several School of Music courses are approved for General Education; look for courses with the prefix MUS under "Literary, Visual, and Performing Arts" in the General Education Program (p. 323) section of the Catalog.

Participation in School of Music ensembles is open to all University of Iowa students with the ensemble director's approval. Major ensembles are as follows.

MUS:1176 (025:191) Women's Chorale	1 s.h.
MUS:1180 (025:162) All-University String Orchestra	1 s.h.
MUS:3160 (025:194) Symphony Band/Concert Band	1 s.h.
MUS:3170 (025:185) Kantorei	1 s.h.
MUS:3172 (025:142) Camerata Singers	1 s.h.
MUS:3174 (025:181) University Choir	1 s.h.
MUS:3180 (025:192) Orchestra	1 s.h.

Other courses particularly recommended for music non-majors include the following.

MUS:1000 (025:009) First-Year Seminar	1 s.h.
MUS:1001 (025:082) Group Piano I: Non-Music Majors	1 s.h.
MUS:1002 (025:084) Group Piano II: Non-Music Majors	1 s.h.
MUS:1004 (025:137) World of the Beatles	3 s.h.
MUS:1005 (025:086) Issues in Popular Music: Women Who Rock	3 s.h.
MUS:1006 (025:166) Popular Music in the United States	3 s.h.
MUS:1007 (025:007) Garage Band: The Basics	2 s.h.
MUS:1009 (025:080) Jazz Cultures in America and Abroad	3 s.h.
MUS:1010 (025:064) Recital Attendance for Non-Majors	1 s.h.
MUS:1012 (025:012) Creativity in Music	3 s.h.
MUS:1020 (025:059) Performance Instruction for Nonmajors (interested students should consult with the instructor of their instrument)	1 s.h.
MUS:1066 (025:066) Introduction to Film Music	3 s.h.
MUS:1100 (025:010) Fundamentals of Music for Non-Music Majors	3 s.h.
MUS:1301 (025:013) Concepts and Contexts of Western Music	3 s.h.
MUS:1302 (025:014) Great Musicians	3 s.h.
MUS:3301 (025:144) History of Music I	3 s.h.
MUS:3302 (025:146) History of Music II	3 s.h.
MUS:3310 (025:103) World Music	3 s.h.
MUS:3311 (025:104) Music of Latin America and the Caribbean	3 s.h.
MUS:3720 (025:141) History of Jazz	3 s.h.
MUS:3850 (025:167) Introduction to Laban Movement Studies	2-3 s.h.
MUS:3154 (025:173) Introduction to Afro-Cuban Drumming	1 s.h.
MUS:3312 (025:178) Music, Culture, and Identity	3 s.h.

For course content descriptions, see "Courses" later in this Catalog section.

National Honor Society

The School of Music sponsors a chapter of Pi Kappa Lambda, the national music honor society. Students of exceptional ability are recommended for membership by faculty members. For more information, consult the School of Music honors advisor.

Financial Support

A number of music performance-based merit scholarships are available to qualified undergraduate music majors. All music majors with scholarships must enroll in a major ensemble and studio lessons each semester. For information, write to the School of Music.

Graduate Programs of Study

- Master of Arts in music
- Master of Fine Arts in music
- Doctor of Philosophy in music
- Doctor of Musical Arts
- Minor in theory pedagogy
- Certificate in Sacred Music

Individuals applying to graduate programs in music must audition and/or submit supporting materials in their area of concentration in order to be considered for admission. Information about Graduate College admission and curriculum requirements for each area in the School of Music is available from the school's academic office or on the School of Music web site.

For detailed information about Graduate College admission and policies, see the Manual of Rules and Regulations of the Graduate College or Graduate (p. 940) College in the Catalog.

ADVISORY EXAMINATIONS

Before they register, entering graduate students must take two School of Music advisory examinations: one in music theory and one in music history and literature. M.A. students in music therapy are not required to take the advisory examination in music theory or music history. These examinations are given at the beginning of the fall semester on the two days (except Sunday) immediately preceding the opening of classes, and at the beginning of the spring and summer sessions by appointment. A leaflet describing the general content of these tests is available from the School of Music academic office.

ENSEMBLE PARTICIPATION

Graduate students in the performance and pedagogy tracks of all graduate programs are required to complete four semesters of major ensemble participation. Students normally enroll in major ensemble participation during consecutive semesters beginning early in their degree work, to ensure completion of the major ensemble requirements in a timely manner. Ensemble assignments are made at the discretion of the major teacher and ensemble director.

Major ensembles are as follows.

MUS:1176 (025:191) Women's Chorale	1 s.h.
MUS:3160 (025:194) Symphony Band/Concert Band	1 s.h.
MUS:3170 (025:185) Kantorei	1 s.h.
MUS:3172 (025:142) Camerata Singers	1 s.h.

MUS:3174 (025:181) University Choir	1 s.h.
MUS:3180 (025:192) Orchestra	1 s.h.

Keyboard majors may substitute piano accompaniment for major ensemble participation, at their major applied teacher's discretion. Jazz studies majors substitute MUS:3730 (025:197) Jazz Band for major ensemble participation. Theory, composition, music education, and music therapy majors have no major ensemble requirement. The M.A. in musicology requires one semester of any ensemble.

Any student who wants to request adjustment of this requirement must submit his or her request in writing to a review committee consisting of the major ensemble director(s) involved, the major teacher, and the School of Music associate director for graduate studies.

Master of Arts

The Master of Arts program in music requires a minimum of 30-37 s.h. of graduate credit. The M.A. concentrations in performance, conducting, jazz studies, composition, music theory, musicology, music therapy, and music education requires a recital, capstone project, or thesis. Performance majors present a public recital in place of a written thesis. Music therapy majors complete a capstone research project. Jazz studies majors present a public recital and a separate performance project. The Master of Arts in music education is offered with thesis and nonthesis options.

All M.A. programs—except music therapy and music education—require the following course work.

INTRODUCTORY COURSE

MUS:5300 (025:321) Introduction to Graduate Study in Music	2 s.h.
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MUSIC THEORY

Students must earn 6 s.h.

MUS:5200 (025:240) Basic Analytical Techniques (unless exempt by advisory exam)	3 s.h.
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Students exempted from MUS:5200 (025:240) through the advisory examination in music theory must substitute an additional theory elective chosen from the following.

MUS:4200 (025:145) Counterpoint Before 1600	3 s.h.
MUS:4201 (025:147) Counterpoint After 1600	3 s.h.
MUS:5235 (025:249) Tonal Analysis	3 s.h.
MUS:5236 (025:247) Post-Tonal Analysis	3 s.h.
MUS:5240 (025:256) Special Topics in Theory and Analysis	3 s.h.

Students also must choose one elective from these:

MUS:4200 (025:145) Counterpoint Before 1600	3 s.h.
MUS:4201 (025:147) Counterpoint After 1600	3 s.h.
MUS:5235 (025:249) Tonal Analysis	3 s.h.
MUS:5236 (025:247) Post-Tonal Analysis	3 s.h.
MUS:5240 (025:256) Special Topics in Theory and Analysis	3 s.h.
MUS:6210 (025:241) History of Music Theory I	3 s.h.
MUS:6211 (025:242) History of Music Theory II	3 s.h.
MUS:6250 (025:312) Advanced Tonal Theory and Analysis	3 s.h.

MUS:6251 (025:311) Advanced Post-Tonal Theory and Analysis	3 s.h.
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MUSIC HISTORY

Students must earn 6 s.h.

MUS:5301 (025:301) Advanced History and Literature of Music I	3 s.h.
MUS:5302 (025:302) Advanced History and Literature of Music II	3 s.h.

Students exempted from MUS:5301 (025:301) and/or MUS:5302 (025:302) through the advisory examination in music history must substitute a music history course from the following list for each of the exemptions.

MUS:6310 (025:330) Seminar in Musicology	3 s.h.
MUS:6314 (025:318) Topics in Ethnomusicology	3 s.h.
MUS:6315 (025:319) Foundations of Ethnomusicology	3 s.h.
MUS:6325 (025:304) Renaissance Music	3 s.h.
MUS:6326 (025:324) Renaissance Music Notations	3 s.h.
MUS:6330 (025:305) Seventeenth-Century Music	3 s.h.
MUS:6335 (025:306) Eighteenth-Century Music	3 s.h.
MUS:6340 (025:307) Nineteenth-Century Music	3 s.h.
MUS:6345 (025:308) Music 1900-1945	3 s.h.
MUS:6350 (025:309) Music 1945-Present	3 s.h.
MUS:6355 (025:310) American Music	3 s.h.
MUS:6375 (025:325) Music Editing	3 s.h.

Master of Fine Arts

The Master of Fine Arts program in music requires a minimum of 60 s.h. of graduate credit. It is designed for students of superior ability in instrumental or vocal performance. M.F.A. students present at least two full-length recitals or programs and must write a thesis, which is a research paper of moderate length, in MUS:6910 (025:401) M.F.A. Thesis. The thesis may relate to some or all of the repertoire included on the recitals.

Students may earn a Master of Arts while working toward the Master of Fine Arts, but they must take two separate final examinations.

Doctor of Philosophy

The Doctor of Philosophy program in music requires a minimum of 72 s.h. of graduate credit. Ph.D. concentration areas include composition, musicology, music education, music theory, and vocal pedagogy and literature. The vocal pedagogy and literature program is designed for students who already have achieved a professional level of musical performance; they are required to audition in their major performance area.

Information about specific admission and curricular requirements for each area is available from the School of Music office.

Ph.D. students in composition, musicology, music theory, and vocal pedagogy and literature must complete the

courses required for the M.A. (see "Master of Arts" above). They also must complete the following course work.

One or more additional music theory course(s) listed in the M.A. requirements

One of these:

MUS:7950 (025:500) Ph.D. Thesis	arr.
MUS:7960 (025:501) Composition Ph.D. Thesis	arr.

Proficiency in one or more foreign languages is required for Ph.D. students in composition, musicology, music theory, and music literature. Ph.D. students in music education should contact the School of Music for requirements.

Doctor of Musical Arts

The Doctor of Musical Arts is offered with two concentrations: conducting, and performance and pedagogy. Requirements for the D.M.A. are the same as for the Ph.D. (see "Doctor of Philosophy" above), except that the D.M.A. requires three recitals or programs [MUS:7900 (025:503) D.M.A. Recital and MUS:7970 (025:502) D.M.A. Essay] instead of the Ph.D. thesis. At the performance area's discretion, a concerto performance with orchestra or other appropriate ensemble from the School of Music may be substituted for one of the recitals. Some performance areas allow one or more lecture recitals, with faculty approval. Singers may substitute one major opera role or one major solo contribution to an orchestra performance for one of their recitals. See the school's associate director for graduate programs for specific area requirements.

Minor in Theory Pedagogy

The graduate minor in theory pedagogy requires 15-18 s.h. of credit. The program is open to students who have been admitted to a graduate degree program in the School of Music. The minor requires the following courses.

One of these:

MUS:4200 (025:145) Counterpoint Before 1600	3 s.h.
MUS:4201 (025:147) Counterpoint After 1600	3 s.h.

Both of these:

MUS:6200 (025:237) Music Theory Colloquium (taken twice)	0 s.h.
MUS:6215 (025:236) Music Theory Pedagogy	3 s.h.

One of these:

MUS:5235 (025:249) Tonal Analysis	3 s.h.
MUS:6250 (025:312) Advanced Tonal Theory and Analysis	3 s.h.

One of these:

MUS:5236 (025:247) Post-Tonal Analysis	3 s.h.
MUS:6251 (025:311) Advanced Post-Tonal Theory and Analysis	3 s.h.

Two of these:

MUS:5240 (025:256) Special Topics in Theory and Analysis	3 s.h.
MUS:6210 (025:241) History of Music Theory I	3 s.h.
MUS:6211 (025:242) History of Music Theory II	3 s.h.
MUS:6250 (025:312) Advanced Tonal Theory and Analysis	3 s.h.

MUS:6251 (025:311) Advanced Post-Tonal Theory and Analysis	3 s.h.
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Certificate in Sacred Music

The Certificate in Sacred Music requires 25 s.h. It is an interdisciplinary program with courses in sacred music, choral conducting and literature, keyboard, voice, religion, and art and art history. Students may earn the certificate while working toward a graduate degree. Individuals not enrolled in a graduate program also may complete the certificate, but they must be admitted to the Graduate College and have the consent of a faculty advisor. Completion of the certificate is noted on the student's transcript.

Financial Support

Qualified graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the School of Music office.

Facilities, Resources

Center for New Music

The Center for New Music is a vital component of the School of Music's composition program. Since its founding in 1966, the center has been both laboratory and showcase for late-20th and 21st-century music. It presents at least four concerts of contemporary works each academic season. It also provides a forum for visiting composers and other creative artists, bringing new music to a variety of outreach venues. Audition, rehearsal, and programming information is available on the Center for New Music web site.

Rita Benton Music Library

The Rita Benton Music Library is currently located in the University's Main Library. The music library holds more than 70,000 scores, including chamber music sets; 50,000 books, including bound journals; 3,500 microforms, chiefly manuscripts and early printed books; and 28,000 media items in all formats. It receives about 300 journals. Its rare book division has particular strengths in 18th- and 19th-century music theory treatises and instrumental methods, and an outstanding collection of keyboard and chamber music by Ignaz Pleyel. The library also houses the Goldman Band Collection. Music manuscripts of the composer Phillip Greeley Clapp, a former director of the school, are housed in Special Collections & University Archives.

The library's large reference collection is supplemented by several online resources, including Music Index, IIMP, Grove Music Online, RILM, RISM, RIPM, WorldCat, and InfoHawk Catalog, the University's online library catalog. Online resources for streamed audio include Classical Music Library, Naxos Music Library, Naxos Jazz, African-American Song, Smithsonian Global Sound, and the Database of Recorded American Music (DRAM).

Materials circulate to University of Iowa faculty and students and to institutions that have reciprocal agreements with the University. Individuals not affiliated with the University may qualify for borrower's permits.

Courses

Several School of Music courses are especially appropriate for non-music majors. Some are approved for General Education; look for them (prefix MUS) under "Literary, Visual, and Performing Arts" in the General Education Program (p. 323) section of the Catalog.

The courses listed under "General" below are especially appropriate for non-music majors, as are several listed under "Music History" below. For others, see "Courses for Nonmajors" earlier in this Catalog section.

Non-music majors may participate in most School of Music ensembles; see "Ensembles" below.

General Music Courses, Lower-Level Undergraduate

The following courses are especially appropriate for non-music majors.

Instruction in MUS:1020 (025:059) Performance Instruction for Nonmajors consists of a half-hour lesson per week. The course is offered on a fee-per-course basis, in addition to tuition. Students register under separate section numbers for different instruments.

MUS:1000 (025:009) First-Year Seminar 1 s.h.
An aspect of performance, creativity, musical literature, or scholarship; seminar format with classroom participation, papers, projects, other assignments; may require attendance at lectures, rehearsals, or performances. Requirements: first- or second-semester standing.

MUS:1001 (025:082) Group Piano I: Non-Music Majors 1 s.h.
Reading, technical study, chording, playing by ear, improvisation; for beginners. Requirements: non-music major. GE: Literary, Visual, and Performing Arts.

MUS:1002 (025:084) Group Piano II: Non-Music Majors 1 s.h.
Continuation of MUS:1001 (025:082). Requirements: non-music major.

MUS:1004 (025:137) World of the Beatles 3 s.h.
How the Beatles' music was influenced by American pop music, the drug culture, and the Avant Garde, nonwestern instruments and philosophy, anti-war sentiments, and world politics, and so forth; Beatlemania's impact on British and American cultures and its role in opening Eastern Europe to the West. Same as DPA:1004 (188:137).

MUS:1005 (025:086) Issues in Popular Music: Women Who Rock 3 s.h.
History of popular female musicians and the influence of their lyrics, music, and performances on American and British cultures; how women's musical careers have been influenced by civil rights, the British invasion (Beatles, Rolling Stones), second-wave feminism, postfeminism, Vietnam, counterculture, social injustice, music education, rock festivals, charity concerts. GE: Literary, Visual, and Performing Arts.

MUS:1006 (025:166) Popular Music in the United States 3 s.h.

Popular music and culture in the United States from early 20th century to present; basic musical style and performance analysis, social meaning and use.

MUS:1007 (025:007) Garage Band: The Basics 2 s.h.

Application of GarageBand software (Mac platform) using midi keyboards; composition and music theory for projects using drag-and-drop looping, multitrack recording, sound effects, mixing, importing music for composition. Requirements: prior musical experience (student can sing or play an instrument).

MUS:1008 (025:008) Jazz Masters 3 s.h.
Major 20th-century jazz leaders of varied styles and recordings; developments between 1917 and present.

MUS:1010 (025:064) Recital Attendance for Non-Majors 1 s.h.
Musical experience through student, faculty recitals.

MUS:1012 (025:012) Creativity in Music 3 s.h.
Where does music come from? When, why, and how did people first start making music? How do music creators turn raw inspiration into finished pieces? How do improvisers create music on the spot? Can anyone create music or is that something only for composers? Development of music creation from long ago to present day; presentations by guest composers and performers who will demonstrate how they compose or improvise their music. GE: Literary, Visual, and Performing Arts.

MUS:1020 (025:059) Performance Instruction for Nonmajors 1 s.h.
Bassoon, cello, clarinet, euphonium, flute, horn, oboe, organ, percussion, piano, saxophone, string bass, trombone, trumpet, tuba, viola, violin, or voice. Requirements: non-music major. GE: Literary, Visual, and Performing Arts.

MUS:1066 (025:066) Introduction to Film Music 3 s.h.
Major styles and composers of film music from early 20th century to the present; focus on case studies to understand different roles music can play in cinema; opportunities to employ critical thinking and listening skills to analyze particular films or key scenes. GE: Literary, Visual, and Performing Arts.

MUS:1100 (025:010) Fundamentals of Music for Non-Music Majors 3 s.h.
Notation of pitch and rhythm, intervals, scales, key signatures, triads, and seventh chords. Requirements: non-music major.

MUS:1210 (025:074) Recital Attendance 1 s.h.
Requirements: music major.

MUS:1301 (025:013) Concepts and Contexts of Western Music 3 s.h.
Ideas, social and historical contexts, emergence of genres and styles, diverse performing traditions in music making of Europe and North America. Recommendations: non-music major. GE: Literary, Visual, and Performing Arts.

MUS:1302 (025:014) Great Musicians 3 s.h.
Lives and works of important composers, performers.
Recommendations: non-music major. GE: Literary, Visual, and Performing Arts.

MUS:1303 (025:015) Roots, Rock, and Rap: A History of Popular Music 3 s.h.
Historical narrative of popular music; focus on understanding and analyzing music of past and present in relation to major issues central to popular culture and society; production, dissemination, and reception of popular music; interpretation of ways in which music forms individual and collective identities and how contemporary musical experiences are shaped by historical processes.

MUS:2106 (025:106) Improvisation for Classical Musicians 3 s.h.
Theory and practice in beginning nonjazz improvisation; development of aural and rhythmic skills, creation of rhythms and melodies, use of timbres and extended techniques in expression, development of instrumental technique for improvisation, practical understanding of harmony and form, experience in solo and accompaniment roles, creation of short pieces as vehicles for improvisation. Requirements: one year of music theory.

MUS:2160 (025:160) Drumline Techniques 1 s.h.
Training and experience in contemporary marching percussion and rudimental drumming techniques.

MUS:2872 (025:172) The Music and History of the Symphony Orchestra 3 s.h.
History and great works of symphonic literature; major composers of orchestral music; institutional history of the symphony orchestra; development of critical listening skills to identify orchestral instruments and perceive structure and style of selected orchestral works; following musical scores to derive information about orchestration, style, and form. Recommendations: upper-level non-music major or undergraduate music major.

MUS:3310 (025:103) World Music 3 s.h.
Varied perspectives on the relationship of music and culture, drawing from musical cultures around the world. GE: Literary, Visual, and Performing Arts.

General Music Courses, Upper-Level Undergraduate and Graduate

MUS:3154 (025:173) Introduction to Afro-Cuban Drumming 1 s.h.
Drumming, dance, songs from folkloric and ceremonial Afro-Cuban forms; emphasis on drumming; may include participation in Afro-Cuban drum and dance ensemble. Same as DPA:3154 (188:173).

MUS:3311 (025:104) Music of Latin America and the Caribbean 3 s.h.
Folk and popular musical traditions and their social contexts in Latin America, the Caribbean; listening skills; video/film screenings. GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity.

MUS:3312 (025:178) Music, Culture, and Identity 3 s.h.

Use of music as marker of social identity; focus on popular music in the United States and interplay among Latino, African, and European-American musical cultures; listening skills.

MUS:3800 (025:143) Reed Class 1 s.h.
Development of reed-making skills; focus on steps to complete reeds from tube cane to a finished reed; different ways of reed making; practical, pedagogical, and historical approaches; producing various reed styles. Requirements: music major.

MUS:3850 (025:167) Introduction to Laban Movement Studies 2-3 s.h.
Introduction to Bartenieff Fundamentals (BF) and Laban Movement Analysis (LMA) as methods of organizing and integrating movement to support artistic goals and expanding expressive range; BF teaches body awareness, breath support, developmental patterns, ergonomically-efficient alignment, balancing of muscular strength and stretch, and coordination; LMA teaches vocabulary of expressive movement and nonverbal communication, including effort (use of energy/dynamics for expression, stamina, stress relief) and shape (how posture and gesture communicate); quality of movement that supports individual goals in artistic expression, sound production, and wellness. Same as THTR:3850 (049:105), DANC:3850 (137:160), DPA:3850 (188:167).

MUS:3851 (025:176) Introduction to the Alexander Technique 3 s.h.
The Alexander Technique and "self-use"—how movement choices affect results achieved; improvement of physical skills and presence; principles in support of performing arts (e.g., speaking, singing, playing an instrument, dancing, acting); application to skills in daily life, addressing underpinnings of movement; physical participation (e.g., lying down, rolling, sitting, standing, locomotion). Same as DPA:3851 (188:168), DANC:3851 (137:173), THTR:3851 (049:170).

Applied Music: Lower-Level Undergraduate Majors

Instruction consists of individual and/or class lessons, at the instructor's option, for a minimum of one hour per week (students register for 2 s.h.), or one half-hour per week (students register for 1 s.h.). Music majors are required to attend weekly performance and pedagogy seminars in applied music.

Courses are offered on a fee-per-course basis, in addition to tuition, and may be repeated.

Guitar instruction is offered only at the lower level. Enrollment in MUS:2038 (025:043) Lower Level Jazz Guitar is limited to three Bachelor of Arts students. Students may not enroll in the Bachelor of Music program with guitar as their major instrument.

MUS:2020 (025:040) Lower Level Voice arr.
Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

- MUS:2021 (025:041) Lower Level Piano** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance. Requirements: piano major or approval of the area following a successful audition.
- MUS:2022 (025:042) Lower Level Organ** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2023 (025:044) Lower Level Violin** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2024 (025:045) Lower Level Viola** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2025 (025:046) Lower Level Cello** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2026 (025:047) Lower Level String Bass** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2027 (025:048) Lower Level Flute** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2028 (025:049) Lower Level Oboe** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2029 (025:050) Lower Level Clarinet** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2030 (025:051) Lower Level Bassoon** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2031 (025:052) Lower Level Saxophone** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2032 (025:053) Lower Level Horn** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2033 (025:054) Lower Level Trumpet** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2034 (025:056) Lower Level Trombone** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2035 (025:055) Lower Level Euphonium** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.
- MUS:2036 (025:057) Lower Level Tuba** arr. Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:2037 (025:058) Lower Level Percussion

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:2038 (025:043) Lower Level Jazz Guitar

1 s.h.

Requirements: audition required.

Applied Music: Upper-Level Undergraduate Majors

Instruction consists of individual and/or class lessons, at the instructor's option, for a minimum of one hour per week (students register for 2 s.h.), or one half-hour per week (students register for 1 s.h.). Music majors are required to attend weekly performance and pedagogy seminars in applied music.

Courses are offered on a fee-per-course basis, in addition to tuition, and may be repeated.

Guitar instruction is offered only at the lower level. Students may not enroll in the Bachelor of Music program with guitar as their major instrument.

MUS:3020 (025:119) Upper Level Voice

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3021 (025:120) Upper Level Piano

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance. Requirements: piano major or approval following a successful audition.

MUS:3022 (025:121) Upper Level Organ

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3023 (025:122) Upper Level Violin

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3024 (025:123) Upper Level Viola

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3025 (025:124) Upper Level Cello

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3026 (025:125) Upper Level String Bass

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3027 (025:126) Upper Level Flute

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3028 (025:127) Upper Level Oboe

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3029 (025:128) Upper Level Clarinet

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3030 (025:129) Upper Level Bassoon

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3031 (025:130) Upper Level Saxophone

arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3032 (025:131) Upper Level Horn arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3033 (025:132) Upper Level Trumpet arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3034 (025:134) Upper Level Trombone arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3035 (025:133) Upper Level Euphonium arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3036 (025:135) Upper Level Tuba arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

MUS:3037 (025:136) Upper Level Percussion arr.

Applied lessons and guided instruction in performance, technique, musicality, pedagogy (teaching); weekly lessons; weekly performance/pedagogy seminar conducted in a master class format; student participation as performers, critics, and practice teachers with instructor guidance.

Applied Music: Graduate Majors

Instruction consists of individual and/or class lessons, at the instructor's option, for a minimum of one hour per week (students register for 2 s.h.), or one half-hour per week (students register for 1 s.h.). Courses are offered on a fee-per-course basis, in addition to tuition, and may be repeated.

MUS:6020 (025:263) Major Voice arr.**MUS:6021 (025:264) Major Piano** arr.**MUS:6022 (025:266) Major Organ** arr.**MUS:6023 (025:267) Major Violin** arr.**MUS:6024 (025:268) Major Viola** arr.**MUS:6025 (025:269) Major Cello** arr.**MUS:6026 (025:270) Major String Bass** arr.**MUS:6027 (025:271) Major Flute** arr.**MUS:6028 (025:272) Major Oboe** arr.**MUS:6029 (025:273) Major Clarinet** arr.**MUS:6030 (025:274) Major Bassoon** arr.**MUS:6031 (025:275) Major Saxophone** arr.**MUS:6032 (025:276) Major Horn** arr.**MUS:6033 (025:277) Major Trumpet** arr.**MUS:6035 (025:278) Major Euphonium** arr.**MUS:6034 (025:279) Major Trombone** arr.**MUS:6036 (025:280) Major Tuba** arr.**MUS:6037 (025:281) Major Percussion** arr.**Applied Music: Secondary Instruction for Majors**

Instruction consists of one half-hour lesson per week. Courses are offered on a fee-per-course basis, in addition to tuition, and may be repeated.

MUS:1120 (025:017) Secondary Performance—Voice 1 s.h.**MUS:1121 (025:018) Secondary Performance—Piano** 1 s.h.

Requirements: music major.

MUS:1122 (025:019) Secondary Performance—Organ 1 s.h.**MUS:1123 (025:021) Secondary Performance—Violin** 1 s.h.**MUS:1124 (025:022) Secondary Performance—Viola** 1 s.h.**MUS:1125 (025:023) Secondary Performance—Cello** 1 s.h.**MUS:1126 (025:024) Secondary Performance—String Bass** 1 s.h.**MUS:1127 (025:025) Secondary Performance—Flute** 1 s.h.**MUS:1128 (025:026) Secondary Performance—Oboe** 1 s.h.**MUS:1129 (025:027) Secondary Performance—Clarinet** 1 s.h.

MUS:1130 (025:028) Secondary Performance—Bassoon	1 s.h.	MUS:3220 (025:148) Instrumentation	2 s.h.
		Basic techniques of writing for orchestral instruments; ranges, transpositions, sound production, notating scores and parts. Prerequisites: MUS:2204 (025:005).	
MUS:1131 (025:029) Secondary Performance—Saxophone	1 s.h.	MUS:3230 (025:156) Composition Seminar	0-1 s.h.
		Corequisites: MUS:2220 (025:179) and MUS:5220 (025:223).	
MUS:1132 (025:030) Secondary Performance—Horn	1 s.h.	MUS:4220 (025:157) Orchestration	2 s.h.
		Instrumental capabilities and combinations in solo, chamber, and large ensemble literature; application in composition. Prerequisites: MUS:3220 (025:148).	
MUS:1133 (025:031) Secondary Performance—Trumpet	1 s.h.	MUS:4250 (025:250) Composition: Electronic Media I	3 s.h.
		Composition using analog, digital technology. Offered fall semesters.	
MUS:1135 (025:032) Secondary Performance—Euphonium	1 s.h.	MUS:4251 (025:251) Composition: Electronic Media II	3 s.h.
		Advanced interactive techniques in composition in association with analog, digital technologies. Offered spring semesters.	
MUS:1134 (025:033) Secondary Performance—Trombone	1 s.h.	MUS:5220 (025:223) Advanced Composition	arr.
		Corequisites: MUS:3230 (025:156).	
MUS:1136 (025:034) Secondary Performance—Tuba	1 s.h.		
MUS:1137 (025:035) Secondary Performance—Percussion	1 s.h.		
MUS:1139 (025:036) Secondary Performance—Composition	1 s.h.		
Individual lessons for non-composition majors that help to prepare a portfolio for entrance into the composition area. Corequisites: MUS:1201 (025:002), MUS:1202 (025:003), MUS:2203 (025:004), and MUS:2204 (025:005).			

MUS:5020 (025:420) Graduate Secondary Performance—Voice 1 s.h.
Study of an instrument (or voice) in area other than major performance area; opportunity to continue performance skill development on secondary instruments.

Choral Literature

MUS:6561 (025:341) Seminar: Choral Literature and Analysis I	1-3 s.h.	MUS:3625 (025:107) Techniques of Conducting	2 s.h.
Choral music of the Renaissance. Corequisites: MUS:6581 (025:203).		Basic elements, score analysis.	
MUS:6562 (025:342) Seminar: Choral Literature and Analysis II	1-3 s.h.	MUS:6579 (025:207) Orchestral Conducting Lab	1 s.h.
Choral music of the Baroque era. Corequisites: MUS:6582 (025:204).		Conducting practicum experience with a laboratory ensemble; participants also serve as performers to facilitate conducting experience of major orchestral repertoire through guided and critiqued gestural studies.	
MUS:6563 (025:343) Seminar: Choral Literature and Analysis III	1-3 s.h.	MUS:6580 (025:158) Advanced Orchestral Conducting	2 s.h.
Choral music of the Classical and Romantic eras. Corequisites: MUS:6583 (025:205).		Requirements: graduate standing.	
MUS:6564 (025:344) Seminar: Choral Literature and Analysis IV	1-3 s.h.	MUS:6581 (025:203) Advanced Choral Conducting I	1-3 s.h.
Choral music of the 20th and 21st centuries. Corequisites: MUS:6584 (025:206).		Music of the Renaissance. Corequisites: MUS:6561 (025:341).	
		MUS:6582 (025:204) Advanced Choral Conducting II	1-3 s.h.
		Music of the Baroque era. Corequisites: MUS:6562 (025:342).	
		MUS:6583 (025:205) Advanced Choral Conducting III	1-3 s.h.
		Music of the Classical and Romantic eras. Corequisites: MUS:6563 (025:343).	

Composition

MUS:2220 (025:179) Composition arr.
Individual lessons with a composition faculty member. Corequisites: MUS:3230 (025:156). Requirements: admission to B.M. composition concentration.

MUS:6584 (025:206) Advanced Choral Conducting IV	1-3 s.h.	MUS:3174 (025:181) University Choir	1 s.h.
Music of the 20th and 21st centuries. Corequisites: MUS:6564 (025:344).		MUS:3180 (025:192) Orchestra	1 s.h.
MUS:6585 (025:225) Score Reading	1 s.h.	MUS:3182 (025:183) Chamber Orchestra	1 s.h.
		Requirements: upper-level undergraduate standing.	
MUS:6586 (025:291) Orchestral Literature	2 s.h.	MUS:3190 (025:171) Center for New Music Ensemble	0-1 s.h.
		Participation in the Center for New Music; focus on contemporary composition and performance, 20th- and 21st-century repertoire and styles.	
MUS:6590 (025:200) Seminar in Advanced Band Literature and Band History	arr.	MUS:3480 (025:186) Piano Accompaniment	arr.
Band literature; history.		Collaborative arts techniques, methods, and history. Requirements: keyboard major.	
Ensembles			
Enrollment requires consent of instructor. Courses may be repeated.			
MUS:1160 (025:037) University Band	1 s.h.	MUS:3481 (025:187) Piano Chamber Music	arr.
Participation in University Band.		Requirements: music major.	
MUS:1165 (025:193) Hawkeye Marching Band	1 s.h.	MUS:3482 (025:188) String Chamber Music	arr.
Offered fall semesters.		MUS:3485 (025:190) Wind Chamber Music	arr.
MUS:1166 (025:180) Large Pep Band	1 s.h.	Preparation, performance of representative literature; sections for woodwinds, brass, flute, clarinet, horn, saxophone, double reed, trumpet, trombone, brass choir, tuba/euphonium ensemble.	
Performing ensemble for basketball games and wrestling meets. Requirements: membership by audition.		Jazz Studies	
MUS:1176 (025:191) Women's Chorale	1 s.h.	MUS:1009 (025:080) Jazz Cultures in America and Abroad	3 s.h.
		How to listen to jazz and recognize a variety of processes that are taking place in performances and recordings; historical, social, and political issues, including race and gender; the unique blend of jazz of a particular region; attendance at live performances, meet and interview musicians, critics, and educators. GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity.	
MUS:1180 (025:162) All-University String Orchestra	1 s.h.	MUS:1711 (025:095) Sight Reading Jazz	1 s.h.
Repertoire, rehearsal pacing, and performance expectation geared to general students. Open to all UI students with no audition.		Methods for sight-reading and interpreting jazz notation. Requirements: music major or audition.	
MUS:3150 (025:195) Percussion Ensemble	arr.	MUS:2710 (025:101) Introduction to Improvisation	3 s.h.
Range of styles and idioms, primarily written during the 20th and 21st centuries; historical or cultural aspects such as ancient rudimental drumming styles, ragtime, jazz, popular music, and music from Africa, the Caribbean, Brazil, Cuba, China.		Introduction to the practice of improvisation through performance of repertoire and the development of practicing strategies; exercises in melody, harmony, rhythm and transcription that together form an integrated approach to developing improvisations. Prerequisites: MUS:1201 (025:002). Requirements: audition.	
MUS:3151 (025:258) Percussion Chamber Ensemble	1 s.h.	MUS:3710 (025:102) Intermediate Jazz Improvisation	2 s.h.
Advanced percussion ensemble experience to complement work in larger format percussion ensemble; preparation and performance of most important repertoire for percussion ensemble; new works brought to light in a small chamber group setting. Requirements: upper-level undergraduate or graduate percussion major.		Improvisation in the jazz repertoire of standards, bebop, and major composers such as Thelonious Monk, Wayne Shorter; memorization and use of melodies, knowledge of chords to the thirteenth, chromatic harmony, development of rhythmic motifs/alteration, strategies for multiple chorus improvisations; separate section for drummers. Prerequisites: MUS:2710 (025:101) and MUS:3750 (025:118). Requirements: audition.	
MUS:3160 (025:194) Symphony Band/ Concert Band	1 s.h.		
Participation in Symphony Band or Concert Band. Requirements: (for concert band) membership by audition.			
MUS:3163 (025:163) Steel Band	1 s.h.		
Musical and cultural introduction to steel band music of Trinidad and other Caribbean musical styles, including calypso, soca, ska, and reggae.			
MUS:3170 (025:185) Kantorei	1 s.h.		
MUS:3172 (025:142) Camerata Singers	1 s.h.		

- MUS:3720 (025:141) History of Jazz** 3 s.h.
Major 20th-century styles, artists, seminal works, and recordings; developments between 1917 and 1972. GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity.
- MUS:3730 (025:197) Jazz Band** 1 s.h.
Jazz performance ensembles, rehearsals, and concerts on and off campus.
- MUS:3740 (025:224) Small Jazz Ensembles** 1 s.h.
Development of repertoire from standard jazz literature, arrangements and compositions by ensemble members; rehearsals (three hours per week) and performances on and off campus. Requirements: audition.
- MUS:3750 (025:118) Jazz Theory** 3 s.h.
Development of skills for interpreting melodies and chord symbols in mainstream practice of jazz harmony at the piano; application of scales, development of voice leading for jazz harmonies, reharmonization, and analysis. Requirements: MUS:1201 (025:002) or audition.
- MUS:3760 (025:196) Jazz Band Techniques** 1 s.h.
Development of skills for sight-reading and interpreting notated jazz. Prerequisites: MUS:1711 (025:095).
- MUS:4710 (025:243) Advanced Jazz Improvisation** 2 s.h.
Builds on the skills learned in MUS:3710 (025:102); contemporary techniques and styles used by current practitioners of improvisation; free improvisation, bitonal harmonies, through-composed forms, collective improvisation, nonwestern approaches. Prerequisites: MUS:3710 (025:102) and MUS:3750 (025:118). Requirements: audition.
- MUS:4750 (025:244) Transcription** 2 s.h.
Individual projects to transcribe improvisations, small ensemble arrangements, large ensemble arrangements, or nonwestern techniques; use of computer notation programs and midi-realizations. Prerequisites: MUS:3710 (025:102) and MUS:3750 (025:118).
- MUS:4760 (025:231) Jazz Composition and Arranging** 2 s.h.
Experience writing and arranging original jazz material for small and large ensembles, and presenting scores in computer notation; individual lessons. Prerequisites: MUS:3750 (025:118).
- Music Education**
The College of Education offers additional music education courses; see Teaching and Learning (p. 814) in the Catalog for listings and descriptions. Some courses have two numbers, one for the School of Music and the other for the College of Education. Students preparing for music teacher licensure should register under the education number.
Also see MUS:3760 (025:196) Jazz Band Techniques under "Jazz Studies."
- MUS:3600 (025:257) Undergraduate Music Education Workshop** 1 s.h.
Topics vary; for inservice music teachers.
- MUS:3601 (025:155) Undergraduate Music Education Workshop II** 1 s.h.
Topics vary; for inservice music teachers.
- MUS:3605 (025:105) Instrumental Techniques** 2 s.h.
Same as EDTL:3605 (07S:143).
- MUS:3630 (025:164) Band Methods and Materials** 3 s.h.
High school and elementary school music methods required for teaching certificate; for instrumental music education majors. Same as EDTL:3630 (07S:140).
- MUS:3635 (025:108) Instrumental Conducting** 3 s.h.
Advanced skills for instrumental conducting, score analysis, rehearsal techniques, literature selection. Prerequisites: MUS:3625 (025:107). Same as EDTL:3635 (07S:145).
- MUS:3640 (025:109) Choral Methods** 3 s.h.
Organization, implementation of effective choral music programs for all ages. Same as EDTL:3640 (07S:147).
- MUS:3645 (025:110) Choral Conducting and Literature** 3 s.h.
Advanced skills appropriate to choral conducting, analysis, literature selection studied and implemented to develop a secure approach to choral art; students preparing to teach in the elementary or secondary schools must register under EDTL:3645 (07S:148). Prerequisites: EDTL:3640 (07S:147) and MUS:3625 (025:107). Same as EDTL:3645 (07S:148).
- MUS:3659 (025:100) Class Strings** 1 s.h.
String playing and basic principles of string pedagogy; for band and string students. Offered fall semesters for band; offered fall and spring semesters for string. Requirements: teacher education student in music.
- MUS:3660 (025:112) String Methods and Materials** 3 s.h.
Methods for teaching bands in schools. Offered fall semesters. Same as EDTL:3660 (07S:150).
- MUS:3664 (025:114) Introduction to Band Instruments** 2 s.h.
Survey of wind and percussion instruments; for music education string majors.
- MUS:3665 (025:117) Arranging for Band** 2 s.h.
Scoring and arranging techniques for concert, marching bands. Offered spring semesters.
- MUS:3666 (025:182) Marching Band Techniques** 1 s.h.
Administration, show design. Offered fall semesters.
- MUS:5600 (025:220) Graduate Music Education Workshop** 1 s.h.
For inservice music teachers; topics vary. Same as EDTL:5600 (07S:241).
- MUS:5601 (025:234) Graduate Music Education Workshop II** 1 s.h.

Varied topics; for inservice music teachers. Same as EDTL:5601 (07S:242).

Music History

The following courses deal with periods and special topics in music history. They are offered about every two years. All of them have as prerequisites MUS:5301 (025:301) Advanced History and Literature of Music I and MUS:5302 (025:302) Advanced History and Literature of Music II, or the equivalents, or consent of instructor.

MUS:6326 (025:324) Renaissance Music Notations 3 s.h.

MUS:6350 (025:309) Music 1945-Present 3 s.h.

Several courses in music history are appropriate for non-music majors. Other music history courses appropriate for nonmajors are listed under "General Music Courses" above.

MUS:3301 (025:144) History of Music I 3 s.h.
Requirements: MUS:1202 (025:003) and MUS:2203 (025:004) for music majors. GE: Historical Perspectives; Literary, Visual, and Performing Arts.

MUS:3302 (025:146) History of Music II 3 s.h.
Requirements: MUS:1202 (025:003) and MUS:2203 (025:004) for music majors. GE: Historical Perspectives; Literary, Visual, and Performing Arts.

MUS:5300 (025:321) Introduction to Graduate Study in Music 2 s.h.
Music library; reference materials; bibliography; research problems, methods; writing research papers. Offered fall and spring semesters.

MUS:5301 (025:301) Advanced History and Literature of Music I 3 s.h.
History and style of Medieval, Renaissance, and Baroque music (750-1750). Offered fall semesters.

MUS:5302 (025:302) Advanced History and Literature of Music II 3 s.h.
History and style of Classical, 19th-, 20th-, and 21st-century music (1750-present). Offered spring semesters.

MUS:5310 (025:320) Introduction to Musicology 1-3 s.h.
Methods, materials of research in historical musicology; field of musicology. Offered fall semesters. Requirements: for 1 s.h. — MUS:5300 (025:321); for 3 s.h. — concurrent enrollment in MUS:5300 (025:321).

MUS:6300 (025:238) Musicology Colloquium 0 s.h.

MUS:6310 (025:330) Seminar in Musicology 3 s.h.
One or more selected areas of music history.

MUS:6314 (025:318) Topics in Ethnomusicology 3 s.h.
Perspectives on analysis and representation of selected musical cultures from around the world.

MUS:6315 (025:319) Foundations of Ethnomusicology 3 s.h.

Ethnomusicology in relation to domains of musical, humanistic, social science scholarship on expressive culture and artistic processes. Requirements: senior standing.

MUS:6325 (025:304) Renaissance Music 3 s.h.
Prerequisites: MUS:5301 (025:301).

MUS:6326 (025:324) Renaissance Music Notations 3 s.h.

Renaissance white notation, keyboard tablatures, musical paleography; transcription of early vocal, instrumental notations; editorial problems. Prerequisites: MUS:5301 (025:301).

MUS:6330 (025:305) Seventeenth-Century Music 3 s.h.
Prerequisites: MUS:5301 (025:301).

MUS:6335 (025:306) Eighteenth-Century Music 3 s.h.
Prerequisites: MUS:5302 (025:302).

MUS:6340 (025:307) Nineteenth-Century Music 3 s.h.
Prerequisites: MUS:5302 (025:302).

MUS:6345 (025:308) Music 1900-1945 3 s.h.
Prerequisites: MUS:5302 (025:302).

MUS:6350 (025:309) Music 1945-Present 3 s.h.
Prerequisites: MUS:5302 (025:302).

MUS:6355 (025:310) American Music 3 s.h.
Prerequisites: MUS:5302 (025:302).

MUS:6375 (025:325) Music Editing 3 s.h.
Principles and methods of music editing; use of primary source materials, establishment of music text, preparation of critical apparatus; project to prepare a critical edition of music for publication. Prerequisites: MUS:5300 (025:321).

MUS:7380 (025:381) Readings in Music History arr.

Music and Technology

Also see MUS:4250 (025:250) Composition: Electronic Media I and MUS:4251 (025:251) Composition: Electronic Media II listed under "Composition" above.

MUS:3410 (025:161) Fundamentals of Piano Technology 1 s.h.
Offered spring semesters.

MUS:3780 (025:149) Audio Recording I 3 s.h.
Audio fundamentals, including sound generation, acoustical environments, forms of sound energy, basic audio systems; use of microphones (primarily stereo techniques), mixers, recorders, related equipment; introduction to Pro Tools digital recording, editing, and mixing on Macintosh; production of high-quality audio compact discs. Offered fall semesters.

- MUS:3781 (025:152) Audio Recording II** 3 s.h.
Functionality with Pro Tools digital audio recording, editing, mixing, and mastering on Macintosh; basic digital theory; configuration of Macintosh G4 computer with Pro Tools hardware and software; music editing projects and production of multitrack recordings. Offered spring semesters. Prerequisites: MUS:3780 (025:149).
- Music Therapy**
- MUS:1687 (025:087) Orientation to Music Therapy** 2 s.h.
Theory, practice; typical clients and places of employment in music therapy.
- MUS:2671 (025:091) Music Foundations in Therapy I** 2 s.h.
Skill development on social instruments such as guitar, autoharp, piano; percussion, song-leading skills, and repertoire development for use in clinical music therapy sessions. Prerequisites: MUS:1687 (025:087). Requirements: music therapy major.
- MUS:2672 (025:092) Music Foundations in Therapy II** 1-2 s.h.
Advanced skill development on guitar for use in clinical music therapy sessions; percussion techniques, and related skills used in therapeutic settings. Prerequisites: MUS:2671 (025:091). Requirements: music therapy major.
- MUS:3675 (025:094) Music Therapy Practicum** 1-2 s.h.
Supervised clinical training with adult clients and children in variety of health care and educational settings. Prerequisites: MUS:1687 (025:087). Requirements: music therapy major.
- MUS:3676 (025:093) Percussion Experience for Teachers and Therapists** arr.
Hands-on learning experiences in percussion techniques used by music teachers, special education teachers, music therapists, or social workers; basics of hand drumming centering on West African djembe and Trinidadian steel band; skills necessary for interacting with students and clients in educational and clinical settings.
- MUS:3680 (025:096) Music in Special Education** 2-3 s.h.
Music methods and materials appropriate for students with disabilities in special educational settings; overview of individualized educational planning for students with disabilities. Requirements: music therapy or music education major.
- MUS:3690 (025:139) Music Therapy with Adults** 3 s.h.
Techniques, procedures for work with adult clients with disabilities. Prerequisites: MUS:1687 (025:087). Requirements: music therapy major.
- MUS:4670 (025:140) Internship in Music Therapy** arr.
Clinical training under direction of board certified music therapist. Requirements: core music therapy requirements.
- MUS:4675 (025:098) Senior Project in Music Therapy** 1 s.h.
- MUS:4685 (025:138) Music Therapy with Children** 3 s.h.
Techniques, procedures for use in clinical, educational settings. Prerequisites: MUS:1687 (025:087). Requirements: music therapy major.
- MUS:6670 (025:283) Graduate Music Therapy Practicum** arr.
Seminar, clinical field work. Requirements: undergraduate music therapy practicum.
- MUS:6675 (025:285) Research in Music Therapy—Graduate** 1 s.h.
Research methodology; foundation for subsequent semesters of research on capstone project in music therapy.
- MUS:6680 (025:286) College Teaching and Clinic Supervision in Music Therapy** 1-2 s.h.
Principles of college teaching, curriculum development, clinical supervision in music therapy.
- MUS:6685 (025:287) Theory and Research in Music Therapy** 1 s.h.
Historical background, current principles and practices associated with theories of music therapy, common uses with specific populations; research methodologies associated with testing; theories and clinical practices, assigned research publications; information covered over several semesters with each semester covering three to four common theories; seminar includes strengths and limitations of each theory and its place within clinical practice. Requirements: undergraduate core courses in music therapy.
- MUS:6690 (025:221) Special Studies in Music Therapy** 1-3 s.h.
Seminar. Requirements: music therapy or music education graduate standing.
- Orchestra and Band Instruments**
Also see MUS:3660 (025:112) String Methods and Materials, under "Music Education" above.
- MUS:3140 (025:168) Audition Repertoire** 1 s.h.
Practicum on passages frequently requested at professional auditions.
- MUS:3483 (025:174) Baroque Seminar for Strings** 1 s.h.
Introduction to Baroque performance practices and techniques on period string instruments; ensembles. Requirements: enrollment in upper-level or graduate-level applied studies.
- MUS:5101 (025:209) Advanced Woodwind Pedagogy and Literature I** 2 s.h.
Saxophone and clarinet solo and study literature; integration of pedagogical topics.
- MUS:5102 (025:210) Advanced Woodwind Pedagogy and Literature II** 3 s.h.

Oboe, bassoon, and flute solo and study literature; integration of pedagogical topics.

MUS:5111 (025:253) Advanced Brass Pedagogy and Literature I 2 s.h.

Tuba, euphonium, and trombone literature; pedagogical topics.

MUS:5112 (025:254) Advanced Brass Pedagogy and Literature II 2 s.h.

Trumpet and horn literature; pedagogical topics.

MUS:5115 (025:255) Advanced Brass Ensemble Literature 2 s.h.

Brass chamber music literature, including mixed and like-instrument ensembles.

MUS:5121 (025:298) Advanced String Methods and Literature I 2 s.h.

Violin, viola, cello, and double bass solo and chamber music repertoire, pedagogical methods.

MUS:5122 (025:299) Advanced String Methods and Literature II 2 s.h.

Violin, viola, cello, and double bass solo and chamber music repertoire, pedagogical methods.

MUS:5130 (025:295) Advanced Percussion Pedagogy and Literature 2 s.h.

Percussion literature, styles, notation, performance techniques, composition; survey.

MUS:6131 (025:335) Seminar in Performance and Pedagogy Research I 1 s.h.

Research in the student's area; selection of a research topic. Offered spring semesters.

MUS:7132 (025:340) Seminar in Performance and Pedagogy Research II 1 s.h.

Continuation of MUS:6131 (025:335); thesis proposal preparation; survey of related literature. Offered spring semesters.

Organ and Sacred Music

MUS:4450 (025:189) Organ Literature Survey 2 s.h.

Fifteenth century to present. Requirements: advanced undergraduate or graduate standing.

MUS:4452 (025:184) Liturgics 2 s.h.

History of liturgies and survey of liturgical music from Judaism to present.

MUS:4454 (025:198) Service Playing and Improvisation 2 s.h.

Hymn playing, accompanying, basic improvisation techniques. Requirements: organ major.

MUS:5450 (025:226) History of Organ Building and Design 2-3 s.h.

Development of organ design from Middle Ages to present; basic concepts of construction, maintenance.

MUS:5452 (025:228) Organ Pedagogy 2 s.h.

History, theory, practice from Renaissance to present; methods, literature appropriate for various levels.

MUS:5465 (025:252) Hymnology 1-2 s.h.

Survey of historic hymnody: ancient odes, Latin hymns, Reformation hymns and psalms; current developments in hymnody and hymnals; may be special topic study.

MUS:5475 (025:229) Organ Literature Special Topics 2 s.h.

Specialized study in selected areas of organ literature.

Piano

MUS:1211 (025:071) Group Instruction in Piano I 1 s.h.

Beginning instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; skill development in sight reading, technique, harmonization, transposition, improvisation, simple literature. Corequisites: MUS:1201 (025:002). Requirements: music major.

MUS:1212 (025:072) Group Instruction in Piano II 1 s.h.

Elementary to early intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; continued skill development begun in MUS:1211 (025:071); introduction of easy solo and ensemble literature. Corequisites: MUS:1202 (025:003). Requirements: MUS:1211 (025:071) or successful completion of proficiency examination.

MUS:2213 (025:073) Group Instruction in Piano III 1 s.h.

Varies by semester: skills for the music therapy profession, sight-reading, harmonization, transposition, reading from a fake book, and improvisation (fall); skills for the music education profession, sight-reading, harmonization, transposition, score, and hymn reading (spring). Requirements: music therapy, music education, or piano major.

MUS:3400 (025:113) Methods of Teaching Piano 2 s.h.

Methods, materials, and teaching techniques for preschool students, precollege students, and adult learners. Requirements: keyboard major.

MUS:5400 (025:232) Piano Pedagogy I 2 s.h.

In-depth study of techniques and materials needed to teach intermediate and advanced piano students; judging competitions; conducting master classes; writing curriculum vitae and cover letters in preparation for academic job searches.

MUS:5401 (025:233) Piano Pedagogy II 2 s.h.

History of the piano and its technique and pedagogy; national schools of piano playing; relationship of technological changes in piano construction to piano technique, pedagogy, and composition; major methods and treatises, historical recordings and video clips; research leading to understanding of students' individual piano lineage.

MUS:5410 (025:296) Piano Literature I	2 s.h.	Continuation of MUS:1201 (025:002). Offered spring semesters. Prerequisites: MUS:1201 (025:002). Requirements: MUS:1212 (025:072) or successful completion of piano proficiency exam.
Baroque era to Mozart or Chopin through 1900.		
MUS:5411 (025:297) Piano Literature II	2 s.h.	
Beethoven through Schumann or 20th century.		
MUS:7400 (025:361) Special Studies Piano Literature	arr.	MUS:2203 (025:004) Musicianship and Theory III 4 s.h.
Individual research in special aspects of piano literature; primarily for D.M.A. students.		Continuation of MUS:1201 (025:002) and MUS:1202 (025:003); focus on common-practice repertory. Offered fall semesters. Prerequisites: MUS:1202 (025:003).
MUS:7401 (025:362) Special Studies in Piano Accompaniment and Chamber Music	arr.	MUS:2204 (025:005) Musicianship and Theory IV 4 s.h.
Advanced collaborative arts practicum. Prerequisites: MUS:3480 (025:186).		Continuation of MUS:1201 (025:002), MUS:1202 (025:003), and MUS:2203 (025:004); focus on late 19th- and early 20th-century repertoires. Offered spring semesters. Prerequisites: MUS:2203 (025:004).
Recital and Thesis		
MUS:3990 (025:199) Special Studies	arr.	MUS:2206 (025:006) Form and Analysis 3 s.h.
		Analysis of musical forms and procedures, including 18th- and 19th-century tonal repertoires. Prerequisites: MUS:2204 (025:005). Requirements: undergraduate standing.
MUS:4900 (025:154) Senior Recital	1 s.h.	
MUS:4910 (025:099) Bachelor's Thesis	0-1 s.h.	
MUS:4995 (025:097) Honors in Music	1-4 s.h.	MUS:4200 (025:145) Counterpoint Before 1600 3 s.h.
Requirements: honors standing.		Two- and three-part counterpoint; Renaissance polyphony. Requirements: MUS:2203 (025:004) for undergraduates; MUS:5200 (025:240) for graduate students.
MUS:6900 (025:402) M.A. Recital	arr.	
MUS:6910 (025:401) M.F.A. Thesis	arr.	MUS:4201 (025:147) Counterpoint After 1600 3 s.h.
MUS:6920 (025:390) M.A. Performance Project	arr.	Two- and three-part writing in the style of J.S. Bach; fugue. Requirements: MUS:2204 (025:005) for undergraduates; MUS:5200 (025:240) or exemption on Graduate Theory Advisory Exam for graduate students.
MUS:6950 (025:400) M.A. Thesis	arr.	
MUS:7900 (025:503) D.M.A. Recital	arr.	MUS:4210 (025:153) Keyboard Harmony 1-2 s.h.
MUS:7950 (025:500) Ph.D. Thesis	arr.	Melody harmonization and figured-bass realization at the keyboard. Requirements: MUS:2204 (025:005) for undergraduates, MUS:5200 (025:240) for graduate students; and keyboard proficiency.
MUS:7960 (025:501) Composition Ph.D. Thesis	arr.	
MUS:7970 (025:502) D.M.A. Essay	arr.	MUS:5200 (025:240) Basic Analytical Techniques 3 s.h.
Theory		
MUS:1200 (025:001) Fundamentals of Music for Majors	3 s.h.	MUS:5235 (025:249) Tonal Analysis 3 s.h.
Rudiments of music—notation of pitch and rhythm, meter, scales, keys, intervals, triads; first of a five-semester sequence.		Requirements: MUS:2204 (025:005) for undergraduates; MUS:5200 (025:240) or exemption on Graduate Theory Advisory Examination for graduate students.
MUS:1201 (025:002) Musicianship and Theory I	4 s.h.	MUS:5236 (025:247) Post-Tonal Analysis 3 s.h.
Principles of harmony; emphasis on aural skills, theoretical concepts, notation. Offered fall semesters. Requirements: MUS:1200 (025:001) or successful completion of music theory diagnostic exam, and concurrent enrollment in MUS:1211 (025:071) or successful completion of piano proficiency exam.		Requirements: MUS:2204 (025:005) for undergraduates; MUS:5200 (025:240) or exemption on Graduate Theory Advisory Examination for graduate students.
MUS:1202 (025:003) Musicianship and Theory II	4 s.h.	MUS:5240 (025:256) Special Topics in Theory and Analysis 3 s.h.
		Requirements: MUS:2204 (025:005) for undergraduates; MUS:5200 (025:240) or exemption on Graduate Theory Advisory Examination for graduate students.
		MUS:6200 (025:237) Music Theory Colloquium 0 s.h.

MUS:6210 (025:241) History of Music Theory I	3 s.h.	MUS:3511 (025:151) Interpretation of Non-German Art Song	1 s.h.
Requirements: MUS:5200 (025:240) or exemption on Graduate Theory Advisory Examination.		Art songs in English, French, Italian, Spanish; appropriate diction, style. Prerequisites: MUS:1510 (025:115) and MUS:2510 (025:116).	
MUS:6211 (025:242) History of Music Theory II	3 s.h.	MUS:3520 (025:169) Singing for Actors	2 s.h.
Prerequisites: MUS:5200 (025:240) and MUS:6210 (025:241).		Skill development for healthy, effective singing in the musical theatre style; techniques of vocal production through breath management, resonance, articulation, flexibility; song interpretation and repertoire. Recommendations: for MUS:3520 (025:169) — concurrent registration in MUS:1020 (025:059). Same as THTR:3130 (049:106).	
MUS:6215 (025:236) Music Theory Pedagogy	3 s.h.	MUS:3521 (025:175) Acting for Singers and for Dancers	2 s.h.
Methods and techniques of teaching college-level music theory, including harmony, sight singing, ear training. Prerequisites: MUS:5200 (025:240). Corequisites: MUS:6200 (025:237).		Fundamentals of acting technique, with attention to demands on performers in opera, musical theater, and dance. Same as THTR:3521 (049:102), DANC:3521 (137:165).	
MUS:6250 (025:312) Advanced Tonal Theory and Analysis	3 s.h.	MUS:5510 (025:159) Graduate Diction	2 s.h.
Prerequisites: MUS:5235 (025:249).		Advanced pronunciation of singing languages. Requirements: grade of B or higher in undergraduate diction in French, German, and Italian.	
MUS:6251 (025:311) Advanced Post-Tonal Theory and Analysis	3 s.h.	MUS:5520 (025:201) Principles of Voice Production	3 s.h.
Prerequisites: MUS:5236 (025:247).		Basic physical, physiological, pedagogical principles in understanding professional, nonprofessional, impaired voice production; vocal anatomy, voice classification; control of loudness, pitch, register, quality; efficient, inefficient use of voice; instrumentation for voice analysis, synthesis. Offered fall semesters of odd years. Same as CSD:5201 (003:201).	
MUS:7280 (025:380) Readings in Music Theory	arr.	MUS:6520 (025:202) Methods of Teaching Voice	3 s.h.
		Attitude, musicianship, foreign language aptitude, physical and emotional characteristics; mental images used to modify respiratory, phonatory, articulatory behavior; vocal hygiene; performance anxiety; student-teacher relationships; administration in vocal schools, professional organizations. Offered spring semesters. Same as CSD:6202 (003:202).	
Voice and Opera			
MUS:1510 (025:115) Diction for Singers I	2 s.h.	MUS:6525 (025:216) Voice for Performers	2 s.h.
Italian and German pronunciation for singing; basics of international phonetic alphabet; no previous background required.		Comparison of Kinesthetic techniques for singing and acting voice; relaxation, posture, breathing, tone quality, diction, interpretation. Same as CSD:6204 (003:204), THTR:6525 (049:201).	
MUS:2510 (025:116) Diction for Singers II	2 s.h.	MUS:6530 (025:235) Topics in Vocal Performance	2 s.h.
French and English pronunciation for singing. Prerequisites: MUS:1510 (025:115).		Selected areas of vocal performance.	
MUS:3500 (025:165) Opera Workshop	2 s.h.	MUS:6535 (025:248) Opera Theater Directing Seminar	arr.
Opera performing techniques, including acting, aria interpretation, scene work. Requirements: vocal major or audition.		Exploration, discussion, and experience using techniques unique to directing opera. Score and libretto analysis, fundamentals of stagecraft, casting and management skills.	
MUS:3501 (025:170) Opera Theater Chorus	1 s.h.	MUS:6540 (025:339) Survey of Operatic Literature	3 s.h.
Requirements: audition.			
MUS:3502 (025:245) Opera Production	2-4 s.h.		
Preparation and rehearsals leading up to performance of full production; may include one-act opera, chamber opera, musical theater production, or full-length opera. Corequisites: MUS:3503 (025:348). Requirements: audition.			
MUS:3503 (025:348) Vocal/Operatic Coaching	1 s.h.		
Professional-level vocal coaching in preparation for opera productions, opera workshop, degree recitals. Corequisites: MUS:3502 (025:245).			
MUS:3510 (025:150) Interpretation of German Art Song	1 s.h.		
Schubert, Schumann, Brahms, Wolf, Strauss, Mahler; appropriate diction, style. Prerequisites: MUS:1510 (025:115) and MUS:2510 (025:116).			

Important operatic scores examined from standpoint of performers, directors; production problems.

MUS:6541 (025:351) Survey of Song Literature I 3 s.h.

German language lieder from 18th century to present; French mélodie from Meyerbeer to present. Offered fall semesters of odd years.

MUS:6542 (025:352) Survey of Song Literature II 3 s.h.

British, American, Italian, Spanish, Latin American, Scandinavian, and Russian art song from 18th century to present. Offered fall semesters of even years.

MUS:6555 (025:356) Voice Habilitation 2-3 s.h.

Application of methods of intervention in development, training, rehabilitation of vocal behavior; motor learning, efficacy of treatment strategies, factors affecting compliance with recommended therapy. Offered fall semesters. Prerequisites: CSD:4114 (003:114) or CSD:5201 (003:201). Same as CSD:6213 (003:213).

MUS:6556 (025:357) Instrumentation for Voice Analysis 2 s.h.

Glottographic, videostroboscopic, electromyographic, and acoustic analysis for assessment of vocal and respiratory function; using these techniques in conjunction with perceptual evaluation of voice; through the Vocology Institute in Utah. Offered summer sessions of even years. Requirements: enrollment in Summer Vocology Institute, Salt Lake City, Utah. Same as CSD:6221 (003:221).

Performing Arts Entrepreneurship

Director, Division of Performing Arts

- Alan MacVey

Coordinator, Performing Arts Entrepreneurship Program

- David McGraw

Undergraduate certificate: performing arts entrepreneurship

Web site: <http://dpa.uiowa.edu/academic-programs/performing-arts-entrepreneurship-certificate>

Undergraduate Program of Study

- Certificate in Performing Arts Entrepreneurship

The Division of Performing Arts, in partnership with the John Pappajohn Entrepreneurial Center in the Tippie College of Business, offers the undergraduate Certificate in Performing Arts Entrepreneurship. The program gives students the opportunity to pursue professional studies in the performing arts, in the framework of a liberal arts education, and to develop the skills required for creating market-based opportunities in the arts.

Certificate

The Certificate in Performing Arts Entrepreneurship requires a minimum of 29 s.h. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

The program is designed for students of dance, music, and theatre arts who wish to learn about the business of the performing arts and to develop the entrepreneurial skills necessary for promoting their artistic work.

Certificate students are strongly encouraged, but not required, to pursue a major in one of the performing arts.

Work for the certificate includes entrepreneurship-related courses in accounting, financial management, and marketing as well as courses focused on arts management and leadership practices in both commercial and nonprofit organizations (20 s.h.). Students also must complete course work in dance, music, or theatre arts (9 s.h.) and an internship in an arts organization (0 s.h.).

Students may not use a course to satisfy more than one certificate requirement (e.g., a business course required for the certificate that is cross-listed in dance, music, or theatre arts may not also be counted toward the performing arts course requirement).

The Certificate in Performing Arts Entrepreneurship requires the following course work.

PERFORMING ARTS

Certificate students earn 9 s.h. in courses numbered 3000 or above taken in one of three performing arts units: the Department of Dance, the School of Music, or the

Department of Theatre Arts. Many of these courses have prerequisites; consult an advisor about course sequencing.

BUSINESS AND ENTREPRENEURSHIP

Students must complete ENTR:1350 (06T:050) Foundations in Entrepreneurship, an entrepreneurship prerequisite that is offered both on campus and online. They also must complete several courses that focus on entrepreneurial and arts financing; entrepreneurship, innovation, and new ventures in the arts; entrepreneurial marketing; e-commerce for entrepreneurs; arts management; and arts leadership.

Prerequisite:

ENTR:1350 (06T:050) Foundations in Entrepreneurship	2 s.h.
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One of these:

ARTS:3400 (01P:185) Grant Writing in the Arts	3 s.h.
ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.

One of these:

DPA:3520 (188:111) New Ventures in the Arts	3 s.h.
ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.

All of these:

DPA:3510 (188:109) Introduction to Arts Management	3 s.h.
DPA:4510 (188:195) Arts Leadership Seminar	3 s.h.
ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.
ENTR:3600 (06T:148) E-Commerce Strategies for Entrepreneurs	3 s.h.

INTERNSHIP

Students may complete the required internship (0 s.h.) during any semester in the program. The Pomerantz Career Center coordinates a wide variety of internships; see Career Center Programs (p. 1254) (University College) in the Catalog. Students also may choose other internship opportunities. The Iowa Arts Council and the Iowa Cultural Corridor Alliance maintain lists of recommended host organizations.

Living-Learning Community

First- and second-year students studying performing arts entrepreneurship may apply to live in the Arts Living-Learning Community, a coed floor in a University of Iowa east campus residence hall. The community includes students from art and art history, dance, film, music, and theatre arts.

Courses

Lower-Level Undergraduate

DPA:1000 (188:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Requirements: first- or second-semester standing.

- DPA:1004 (188:137) World of the Beatles** 3 s.h.
How the Beatles' music was influenced by American pop music, the drug culture, and the Avant Garde, nonwestern instruments and philosophy, anti-war sentiments, and world politics, and so forth; Beatlemania's impact on British and American cultures and its role in opening Eastern Europe to the West. Same as MUS:1004 (025:137).
- DPA:1412 (188:052) The Arts in Performance** 3 s.h.
GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity. Same as DANC:1412 (137:052), THTR:1412 (049:052).
- DPA:2060 (188:080) Dance and Society in Global Contexts** 3 s.h.
Dance and other physical endeavors as embodied forms of knowledge and culture; U.S. dance practices; European and African dance cultures; aesthetic and political issues raised by concert dance (i.e., performance, choreography, spectatorship, criticism); ethnographic methods to examine the function of dance in cultural formation (i.e., spiritual, celebratory, social, political contexts); lecture, discussion, viewing, movement workshops, formal and informal writing, field research, and BLOG construction. GE: Literary, Visual, and Performing Arts. Same as DANC:2060 (137:080).
- ## Upper-Level Undergraduate and Graduate
- DPA:3085 (188:174) Introduction to Afro-Cuban Dance** 1 s.h.
Introduction to the dance, drumming, and songs of the Afro-Cuban folkloric traditions; emphasis on dance. May participate in UI Afro-Cuban Drum and Dance ensemble. Same as DANC:3085 (137:174).
- DPA:3086 (188:175) Afro-Cuban Drum and Dance Performance** 1 s.h.
Dance repertory for the UI Afro-Cuban Drum and Dance Ensemble. Performance pieces based on dance, drumming, songs of the Afro-Cuban folkloric traditions. May participate in UI Afro-Cuban Drum and Dance Ensemble. Same as DANC:3086 (137:175).
- DPA:3154 (188:173) Introduction to Afro-Cuban Drumming** 1 s.h.
Drumming, dance, songs from folkloric and ceremonial Afro-Cuban forms; emphasis on drumming; may include participation in Afro-Cuban drum and dance ensemble. Same as MUS:3154 (025:173).
- DPA:3210 (188:156) Makeup Design for the Stage** 3 s.h.
Same as THTR:3210 (049:156).
- DPA:3221 (188:147) Technology for the Entertainment Industry** 3 s.h.
Introduction to technology skills that are at the center of the entertainment industry; programming and operating digital lighting and sound consoles, intelligent lighting systems, projection hardware and software; outdoor event rigging, metal construction, and fabrication. Same as THTR:3221 (049:147).
- DPA:3510 (188:109) Introduction to Arts Management** 3 s.h.
Nonprofit performing arts management and administrative principles; practical applications, trends in the field; focus on arts organizations and their key administrative positions. Same as THTR:3510 (049:109), INTD:3510 (145:109).
- DPA:3520 (188:111) New Ventures in the Arts** 3 s.h.
Arts administration principles and trends as applied to creation of an arts-related enterprise; case studies; students create business plan for a new arts organization. Duplicates ENTR:2000 (06T:120) and MGMT:3100 (06J:125). Corequisites: ENTR:1350 (06T:050), or ACCT:2100 (06A:001) and MKTG:3000 (06M:100). Same as THTR:3520 (049:111), ENTR:3520 (06T:125), INTD:3520 (145:111).
- DPA:3850 (188:167) Introduction to Laban Movement Studies** 2-3 s.h.
Introduction to Bartenieff Fundamentals (BF) and Laban Movement Analysis (LMA) as methods of organizing and integrating movement to support artistic goals and expanding expressive range; BF teaches body awareness, breath support, developmental patterns, ergonomically-efficient alignment, balancing of muscular strength and stretch, and coordination; LMA teaches vocabulary of expressive movement and nonverbal communication, including effort (use of energy/dynamics for expression, stamina, stress relief) and shape (how posture and gesture communicate); quality of movement that supports individual goals in artistic expression, sound production, and wellness. Same as MUS:3850 (025:167), THTR:3850 (049:105), DANC:3850 (137:160).
- DPA:3851 (188:168) Introduction to the Alexander Technique** 3 s.h.
The Alexander Technique and "self-use"—how movement choices affect results achieved; improvement of physical skills and presence; principles in support of performing arts (e.g., speaking, singing, playing an instrument, dancing, acting); application to skills in daily life, addressing underpinnings of movement; physical participation (e.g., lying down, rolling, sitting, standing, locomotion). Same as MUS:3851 (025:176), DANC:3851 (137:173), THTR:3851 (049:170).
- DPA:4060 (188:182) The Contemporary Dance Scene** 3 s.h.
Historical, theoretical, and practical elements of contemporary dance; the term "postmodern" and its associations with dance, performing arts, contemporary culture; relationships between process and product, identity and subjectivity, artistic intent and authorship, meaning and intertextuality; possibility of art as a form of dissent; theory and practice placed in a dialectic; analysis and synthesis of previous research. Same as DANC:4060 (137:182).
- DPA:4510 (188:195) Arts Leadership Seminar** 3 s.h.

Performing arts management and administrative principles, practical applications, trends in arts leadership and advocacy. Requirements: for THTR:4510 (049:195) — THTR:3510 (049:109) or THTR:3520 (049:111) or graduate standing in an arts discipline. Same as ENTR:4510 (06T:155), THTR:4510 (049:195), INTD:4510 (145:195).

Graduate

DPA:5060 (188:202) Theories of Dance and the Body 3 s.h.

Theoretical trends in studies of dance and physical bodies; performative and choreographic aspects of being. Same as DANC:5060 (137:202).

DPA:5550 (188:275) Collaborative Performance 1-4 s.h.

Collaborative experience with advanced artists from varied disciplines that culminates in a final performance; emphasis on sharing and investigating ideas, artistic intent, personal vision, and creating collaborative projects. Same as DANC:5550 (137:275), THTR:5610 (049:275).

Philosophy

Chair

- David Cunning

Professors

- James Duerlinger, Richard Fumerton, Diane Jeske, Gregory Landini, David Stern

Associate professors

- David Cunning, Evan Fales, Carrie Figdor

Assistant professors

- Asha Bhandary, Jovana Davidovic, Ali Hasan, Katarina Perovic, Carrie Swanson

Professors emeriti

- Laird Addis, Panayot Butchvarov, Phillip Cummins

Undergraduate major: philosophy (B.A.)

Undergraduate minor: philosophy

Graduate degrees: M.A. in philosophy; Ph.D. in philosophy

Web site: <http://clas.uiowa.edu/philosophy/>

The Department of Philosophy offers programs of study for undergraduate and graduate students. It also administers the interdisciplinary undergraduate major in ethics and public policy, which it offers jointly with the Departments of Economics and Sociology; see Ethics and Public Policy (p. 297) in the Catalog.

Undergraduate Programs of Study

- Major in philosophy (Bachelor of Arts)
- Minor in philosophy

Undergraduate courses in philosophy are designed to impart knowledge of fundamental issues and main developments in philosophy while strengthening logical and analytic skills. A major in philosophy develops abilities useful for graduate or professional work in many fields—law, for example—and for any situation requiring clear, systematic thinking. Students who intend to teach philosophy in a college setting must earn a graduate degree.

Bachelor of Arts

The Bachelor of Arts with a major in philosophy requires a minimum of 120 s.h., including at least 27 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Courses numbered PHIL:2061 (026:061) Introduction to Philosophy through PHIL:4798 (026:198) Topics in Philosophy count toward the major. The final 12 s.h. in philosophy courses used to complete the major must be earned at The University of Iowa; the department may make exceptions for students who pursue approved study abroad during their senior year.

The major in philosophy requires the following courses.

Both of these:

PHIL:2603 (026:103) Introduction to Symbolic Logic 3 s.h.

PHIL:3111 (026:111) Ancient Philosophy 3 s.h.

One of these:

PHIL:2214 (026:114) Seventeenth-Century Philosophy 3 s.h.

PHIL:2215 (026:115) Modern Philosophy 3 s.h.

PHIL:2216 (026:116) Eighteenth-Century Philosophy 3 s.h.

And:

Additional philosophy courses chosen from those numbered PHIL:2061 (026:061) through PHIL:4798 (026:198) 18 s.h.

In addition to prerequisites listed for individual courses, considerations such as the order in which historical courses are taken are relevant to the effective structuring of the undergraduate major in philosophy. A student's department advisor or the director of undergraduate studies can provide more information.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the fifth semester begins: at least one course in the major

Before the seventh semester begins: at least five courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: at least six courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in philosophy have the opportunity to graduate with honors in the major. In order to be admitted to the departmental honors program, a student must have taken and passed three courses required for the philosophy major and must be a member of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

In order to graduate with honors in the philosophy major, a student must complete the regular requirements for the major with a g.p.a. of at least 3.40 in philosophy courses and must write an acceptable honors thesis on a significant topic in philosophy that interests him or her. Contact the department's honors advisor for more information.

Minor

The minor in philosophy requires a minimum of 15 s.h. in philosophy courses, including 12 s.h. in 3000-level courses offered by the Department of Philosophy at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses

for the minor. Course work in the minor may not be taken pass/nonpass. Contact the undergraduate studies director for more information.

Graduate Programs of Study

- Master of Arts in philosophy
- Doctor of Philosophy in philosophy

The Department of Philosophy grants admission only for the Ph.D. program. The M.A. is awarded to students as they work successfully toward the Ph.D.; it is not offered as a terminal degree.

The graduate program is designed to train teachers and scholars in philosophy. The main areas in the graduate curriculum are metaphysics, epistemology, history of philosophy, logic, philosophy of science, and value theory.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Master of Arts

The Master of Arts in philosophy requires a minimum of 30 s.h. of graduate credit and is offered without thesis. The M.A. is not offered as a terminal degree; it is awarded to students as they work successfully toward the Ph.D. Requirements include courses in metaphysics, epistemology, history of philosophy, ethics, logic, philosophy of science, and value theory. There is no foreign language requirement. Students must take an oral final examination. Contact the graduate studies director for more information.

Joint M.A./J.D.

The Department of Philosophy and the College of Law offer a joint Juris Doctor/Master of Arts degree program. M.A./J.D. students may count 12 s.h. earned in the joint program toward both degrees. They must earn 18 of the 30 s.h. required for the M.A. in graduate-level philosophy courses (the usual requirement is 24 s.h.). They also must earn a minimum of 36 s.h. in undergraduate and graduate philosophy courses, combined (the usual requirement is 42 s.h.).

Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the joint degree program.

See "Juris Doctor" and "Joint J.D./Graduate Degrees" in the College of Law (p. 1005) section of the Catalog.

Doctor of Philosophy

The Ph.D. requires a minimum of 72 s.h. of graduate credit. Candidacy for the doctoral program is determined by a formal vote of the entire Department of Philosophy faculty, usually after the student has completed three semesters of graduate study in residence.

Requirements include courses in metaphysics, epistemology, history of philosophy, logic, philosophy of science, and value theory. Students are required to take a comprehensive examination that covers their area of specialization and includes both written and oral components. Upon successfully completing the exam, they begin work on a prospectus for their dissertation. There

is no foreign language requirement. Contact the graduate studies director for more information.

Courses

For more detailed descriptions of undergraduate and graduate courses offered during a given semester or summer session, visit the University's ISIS web site before early registration.

Lower-Level Undergraduate

PHIL:1010 (026:026) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

PHIL:1033 (026:033) The Meaning of Life 3 s.h.

Philosophical investigation of the nature of human life and of what makes human life valuable and/or meaningful. GE: Historical Perspectives.

PHIL:1034 (026:034) Philosophy and the Just Society 3 s.h.

The nature of individuals and governments and the obligations they have to each other; philosophical and historical examination of theories from Plato through the 19th century. GE: Historical Perspectives.

PHIL:1636 (026:036) Principles of Reasoning: Argument and Debate 3 s.h.

Elementary logic and its application to evaluation of arguments and debates. GE: Quantitative or Formal Reasoning.

PHIL:2061 (026:061) Introduction to Philosophy 3 s.h.

Issues and arguments; topics may include rational belief, evidence, the self, causation, and the presuppositions of religion. GE: Values, Society, and Diversity.

PHIL:2214 (026:114) Seventeenth-Century Philosophy 3 s.h.

Main trends, central arguments, major positions; Bacon and Descartes to Leibniz and Locke. Requirements: sophomore or higher standing.

PHIL:2215 (026:115) Modern Philosophy 3 s.h.

Main trends and major figures from Descartes to Kant. Requirements: sophomore or higher standing.

PHIL:2216 (026:116) Eighteenth-Century Philosophy 3 s.h.

Main trends, central arguments, and major positions; Berkeley to Kant.

PHIL:2401 (026:001) Matters of Life and Death 3 s.h.

Important ethical controversies with life and death implications (abortion, capital punishment, torture, terrorism and war) discussed and analyzed using philosophical reasoning.

PHIL:2402 (026:102) Introduction to Ethics 3 s.h.
Analytical and historical introduction to ethical theories about issues such as the nature of goodness, the nature of right conduct. GE: Values, Society, and Diversity.

PHIL:2534 (026:134) Philosophy of Religion 3 s.h.
Medieval to contemporary treatments of central issues: the nature of faith; the existence and nature of God; religion and ethics; the interpretation of religious texts. Requirements: sophomore or higher standing. Same as RELS:2834 (032:146).

PHIL:2603 (026:103) Introduction to Symbolic Logic 3 s.h.
Main ideas and techniques of formal deduction.

Upper-Level Undergraduate and Graduate

PHIL:3110 (026:110) Philosophy of Ancient Greece and Rome 3 s.h.
Ancient Greek and Roman philosophy from its inception in Ionia in sixth century B.C.E. through the Neoplatonic philosophy of Plotinus in third century C.E., encompassing philosophies of Plato, Aristotle, the Stoics and Epicureans, and later Platonists. Same as CLSA:3338 (20E:138).

PHIL:3111 (026:111) Ancient Philosophy 3 s.h.
Main trends and major figures such as Plato and Aristotle.

PHIL:3112 (026:112) Medieval Philosophy 3 s.h.
Main trends and major figures, such as Augustine and Aquinas. Requirements: sophomore or higher standing. Same as HIST:3112 (16E:114).

PHIL:3139 (026:139) Introduction to Public International Law and Human Rights 3 s.h.
Introduction to elementary ideas of public international law; tension between traditional design and transformation brought about by human rights; public international law regarded as law governing conduct of states; how ascendancy of human rights in 20th century has profoundly altered traditional picture; states that respect and actively foster enjoyment of human rights of their populations; when a state engages in killing some of its own people and engages a responsibility to protect by international community. Same as IS:3133 (187:133).

PHIL:3143 (026:143) Philosophy East and West 3 s.h.
Comparative analysis of ideas in Eastern and Western philosophy.

PHIL:3318 (026:118) Twentieth-Century Philosophy 3 s.h.
Main trends and major figures. Requirements: sophomore or higher standing.

PHIL:3341 (026:141) Existentialist Philosophy 3 s.h.
Main ideas of existentialism; emphasis on Kierkegaard, Nietzsche, Heidegger, Sartre. Requirements: sophomore or higher standing.

PHIL:3342 (026:140) Philosophical Controversies: Multiculturalism and Toleration 3 s.h.
Meaning of multiculturalism as a political policy and as a personal attitude of respect; nature of cultural disagreement, cultural minority rights, immigrant group rights, gender justice, toleration, and respect.

PHIL:3429 (026:129) War, Terrorism, and Torture 3 s.h.
Examination of some of the most compelling ethical and legal questions surrounding the topic of war (Can a war ever be just? If so, under which conditions is one justified in waging war? Are there limitations on permissible ways to fight a war? Are there limitations on permissible ways to exit a war? How are acts of terrorism different from acts of war? Is torture ever justified?).

PHIL:3430 (026:130) Philosophy of Human Rights 3 s.h.
Philosophical and legal understanding of the concept of human rights; questions addressed (What are sources of human rights? Are they moral or legal rights? What sorts of rights fall under this category and how do we justify calling some, while not other, rights "human rights?"); focus on particular human rights including women's rights, children's rights, social and economic rights, and more.

PHIL:3431 (026:131) Aesthetics 3 s.h.
Major problems in philosophy of the arts. Requirements: sophomore or higher standing.

PHIL:3432 (026:132) Introduction to Political Philosophy 3 s.h.
Major problems. Requirements: sophomore or higher standing.

PHIL:3435 (026:135) Philosophy of Law 3 s.h.
Introduction; the nature of law, legal authority, legal reasoning; issues in criminal law, such as punishment, responsibility; issues in property law; constitutional law. Prerequisites: PHIL:1034 (026:034) or PHIL:2402 (026:102) or PHIL:3432 (026:132). Requirements: sophomore or higher standing.

PHIL:3436 (026:136) The Nature of Evil 3 s.h.
The nature of evil explored through philosophical works, case studies of individuals, videos, and films. Requirements: sophomore or higher standing.

PHIL:3437 (026:137) Introduction to Metaphysics 3 s.h.
How metaphysics inquires about ultimate nature of reality and our place in it; fundamental categories of being and relationships; the nature of time, whether time travel is possible, conditions of persistence through time of persons and material objects; the nature of causation and human freedom. Requirements: sophomore or higher standing.

PHIL:3442 (026:142) Introduction to Epistemology 3 s.h.
Introduction to fundamental issues in epistemology; analysis of knowledge and justified belief, skepticism, foundationalism and coherentism, internalism and externalism.

PHIL:3538 (026:138) Philosophical Problems of Artificial Intelligence	3 s.h.	PHIL:4373 (026:173) Heidegger	3 s.h.
Major issues and controversies. Requirements: sophomore or higher standing.		Main ideas and major texts of Heidegger; early and later periods, particular attention to Being and Time; focus on Heidegger's analyses of <i>being</i> and <i>being-in-the-world</i> .	
PHIL:3604 (026:104) Introduction to Philosophy of Science	3 s.h.	PHIL:4375 (026:175) Rawls' Moral and Political Philosophy	3 s.h.
Fundamental issues in scientific method, inductive reasoning, explanation, the distinctive nature of science. Requirements: sophomore or higher standing.		Major theories and texts of John Rawls' moral and political philosophy.	
PHIL:3633 (026:133) Philosophy of History	3 s.h.	PHIL:4377 (026:177) Wittgenstein	3 s.h.
Major problems: objectivity, historiographic methods and theory of interpretation, nature of historical explanations, reduction. Requirements: sophomore or higher standing.		Main ideas, major texts.	
PHIL:3845 (026:145) Buddhist Philosophy	3 s.h.	PHIL:4379 (026:179) Quine	3 s.h.
Introduction to main ideas. Requirements: sophomore or higher standing. Same as RELS:3645 (032:175).		Major ideas, major texts.	
PHIL:4047 (026:147) Philosophical Issues	3-4 s.h.	PHIL:4480 (026:180) Analytic Ethics	3 s.h.
A philosophical topic or controversy.		Topics in contemporary ethics.	
PHIL:4048 (026:148) Readings in Philosophy	arr.	PHIL:4481 (026:181) Issues in Philosophy of Law	3 s.h.
Requirements: honors standing and sophomore or higher standing.		Main debates in legal philosophy; nature of law, theories of natural law and positivism, the Hart-Fuller debate; legal realism, critical legal theory, feminist legal theory, critical race theory; where legal and moral issues intersect (e.g., punishment, legal obligation, rights).	
PHIL:4049 (026:149) Undergraduate Seminar in Philosophy	3 s.h.	PHIL:4482 (026:182) History of Ethics	3 s.h.
Selected problems. Same as CLSA:4049 (20E:149).		Selected topics in the history of philosophical ethics.	
PHIL:4050 (026:156) Topics in Indian Philosophy	3 s.h.	PHIL:4485 (026:185) Political Philosophy	3 s.h.
Varied topics related to Indian Philosophy.		Selected topics.	
PHIL:4152 (026:152) Plato	3 s.h.	PHIL:4586 (026:186) Topics in Metaphysics	3 s.h.
Main ideas, major texts.		Fundamental topics; major works, both classical and contemporary.	
PHIL:4153 (026:153) Aristotle	3 s.h.	PHIL:4587 (026:187) Epistemology	3 s.h.
Main ideas, major texts.		Contemporary topics.	
PHIL:4258 (026:158) Descartes	3 s.h.	PHIL:4588 (026:188) Philosophy of Mind	3 s.h.
Major works, such as the <i>Discourse on Method</i> , as well as lesser known works, such as <i>The World</i> .		Contemporary topics.	
PHIL:4260 (026:160) Spinoza and Leibniz	3 s.h.	PHIL:4589 (026:189) Philosophy of Language	3 s.h.
Main ideas, major texts.		Contemporary topics. Same as LING:4589 (103:163).	
PHIL:4263 (026:163) Berkeley and Hume	3 s.h.	PHIL:4590 (026:190) Philosophical Foundations of Cognitive Science	3 s.h.
Comparative and critical examination of metaphysical and epistemological views of 18th-century empiricists George Berkeley and David Hume; theory of ideas, perception, skepticism, limits of knowledge, scientific and philosophical method, role of God in Berkeley's and Hume's philosophical systems.		Processes leading from stimulus to behavioral response in cognitive or mentalistic terms; motivations for cognitive explanations, nature of cognitive architecture, problem of mental representation; additional topics may include individuation of inputs and outputs, role of consciousness in cognition, relation between language and thought, nature of concepts.	
PHIL:4266 (026:166) Kant	3 s.h.	PHIL:4691 (026:191) Mathematical Logic	3 s.h.
Main ideas, major texts of Kant's metaphysics and epistemology.		Presentation of central metatheorems relating to decidability, completeness, model theory; second-order logic.	
PHIL:4346 (026:176) Frege and Russell	3 s.h.		
Main ideas, major texts.			

PHIL:4692 (026:192) Modal Logic 3 s.h.
Formal techniques developed and applied to problems in analysis and modal semantics; related philosophical issues.

PHIL:4694 (026:194) Philosophy of Science 3 s.h.
Central topics—for example, scientific explanation, confirmation, the meaning of scientific theories; survey of major 20th-century developments in these areas.

PHIL:4696 (026:196) Philosophy of the Human Sciences 3 s.h.
Explanation and understanding, theories and reduction, values and ideology, freedom and causality.

PHIL:4798 (026:198) Topics in Philosophy 3 s.h.
A single philosopher or philosophical problem.

Graduate

PHIL:6100 (026:227) Seminar: Ancient Philosophy 3 s.h.

PHIL:6200 (026:229) Seminar: Modern Philosophy 3 s.h.

PHIL:6300 (026:223) Seminar: Philosophical Analysis 3 s.h.

PHIL:6400 (026:226) Seminar: Ethics 3 s.h.

PHIL:6510 (026:221) Seminar: Metaphysics 3 s.h.

PHIL:6520 (026:222) Seminar: Epistemology 3 s.h.

PHIL:6540 (026:220) Seminar: Philosophy of Language 3 s.h.

PHIL:6620 (026:224) Seminar: Philosophy of Science 3 s.h.

PHIL:6800 (026:225) Seminar: Philosophy of Religion 3 s.h.

PHIL:7200 (026:251) Research: History of Philosophy arr.

PHIL:7400 (026:245) Research: Value Theory arr.

PHIL:7500 (026:247) Research: Metaphysics and Epistemology arr.

PHIL:7600 (026:249) Research: Logic and Philosophy of Science arr.

PHIL:7900 (026:253) Thesis arr.

Physics and Astronomy

Chair

- Frederick N. Skiff

Professors

- David R. Andersen (Electrical and Computer Engineering/Physics and Astronomy), Thomas F. Boggess (Physics and Astronomy/Electrical and Computer Engineering), Chaden Djalai, Michael E. Flatté (F. Wendell Miller Professor), John A. Goree, Donald A. Gurnett (Carver/James A. Van Allen Professor of Physics), Richard Hichwa (Radiology/Physics and Astronomy), Philip Kaaret, Paul D. Kleiber (Harriet B. and Harold S. Brady Professor of Laser Physics), Craig A. Kletzing (F. Wendell Miller Professor), Mark T. Madsen (Radiology/Physics and Astronomy), Usha Mallik, Robert L. Merlini, Yannick Meurice, Robert L. Mutel, Yasar Onel, Wayne N. Polyzou, John P. Prineas, Mary Hall Reno, Vincent G.J. Rodgers, Jack D. Scudder, Frederick N. Skiff, Arthur L. Smirl (Physics and Astronomy/Electrical and Computer Engineering, Lowell Battershell Chair in Laser Engineering), Steven R. Spangler, Markus Wohlgenannt

Associate professors

- Kenneth G. Gayley, Gregory Howes, Cornelia C. Lang, Randall McEntaffer, Jane M. Nachtman, Craig Pryor, John J. Sunderland (Radiology/Physics and Astronomy)

Assistant professors

- Scott Baalrud, Hai Fu, Maxim Khodas, R. Alfredo C. Siochi (Radiation Oncology/Electrical and Computer Engineering/Physics and Astronomy)

Professors emeriti

- William H. Klink, George Knorr, Karl E. Lonngren, Edward R. McCliment, John S. Neff, Gerald L. Payne, John W. Schweitzer

Associate professor emeritus

- Charles R. Newsom

Undergraduate majors: physics (B.A., B.S.); applied physics (B.S.); astronomy (B.A., B.S.)

Undergraduate minors: physics; astronomy

Graduate degrees: M.S. in physics; M.S. in astronomy; Ph.D. in physics (optional subprogram in astronomy)

Web site: <http://www.physics.uiowa.edu/>

The Department of Physics and Astronomy provides comprehensive and rigorous instruction in all basic aspects of its subjects. It also provides research facilities and guidance in selected specialties for advanced individual scholarly work.

In addition to its undergraduate and graduate programs of study, the department offers several courses that undergraduate students in all majors may use to satisfy the General Education Program (p. 323) Natural Sciences requirement and a First-Year Seminar designed for entering undergraduates.

All of the department's courses and advanced laboratories are taught by faculty members. Faculty members also supervise associated laboratories taught by graduate students. Enrollment in courses beyond the elementary level is typically 15 to 20 students; there is ample

opportunity for individual work. Special introductory courses are offered for students majoring in physics and astronomy and for others with a special interest in these subjects.

Total enrollment in physics and astronomy courses is approximately 1,700 each semester of the academic year and 150 during the summer session. The department has around 80 undergraduate majors, half of whom are honors students, and 70 graduate students.

About 70 percent of graduates with bachelor's degrees pursue advanced study. Others find positions in government and industrial laboratories and in secondary school teaching. Some use their training as the basis for careers in other fields.

Graduates with an M.S. or Ph.D. in physics or astronomy have opportunities for employment in universities, colleges, and research laboratories in government and industry.

Undergraduate Programs of Study

- Major in physics (Bachelor of Arts, Bachelor of Science)
- Major in astronomy (Bachelor of Arts, Bachelor of Science)
- Major in applied physics (Bachelor of Science)
- Minor in physics
- Minor in astronomy

Students who wish to earn a double major in physics and astronomy must choose their course work carefully; see "B.A. or B.S.: Double Major in Physics and Astronomy" below. Bachelor of Arts students majoring in physics who are interested in science teaching and in earning a graduate degree may enroll in a joint degree program offered by the College of Liberal Arts and Sciences and the College of Education; see "Joint B.A./M.A.T. with Science Education Subprogram" below.

Bachelor of Science: Physics

The Bachelor of Science with a major in physics requires a minimum of 120 s.h., including at least 58 s.h. of work for the major (minimum of 42 s.h. in physics plus 16 s.h. in supporting course work). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The physics major for the B.S. provides preparation for careers in industry, employment in research laboratories, and graduate study in physics and related sciences. Students take calculus and linear algebra in addition to physics courses, which include laboratories, and the department encourages them to do additional work.

The physics major for the Bachelor of Science requires the following courses or their equivalents. Many upper-level physics courses have prerequisites; students should consult their advisors when choosing courses numbered 3000 or above.

MATHEMATICS

MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II

8 s.h.

MATH:2700 (22M:027) Introduction to Linear Algebra 4 s.h.

MATH:2850 (22M:028) Calculus III 4 s.h.

LABORATORIES

PHYS:3756 (029:132) Intermediate Laboratory 3 s.h.

One of these:

PHYS:3850 (029:128) Electronics 4 s.h.

PHYS:4750 (029:133) Advanced Laboratory 3 s.h.

Students who choose PHYS:3850 (029:128) Electronics as one of their two required laboratory courses are advised to take it before they take PHYS:3756 (029:132) Intermediate Laboratory.

OTHER REQUIRED COURSES

One of these sequences:

PHYS:1701 (029:027)-PHYS:1702 (029:028)-PHYS:2703 (029:029) Physics I-II - Physics III (strongly preferred) 12 s.h.

PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II 8 s.h.

All of these:

PHYS:2704 (029:030) Physics IV 4 s.h.

PHYS:3710 (029:115) Intermediate Mechanics 3 s.h.

PHYS:3730 (029:118) Statistical Physics 3 s.h.

PHYS:3741 (029:140)-PHYS:3742 (029:141) Introduction to Quantum Mechanics I-II 6 s.h.

PHYS:3811 (029:129)-PHYS:3812 (029:130) Electricity and Magnetism I-II 6 s.h.

Two of these:

ASTR:3771 (029:119) Introduction to Astrophysics I 3 s.h.

ASTR:3772 (029:120) Introduction to Astrophysics II 3 s.h.

ASTR:4770 (029:186) Radio Astronomy 3 s.h.

PHYS:3850 (029:128) Electronics (may not be repeated) 4 s.h.

PHYS:4720 (029:180) Introductory Optics 3 s.h.

PHYS:4726 (029:182) Electro Optics 3 s.h.

PHYS:4728 (029:193) Introductory Solid State Physics 3 s.h.

PHYS:4731 (029:194) Plasma Physics I 3 s.h.

PHYS:4740 (029:192) Elementary Particles and Nuclear Physics 3 s.h.

PHYS:4750 (029:133) Advanced Laboratory 3 s.h.

PHYS:4761 (029:171) Mathematical Methods of Physics I 3 s.h.

PHYS:4762 (029:172) Mathematical Methods of Physics II 3 s.h.

PHYS:4820 (029:184) Optical Signal Processing 3 s.h.

PHYS:4860 (029:196) Computational Physics 3 s.h.

Undergraduate majors who plan to pursue graduate study are advised to go as far as they can beyond the minimum requirements listed above, including further work in mathematics. In planning this work, they should be guided by the College of Liberal Arts and Sciences maximum hours rule: Students earning a B.A. or B.S. may

apply a maximum of 56 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 56 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students earning a B.S. with a double major in physics and astronomy may count more than 56 s.h. earned in the Department of Physics and Astronomy to the 120 s.h. required for graduation, but they must earn at least 56 s.h. in course work outside the department in order to graduate.

Bachelor of Arts: Physics

The Bachelor of Arts with a major in physics requires a minimum of 120 s.h., including at least 44 s.h. of work for the major (minimum of 24 s.h. in physics plus 20 s.h. in supporting course work). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in physics for the B.A. is designed for students who wish to build a foundation of knowledge in physics but do not plan a research-oriented career in the discipline. It is appropriate for those planning careers in medicine, law, science-related administration, business, or technical writing. It also is good preparation for students interested in secondary school science teaching; see "B.A. or B.S. with Teacher Licensure" below.

The B.A. program requires fewer physics courses than the B.S. program does, giving students a wider choice of electives. Bachelor of Arts students take calculus in addition to physics courses, which include a laboratory. They also take science courses in a thematic area or the physics course work required for teacher licensure, and the department encourages them to do additional work.

The physics major for the Bachelor of Arts requires the following courses or their equivalents. Many upper-level physics courses have prerequisites; students should consult their advisors when choosing courses numbered 3000 or above.

One of these sequences:

PHYS:1701 (029:027)-PHYS:1702 (029:028)-PHYS:2703 (029:029) Physics I-II - Physics III (strongly preferred) 12 s.h.

PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II 8 s.h.

All of these:

PHYS:2704 (029:030) Physics IV 4 s.h.

PHYS:3756 (029:132) Intermediate Laboratory 3 s.h.

MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II 8 s.h.

Three additional physics courses numbered 3000-4999 approved by the advisor, excluding PHYS:4990 (029:103), PHYS:4905 (029:105), PHYS:4761 (029:171), and PHYS:4762 (029:172) 9-10 s.h.

One of these:

Additional science courses in a thematic area, approved by the advisor 12 s.h.

The course work required for teacher licensure

B.A. or B.S. with Teacher Licensure

Physics majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students with a strong interest in science teaching may complete a major offered by the Science Education Program. Students choose one of five emphases—biology, chemistry, earth science, physics, or all-science—and earn a Bachelor of Science degree. They may apply for admission to the Teacher Education Program. See Science Education (p. 809) in the Catalog.

Joint B.A./M.A.T. with Science Education Subprogram

Bachelor of Arts students in physics who are interested in pursuing a graduate degree in teaching may apply to the joint Bachelor of Arts/Master of Arts in Teaching program offered by the College of Liberal Arts and Sciences and the College of Education. Designed for undergraduates majoring in biology, chemistry, environmental sciences, or physics, the joint program enables students to earn a B.A. and an M.A.T. in five years by beginning to earn graduate credit during their fourth year of undergraduate study and by counting up to 18 s.h. of qualifying credit toward both degrees. For more information, see "Joint B.A./M.A.T. with Science Education Subprogram" in the Teaching and Learning (p. 814) (College of Education) section of the Catalog. Interested students should consult an advisor.

Bachelor of Science: Applied Physics

The Bachelor of Science with a major in applied physics requires a minimum of 120 s.h., including at least 59-83 s.h. of work for the major. Total credit required for the major depends on the student's choice of concentration. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major in applied physics is intended primarily for students interested in a broad program of study in physics combined with a significant concentration of courses in a field that has immediate application to industry. The degree provides a foundation for a wide range of employment opportunities in high-technology industries, including research and development, product design and testing, sales, and quality control. It also is designed to include exposure to physics sufficient to allow students

to continue with graduate studies in either physics or astronomy.

The major offers four areas of concentration: optics, solid-state electronics, computer science, and medical physics. Students also may design customized concentration areas in close consultation with their advisors and with departmental approval.

An essential component of each concentration is successful completion of a related one-semester internship or practicum experience in a research laboratory (an applied physics thesis is required for the latter option). Well-prepared students will be able to complete the degree in four years. Students should work closely with their advisors on a graduation plan.

All applied physics students complete a common set of courses that includes calculus, linear algebra, physics, and an experiential learning course. They also complete the courses required for their chosen concentration. The department encourages them to take additional course work; advisors can suggest electives that will enrich programs and help students prepare for graduate work.

The major in applied physics requires the following courses. Many upper-level physics courses have prerequisites; students should consult their advisors when choosing courses numbered 3000 or above.

COMMON REQUIREMENTS

Students in all concentrations must successfully complete the following courses or their equivalents.

Mathematics—all of these:

MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.
MATH:2700 (22M:027) Introduction to Linear Algebra	4 s.h.
MATH:2850 (22M:028) Calculus III	4 s.h.

Physics—one of these sequences:

PHYS:1701 (029:027)-PHYS:1702 (029:028)-PHYS:2703 (029:029) Physics I-II - Physics III (strongly preferred)	12 s.h.
PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II	8 s.h.

Physics—all of these:

PHYS:2704 (029:030) Physics IV	4 s.h.
PHYS:3710 (029:115) Intermediate Mechanics	3 s.h.
PHYS:3741 (029:140) Introduction to Quantum Mechanics I	3 s.h.
PHYS:3811 (029:129) Electricity and Magnetism I	3 s.h.

Experiential learning—one of these:

- A one-semester industrial internship
- A one-semester practicum in a research laboratory (requires an applied physics thesis)

COMPUTER SCIENCE CONCENTRATION

All of these:

PHYS:3730 (029:118) Statistical Physics	3 s.h.
PHYS:3756 (029:132) Intermediate Laboratory	3 s.h.
PHYS:3812 (029:130) Electricity and Magnetism II	3 s.h.

PHYS:3850 (029:128) Electronics	4 s.h.
CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
CS:2230 (22C:021) Computer Science II: Data Structures	4 s.h.
Two additional computer science courses numbered 3000 or above	6 s.h.

One of these:

CS:2630 (22C:060) Computer Organization	3 s.h.
CS:2820 (22C:022) Object-Oriented Software Development	4 s.h.
CS:3330 (22C:031) Algorithms	3 s.h.

OPTICS CONCENTRATION

All of these:

PHYS:3730 (029:118) Statistical Physics	3 s.h.
PHYS:3756 (029:132) Intermediate Laboratory	3 s.h.
PHYS:3812 (029:130) Electricity and Magnetism II	3 s.h.
PHYS:3850 (029:128) Electronics	4 s.h.
PHYS:4720 (029:180) Introductory Optics	3 s.h.

Two of these:

PHYS:4726 (029:182) Electro Optics	3 s.h.
PHYS:4728 (029:193) Introductory Solid State Physics	3 s.h.
PHYS:4820 (029:184) Optical Signal Processing	3 s.h.

SOLID-STATE ELECTRONICS CONCENTRATION

All of these:

PHYS:3730 (029:118) Statistical Physics	3 s.h.
PHYS:4728 (029:193) Introductory Solid State Physics	3 s.h.
ECE:2400 (055:040) Linear Systems I	3 s.h.
ECE:2410 (055:018) Principles of Electronic Instrumentation	4 s.h.
ECE:3320 (055:032) Introduction to Digital Design	3 s.h.
ECE:3410 (055:041) Electronic Circuits	4 s.h.
ENGR:1300 (059:006) Engineering Problem Solving II	3 s.h.
ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits	3 s.h.
ENGR:2730 (057:017) Computers in Engineering	3 s.h.

One of these:

PHYS:3742 (029:141) Introduction to Quantum Mechanics II	3 s.h.
PHYS:3812 (029:130) Electricity and Magnetism II	3 s.h.

MEDICAL PHYSICS CONCENTRATION

All of these:

PHYS:3756 (029:132) Intermediate Laboratory	3 s.h.
PHYS:3850 (029:128) Electronics	4 s.h.
BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.

CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
CHEM:2210 (004:121) & CHEM:2220 (004:122) Organic Chemistry I-II	6 s.h.
CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.
Two additional biology courses numbered 3000 or above	6-8 s.h.

One of these:

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

One of these:

PHYS:3730 (029:118) Statistical Physics	3 s.h.
PHYS:3742 (029:141) Introduction to Quantum Mechanics II	3 s.h.
PHYS:3812 (029:130) Electricity and Magnetism II	3 s.h.
PHYS:4905 (029:105) Special Topics in Physics (physics of the body)	3 s.h.
PHYS:4750 (029:133) Advanced Laboratory	3 s.h.

Bachelor of Science: Astronomy

The Bachelor of Science with a major in astronomy requires a minimum of 120 s.h., including at least 63 s.h. of work for the major. The program provides balanced and integrated course work in astronomy, mathematics, and physics that prepares students for advanced study in astronomy or astrophysics. It also serves as an interesting choice of major for a liberal arts education.

Bachelor of Science students take calculus and linear algebra in addition to physics and astronomy courses, which include laboratories. Students also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The astronomy major for the Bachelor of Science requires the following courses or their equivalents. Required courses ASTR:4850 (029:137) Astronomical Laboratory and ASTR:3771 (029:119) Introduction to Astrophysics I are offered every other year; students are responsible for registering for them when they are offered.

MATHEMATICS

All of these:

MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.
MATH:2700 (22M:027) Introduction to Linear Algebra	4 s.h.
MATH:2850 (22M:028) Calculus III	4 s.h.

LABORATORIES

This course:

ASTR:4850 (029:137) Astronomical Laboratory (offered every other year)	3 s.h.
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And one of these:

PHYS:3756 (029:132) Intermediate Laboratory	3 s.h.
PHYS:3850 (029:128) Electronics	4 s.h.

OTHER REQUIRED COURSES

One of these sequences:

PHYS:1701 (029:027)-PHYS:1702 (029:028)- PHYS:2703 (029:029) Physics I-II - Physics III (strongly preferred)	12 s.h.
PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II	8 s.h.

All of these:

ASTR:1771 (029:061)-ASTR:1772 (029:062) General Astronomy I-II	8 s.h.
ASTR:3771 (029:119)-ASTR:3772 (029:120) Introduction to Astrophysics I-II (offered every other year)	6 s.h.
PHYS:2704 (029:030) Physics IV	4 s.h.
PHYS:3710 (029:115) Intermediate Mechanics	3 s.h.
PHYS:3741 (029:140) Introduction to Quantum Mechanics I	3 s.h.
PHYS:3811 (029:129)-PHYS:3812 (029:130) Electricity and Magnetism I-II	6 s.h.

One of these:

PHYS:3742 (029:141) Introduction to Quantum Mechanics II	3 s.h.
PHYS:4731 (029:194) Plasma Physics I	3 s.h.

ADDITIONAL COURSE WORK

Undergraduate majors who plan to pursue graduate study are advised to go as far as they can beyond the minimum requirements listed above, by taking one or more of the courses listed below.

PHYS:3730 (029:118) Statistical Physics	3 s.h.
PHYS:3742 (029:141) Introduction to Quantum Mechanics II	3 s.h.
PHYS:4720 (029:180) Introductory Optics	3 s.h.
PHYS:4731 (029:194) Plasma Physics I	3 s.h.
PHYS:4740 (029:192) Elementary Particles and Nuclear Physics	3 s.h.
PHYS:4761 (029:171)-PHYS:4762 (029:172) Mathematical Methods of Physics I-II	6 s.h.
ASTR:4770 (029:186) Radio Astronomy	3 s.h.

In planning this work, they should be guided by the College of Liberal Arts and Sciences maximum hours rule: Students earning a B.A. or B.S. may apply a maximum of 56 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 56 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students earning a B.S. with a double major in physics and astronomy may count more than 56 s.h. earned in the Department of Physics and Astronomy to the 120 s.h. required for graduation, but they must earn at least 56 s.h. in course work outside the department in order to graduate.

Bachelor of Arts: Astronomy

The Bachelor of Arts with a major in astronomy requires a minimum of 120 s.h., including at least 49 s.h. of work for the major. The B.A. program requires fewer physics and mathematics courses than the B.S. program does, giving students a wider choice of electives.

The program is designed for students who wish to build considerable knowledge in astronomy but do not plan a research-oriented career in the field. It is appropriate for students planning careers in secondary school science teaching or science-related administration; see Science Education (p. 809) (College of Education) in the Catalog. It also is appropriate for those planning to earn professional degrees.

Bachelor of Arts students take calculus in addition to physics and astronomy courses, which include laboratories. Students also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The astronomy major for the Bachelor of Arts requires the following courses or their equivalents.

One of these sequences:

PHYS:1701 (029:027)-PHYS:1702 (029:028)- PHYS:2703 (029:029) Physics I-II - Physics III (strongly preferred)	12 s.h.
PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II	8 s.h.

All of these:

ASTR:1771 (029:061)-ASTR:1772 (029:062) General Astronomy I-II	8 s.h.
ASTR:3771 (029:119)-ASTR:3772 (029:120) Introduction to Astrophysics I-II	6 s.h.
ASTR:4850 (029:137) Astronomical Laboratory	3 s.h.
PHYS:2704 (029:030) Physics IV	4 s.h.
PHYS:3710 (029:115) Intermediate Mechanics	3 s.h.
PHYS:3756 (029:132) Intermediate Laboratory	3 s.h.
MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.

One of these:

PHYS:3730 (029:118) Statistical Physics	3 s.h.
PHYS:4720 (029:180) Introductory Optics	3 s.h.

One of these:

PHYS:3811 (029:129) Electricity and Magnetism I (requires vector calculus as prerequisite)	3 s.h.
PHYS:3850 (029:128) Electronics	4 s.h.

B.A. or B.S.: Double Major in Physics and Astronomy

Students working toward a Bachelor of Arts or Bachelor of Science with a double major in physics and astronomy must complete all requirements for both majors and must earn a minimum of 56 s.h. outside the Department of Physics and Astronomy in order to graduate. Students interested in earning a double major should consult with their advisors. See Requirements for a Degree in the

College of Liberal Arts and Sciences Academic Policies Handbook.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A.: Astronomy

Before the third semester begins: math through calculus I-II and physics I-II

Before the fifth semester begins: physics III-IV and at least one more course in the major

Before the seventh semester begins: three more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Astronomy

Before the third semester begins: calculus I-II and physics II

Before the fifth semester begins: all of the remaining required math courses, physics III-IV, and two other courses in the major

Before the seventh semester begins: four more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A.: Physics

Before the third semester begins: calculus II and physics II

Before the fifth semester begins: physics III-IV and up to four more courses in the major

Before the seventh semester begins: two to four more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Physics

Before the third semester begins: calculus II and physics II

Before the fifth semester begins: physics III-IV, introduction to linear algebra, calculus III, and up to two more courses in the major

Before the seventh semester begins: two to four more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Applied Physics

Before the third semester begins: calculus II and physics II

Before the fifth semester begins: physics III-IV, introduction to linear algebra, calculus III, one more course in the major, and up to four courses in another science or engineering department

Before the seventh semester begins: two to four more courses in the major, up to three other science or engineering courses, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two or three more courses in the major or other science or engineering courses and all or part of an academic year research experience or a summer research experience or internship as approved by the applied physics coordinator

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in physics, applied physics, or astronomy have the opportunity to graduate with honors in their major. Departmental honors students must maintain a University of Iowa g.p.a. of at least 3.33. To graduate with honors in the major, they must earn 6-8 s.h. in PHYS:4999 (029:099) Undergraduate Research during their junior and senior years and conduct an investigation under the guidance of a faculty member. They must present a written report of their research (honors thesis) and describe their research results at a departmental seminar.

Departmental honors students must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor: Physics

The minor in physics requires a minimum of 15 s.h. in physics, including 12 s.h. taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

The 12 s.h. taken at The University of Iowa must be chosen from these:

PHYS:2703 (029:029) Physics III	4 s.h.
PHYS:2704 (029:030) Physics IV	3-4 s.h.
Physics courses numbered 3000 or above	

Both PHYS:2703 (029:029) and PHYS:2704 (029:030) have prerequisites, as do most physics courses numbered 3000 or above. Students must complete a course's prerequisites before they may enroll in the course.

Minor: Astronomy

The minor in astronomy requires a minimum of 15 s.h. in astronomy and physics courses, including 12 s.h. of course work numbered 3000 or above and 12 s.h. taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

Course work numbered 3000 or above must include 6 s.h. chosen from these:

ASTR:3771 (029:119) Introduction to Astrophysics I	3 s.h.
ASTR:3772 (029:120) Introduction to Astrophysics II	3 s.h.
ASTR:4850 (029:137) Astronomical Laboratory	3 s.h.

Remaining work may be chosen from any astronomy or physics courses numbered 3000 or above.

Most University of Iowa courses for the minor have prerequisites; students must complete a course's prerequisites before they may enroll in the course.

Graduate Programs of Study

- Master of Science in physics (with thesis or critical essay)
- Master of Science in astronomy (with or without thesis)
- Doctor of Philosophy in physics (with optional subprogram in astronomy)

Graduate study in physics and astronomy is highly individualized. The department does not offer a Ph.D. in astronomy, but students may pursue a Ph.D. in physics with a subprogram and dissertation in astronomy.

Each entering graduate student is assigned a faculty advisor, who assists in preparing a plan of study and in guiding the student's progress. All graduate students who intend to pursue a Ph.D. in physics must pass the qualifying exam (see "Doctor of Philosophy: Physics").

In addition to offering graduate degree programs, the Department of Physics and Astronomy participates in an interdisciplinary doctoral program, the Program in Applied Mathematical and Computational Sciences (p. 949) (Graduate College).

Master of Science: Physics

The Master of Science program in physics requires a minimum of 30 s.h. of graduate credit. It is offered with thesis or critical essay. The M.S. with thesis requires a thesis based on an original experimental or theoretical investigation by the student. The M.S. with critical essay requires a critical essay on the literature of a particular area of physics.

The M.S. may be a terminal degree or a step toward a Ph.D. In either case, the final examination is oral, conducted by a committee of three faculty members.

Each student's plan of study should provide for as much advanced work as his or her aptitude and previous preparation permit. Up to one-third of the program of study may be taken in related scientific fields other than physics (e.g., mathematics, chemistry, astronomy, geology, engineering).

All master's degree students in physics must earn the required 30 s.h. of graduate credit in courses numbered 3000 or above, with at least 15 s.h. in courses numbered 5000 or above. They must maintain a g.p.a. of at least 3.00.

Students who choose the thesis option must write a thesis based on an original experimental or theoretical investigation that they have conducted. Students may earn a maximum of 6 s.h. in PHYS:7992 (029:220) Individual Critical Study or PHYS:7990 (029:281) Research: Physics.

Students who choose the critical essay option must conduct an independent study of the literature on a chosen topic and write a critical essay on that topic. Students may earn a maximum of 4 s.h. in PHYS:7992 (029:220) Individual Critical Study or PHYS:7990 (029:281) Research: Physics.

Master of Science: Astronomy

The Master of Science program in astronomy requires a minimum of 30 s.h. of graduate credit. It is offered either with or without thesis. The M.S. may be a terminal degree or a step toward a Ph.D. in physics with specialization and a dissertation in astronomy or astrophysics. In either case the final examination is oral, conducted by a committee of three faculty members.

Up to one-third of the program of study may be taken in related scientific fields (e.g., meteorology, geology, electrical engineering); selection of such courses is encouraged.

All M.S. students in astronomy must maintain a g.p.a. of at least 3.00. Seminars do not count toward the minimum of 30 s.h. required for the degree.

Students in the thesis program earn the required 30 s.h. in courses numbered 3000 or above, with at least 15 s.h. in courses numbered 5000 or above. Thesis students must earn at least 6 s.h. in the following courses.

ASTR:6785 (029:233) The Interstellar Medium	3 s.h.
ASTR:6790 (029:234) Stellar Astrophysics	3 s.h.
ASTR:7775 (029:235) Special Topics in Astrophysics	1-3 s.h.

Thesis students may earn a maximum of 6 s.h. in PHYS:7992 (029:220) Individual Critical Study and ASTR:7991 (029:282) Research: Astronomy.

Students in the nonthesis program must maintain a g.p.a. of at least 3.00 in core graduate courses. They must earn 18 s.h. in the following core graduate courses.

ASTR:6785 (029:233) The Interstellar Medium	3 s.h.
ASTR:6790 (029:234) Stellar Astrophysics	3 s.h.
ASTR:7775 (029:235) Special Topics in Astrophysics	1-3 s.h.
PHYS:5710 (029:205) Classical Mechanics	3 s.h.

PHYS:5811 (029:213) Classical Electrodynamics I	3 s.h.
PHYS:5812 (029:214) Classical Electrodynamics II	3 s.h.

Nonthesis students may earn a maximum of 4 s.h. in PHYS:7992 (029:220) Individual Critical Study and ASTR:7991 (029:282) Research: Astronomy.

Doctor of Philosophy: Physics

The Doctor of Philosophy program in physics requires a minimum of 72 s.h. of graduate credit. For students interested in doing doctoral work in astronomy, the department offers an optional astronomy subprogram, including dissertation, within the Ph.D. program in physics.

Graduate students who wish to pursue a Ph.D. in physics must pass a qualifying examination in all principal areas of physics at the level of advanced undergraduate work. The examination, which may be repeated only once, is given each year before the beginning of the spring semester. Students must pass the qualifying examination before the beginning of their fourth semester of graduate work at The University of Iowa. Students with high scores on the Graduate Record Exam (GRE) subject test in physics may be exempt from this requirement.

All Ph.D. students must take comprehensive examinations; participate in advanced seminars; do original research in experimental physics, theoretical physics, or astrophysics; and prepare and defend a written dissertation based on this work.

The program of study for the Ph.D. in physics includes thorough course work in both classical and quantum physics for all students, whether their specialized research is in an experimental or a theoretical area.

All Ph.D. students in physics must earn at least 24 s.h. in departmental courses numbered 5000 or above. They may not count credit earned in PHYS:7992 (029:220) Individual Critical Study, PHYS:7990 (029:281) Research: Physics, ASTR:7991 (029:282) Research: Astronomy, or seminars.

Ph.D. students in physics without the astronomy subtrack must complete the following courses.

PHYS:4761 (029:171)-PHYS:4762 (029:172) Mathematical Methods of Physics I-II (students who pass a written examination are exempt from this requirement)	6 s.h.
PHYS:5710 (029:205) Classical Mechanics	3 s.h.
PHYS:5730 (029:212) Statistical Mechanics I	3 s.h.
PHYS:5741 (029:245)-PHYS:5742 (029:246) Quantum Mechanics I-II	6 s.h.
PHYS:5811 (029:213)-PHYS:5812 (029:214) Classical Electrodynamics I-II	6 s.h.

These courses freely use advanced mathematics (e.g., complex variables, tensor analysis). An introduction is provided in PHYS:4761 (029:171) and PHYS:4762 (029:172). The selection of less advanced course work depends on the adequacy of a student's preparation for graduate work; students' choice of more advanced and specialized courses depends on the direction in which their interests develop.

Ph.D. students in physics with the optional subprogram in astronomy must complete a total of six courses from the following two lists.

Four of these:

ASTR:6781 (029:238) Galactic Astronomy	3 s.h.
ASTR:6782 (029:239) Extragalactic Astronomy	3 s.h.
ASTR:6785 (029:233) The Interstellar Medium	3 s.h.
ASTR:6790 (029:234) Stellar Astrophysics	3 s.h.
ASTR:6870 (029:232) Radiative Processes in Astrophysics	3 s.h.
ASTR:6880 (029:237) High Energy Astrophysics	3 s.h.
ASTR:7830 (029:278) Space and Astrophysical Plasma Physics	3 s.h.
PHYS:7760 (029:273) General Relativity and Cosmology	3 s.h.

Two of these (total of 6 s.h.):

PHYS:5710 (029:205) Classical Mechanics	3 s.h.
PHYS:5730 (029:212) Statistical Mechanics I	3 s.h.
PHYS:5741 (029:245)-PHYS:5742 (029:246) Quantum Mechanics I-II	6 s.h.
PHYS:5811 (029:213)-PHYS:5812 (029:214) Classical Electrodynamics I-II	6 s.h.

After a Ph.D. student has chosen a research specialty, he or she must submit a formal thesis proposal and defend the proposal in an oral comprehensive exam. The appropriate thesis advisor then becomes the candidate's general advisor and the chair of the comprehensive and final examination committee. The comprehensive exam must be taken before the beginning of the fourth year of graduate study.

Ph.D. candidates are not recommended for the degree until they have written the dissertation in proper form for formal publication and have submitted it for publication, with the approval of the research advisor, to a widely distributed, refereed scientific journal.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Contact the Department of Physics and Astronomy chair.

Research, Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories, as well as a student computer cluster for which students can obtain accounts. Faculty, students, and staff access national supercomputers via the Internet. The central machine shop is fully equipped and staffed by skilled instrument makers and machinists, and there are electronics and machine shops for use by advanced students and research staff.

Experimental research is conducted in astronomy (optical, radio, and X-ray), atomic and molecular physics, condensed matter physics, elementary particle physics, laser physics, medical physics, plasma physics, and space physics. Extensive facilities are available for construction

of specialized research equipment and for data processing and analysis.

State-of-the-art semiconductor materials and devices are grown in two molecular beam epitaxy machines. Ultrafast laser techniques are developed and used to probe electron transport, energy relaxation, recombination, and spin dynamics in the novel nanostructures grown in these machines. Experiments also are conducted on laser-induced coherent phenomena and coherent control of charge carriers in semiconductor nanostructures. The experimental condensed matter program is closely coordinated with the condensed matter theory group.

Plasma physics is an active area of experimental and theoretical research. Laboratory experiments studying plasma processes of importance in various space and astrophysical plasmas are performed in a Q machine, including experiments on waves and instabilities in dusty plasmas. Additional laboratory and microgravity experiments with dusty plasmas include studies of Coulomb crystals, shocks, and complex fluids. Glow discharges for plasma processing applications are studied using laser diagnostics and numerical simulations. Wave propagation and plasma particle dynamics also are studied in collisionless plasmas through laboratory experiments. Laser techniques are developed for measuring plasma flow and following particle orbits. Plasma theory efforts include analytical and numerical investigations of magnetic reconnection and turbulence in space and astrophysical plasmas; collaboration with laboratory and space plasma experimental groups in strongly coupled dusty plasmas, waves, and instabilities; and free electron lasers and hydrodynamic turbulence.

State-of-the-art laser systems are available for high-resolution spectroscopic measurement and ultrafast studies of molecular structure, for collisional relaxation and nonlinear optical effects in atomic and molecular systems, and for plasma diagnostics.

Experimental research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Stanford Linear Accelerator Center, CERN in Switzerland, and other international laboratories. The present generation of high-energy experiments has been designed to probe both the strong nuclear force and the weak interactions.

The department is well-equipped for research and instruction in observational astronomy. The primary optical instrument is a fully automated 15-inch telescope at a dark-sky site in Arizona. The telescope is equipped with CCD cameras and a variety of filters. There are 3-meter and 4.5-meter radio telescopes on the roof of Van Allen Hall, which are used for instruction and student research projects.

Research programs in galactic and extragalactic radio astronomy are carried out using the facilities of the National Radio Astronomy Observatory, including the Very Large Array and the Very Long Baseline Array, one element of which is 10 miles north of campus. Current long-term research activities include studies of the center of the Milky Way galaxy; investigations of extragalactic radio sources; the formation of powerful winds in young, luminous stars; radio-wave scattering in the interstellar and interplanetary media; and interacting binary stars. A research program in X-ray astronomy has been established, and there is a laboratory for instrument development. Research topics in X-ray astronomy

concentrate on observations of X-ray emission from black holes and supernova remnants, using existing spacecraft.

Active theoretical research is carried on in astrophysics; atomic, molecular, and optical physics; condensed matter physics; elementary particle physics; laser physics; mathematical physics; nuclear physics; plasma physics; and space physics. An active mathematical physics seminar fosters the exchange of ideas between mathematics and physics.

The primary emphasis of Iowa's program in experimental and theoretical space physics is on studies of cosmic and heliospheric physics, magnetospheric physics, and magnetosphere-ionosphere interactions. Facilities are available for designing and constructing spaceflight instruments. Investigators in the department have flown instruments for studying plasmas, energetic charged particles, auroral images, plasma waves, and radio emissions on a wide variety of terrestrial and planetary spacecraft, including Pioneer 10 and 11, Dynamics Explorer, Voyager 1 and 2, Galileo, Polar, Cassini, and Mars Express.

Courses

Prerequisites and corequisites are specified as guides; they may be waived by the instructor.

The Department of Physics and Astronomy offers a number of courses approved for the Natural Sciences requirement of the College of Liberal Arts and Sciences General Education Program. Look for courses with prefixes ASTR and PHYS under "Natural Sciences" in the General Education Program (p. 323) section of the Catalog.

Physics, Lower-Level Undergraduate

PHYS:1000 (029:039) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

PHYS:1100 (029:003) From Quarks to Quasars 3-4 s.h.

Conceptual explanation of the latest discoveries in physics—from the smallest objects, such as quarks and atoms, to the largest, such as galaxies, black holes, and quasars. Requirements: nonscience major. GE: Natural Sciences without Lab; Natural Sciences with Lab.

PHYS:1200 (029:006) Physics of Everyday Experience 3 s.h.

Principles of physics for nonscience majors; basic motion, behavior of fluids, waves, temperature and heat, gravity and planetary motion, electricity and magnetism, optics, nuclear energy, radioactivity, and medical imaging technology; examples from everyday experience. GE: Natural Sciences without Lab.

PHYS:1300 (029:002) Nanoscience 3 s.h.

Properties of very small materials and structures; unique properties emerging at a length scale of one billionth of a meter, or one nanometer. GE: Natural Sciences without Lab.

- PHYS:1400 (029:008) Basic Physics** 3-4 s.h.
Quantitative treatment of mechanics, electricity, heat, liquids, gases, and atomic, nuclear, and elementary particle physics. Prerequisites: MATH:1010 (22M:005). Recommendations: closed to students who have taken PHYS:1511 (029:011) or PHYS:1512 (029:012). GE: Natural Sciences without Lab; Natural Sciences with Lab.
- PHYS:1410 (029:044) Physics of Sound** 3-4 s.h.
Acoustical foundations of music; production of sound by vibrating objects, properties of sound waves, vocal acoustics, hearing, room acoustics, principles of electroacoustics. GE: Natural Sciences without Lab; Natural Sciences with Lab.
- PHYS:1511 (029:011) College Physics I** 4 s.h.
Mechanics, waves, thermodynamics, special relativity. Prerequisites: MATH:1010 (22M:005). GE: Natural Sciences with Lab.
- PHYS:1512 (029:012) College Physics II** 4 s.h.
Continuation of PHYS:1511 (029:011); electricity, magnetism, light, modern physics. Prerequisites: PHYS:1511 (029:011). GE: Natural Sciences with Lab.
- PHYS:1611 (029:081) Introductory Physics I** 4 s.h.
Mechanics, waves, thermodynamics. Corequisites: MATH:1550 (22M:031) or MATH:1850 (22M:025). GE: Natural Sciences with Lab.
- PHYS:1612 (029:082) Introductory Physics II** 3-4 s.h.
Continuation of PHYS:1611 (029:081); electricity, magnetism, light. Prerequisites: PHYS:1611 (029:081). Corequisites: MATH:1560 (22M:032) or MATH:1860 (22M:026). GE: Natural Sciences without Lab; Natural Sciences with Lab.
- PHYS:1619 (029:084) Introductory Physics II Lab** 1 s.h.
Laboratory for PHYS:1612 (029:082). Requirements: 3 s.h. in PHYS:1612 (029:082). GE: Natural Sciences Lab only.
- PHYS:1701 (029:027) Physics I** 4 s.h.
Newtonian mechanics for point particles and rigid bodies; conservation laws. Offered fall semesters. Corequisites: MATH:1850 (22M:025). Requirements: physics or astronomy major. GE: Natural Sciences with Lab.
- PHYS:1702 (029:028) Physics II** 4 s.h.
Continuation of PHYS:1701 (029:027); introduction to fluid mechanics, electricity, magnetism (Maxwell's equations). Offered spring semesters. Prerequisites: PHYS:1701 (029:027). Corequisites: MATH:1860 (22M:026). Requirements: physics or astronomy major. GE: Natural Sciences with Lab.
- PHYS:1905 (029:001) Selected Topics in Physics** arr.
Selected topics in physics and astronomy; discussion, presentations.
- PHYS:1999 (029:098) Undergraduate Seminar** arr.
Selected topics in physics and astronomy; discussion, presentations.
- PHYS:2703 (029:029) Physics III** 4 s.h.
Continuation of PHYS:1702 (029:028); electromagnetic waves, optics; mechanical and sound waves; thermal physics. Offered fall semesters. Prerequisites: PHYS:1702 (029:028).
- PHYS:2704 (029:030) Physics IV** 3-4 s.h.
Introduction to quantum mechanics and other topics in modern physics, including special relativity, atomic and solid state physics. Offered spring semesters. Prerequisites: PHYS:1612 (029:082) or PHYS:2703 (029:029), and MATH:1860 (22M:026). Requirements: for 3 s.h. option — nonmajor.
- PHYS:2990 (029:093) Reading in Physics** arr.
Selected topics in physics.
- ## Physics, Upper-Level Undergraduate and Graduate
- PHYS:3710 (029:115) Intermediate Mechanics** 3 s.h.
Newtonian mechanics; noninertial reference systems; central forces, celestial mechanics; rigid body motion; Lagrangian, Hamiltonian equations of motion; small oscillations. Prerequisites: PHYS:1511 (029:011) or PHYS:1611 (029:081) or PHYS:1701 (029:027), and MATH:1860 (22M:026).
- PHYS:3730 (029:118) Statistical Physics** 3 s.h.
Integrated introduction to subjects of thermodynamics, statistical mechanics, kinetic theory; emphasis on applications. Prerequisites: PHYS:2704 (029:030) and PHYS:3710 (029:115).
- PHYS:3741 (029:140) Introduction to Quantum Mechanics I** 3 s.h.
Superposition principle, Stern-Gerlach experiment, linear operators, measurement theory, time evolution, angular momentum, wave mechanics in one dimension, one-dimensional harmonic oscillator, two-body problems with central forces, the hydrogen atom. Prerequisites: PHYS:2704 (029:030), PHYS:3710 (029:115), MATH:2700 (22M:027), and MATH:2850 (22M:028).
- PHYS:3742 (029:141) Introduction to Quantum Mechanics II** 3 s.h.
Perturbation theory, variational methods, WKB approximation, scattering, Helium atom, periodic table, atomic spectroscopy, transition rates, other selected applications. Prerequisites: PHYS:3741 (029:140).
- PHYS:3750 (029:135) Fundamentals of Micro and Nanofabrication** 3 s.h.
Fundamentals of microfabrication and nanofabrication techniques involved in manufacture of a wide-range miniature device with applications in communications, energy, and biomedical industries. Prerequisites: PHYS:1611 (029:081), PHYS:1612 (029:082) or PHYS:1702 (029:028), BIOL:1141 (002:002), and CHEM:1060 (004:006) or CHEM:1110 (004:011) or CHEM:1120 (004:012).
- PHYS:3756 (029:132) Intermediate Laboratory** 3 s.h.

Electricity; electronics; magnetism; optics; atomic, nuclear, solid state physics; techniques in data analysis, including error analysis. Prerequisites: PHYS:1612 (029:082) or PHYS:1702 (029:028), and PHYS:2703 (029:029). Corequisites: PHYS:3811 (029:129).

PHYS:3811 (029:129) Electricity and Magnetism I 3 s.h.

Electrostatics, magnetic fields, introduction to Maxwell's equations. Prerequisites: PHYS:1512 (029:012) or PHYS:1612 (029:082) or PHYS:1702 (029:028), and MATH:2850 (22M:028).

PHYS:3812 (029:130) Electricity and Magnetism II 3 s.h.

Continuation of PHYS:3811 (029:129); magnetism, electromagnetic waves, A.C. circuits, applications of Maxwell's equations to wave guides, antennas, optics, plasma physics, other topics. Prerequisites: PHYS:3811 (029:129).

PHYS:3850 (029:128) Electronics 4 s.h.

Design and construction of small circuits; use of measurement instruments—oscilloscope, multimeter, function generator; circuits, including transistors, operational amplifiers, digital, analog-to-digital conversion. Prerequisites: PHYS:1512 (029:012) or PHYS:1612 (029:082) or PHYS:1702 (029:028). Requirements: physics or astronomy major.

PHYS:4720 (029:180) Introductory Optics 3 s.h.

Geometrical and physical optics; interference; diffraction; polarization; microscopic origins of macroscopic optical properties of matter; optical activity; electro-optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisites: PHYS:3812 (029:130). Same as ECE:4720 (055:177).

PHYS:4726 (029:182) Electro Optics 3 s.h.

Wave equation solutions; optical birefringence; finite beam propagation in free space, dielectric waveguides and fibers; optical resonators; nonlinear phenomena; electro-optic, acousto-optic modulation; optical detection, noise; application to communication systems. Requirements: for ECE:5790 (055:179) — ECE:3700 (055:070); for PHYS:4726 (029:182) — PHYS:3812 (029:130). Same as ECE:5790 (055:179).

PHYS:4728 (029:193) Introductory Solid State Physics 3 s.h.

Phenomena associated with solid state; classification of solids and crystal structures, electronic and vibrational properties in solids; thermal, optical, magnetic, dielectric properties of solids. Prerequisites: MATH:2850 (22M:028) and PHYS:3741 (029:140). Same as ECE:4728 (055:173).

PHYS:4731 (029:194) Plasma Physics I 3 s.h.

Physics of ionized gases, including orbit theory, guiding center motion, adiabatic invariants, ionization balance description of plasmas by fluid variables and distribution functions; linearized wave motions, instabilities; magnetohydrodynamics. Prerequisites: PHYS:3812 (029:130).

PHYS:4740 (029:192) Elementary Particles and Nuclear Physics 3 s.h.

Accelerators, particle detectors, passage of radiation through matter; nuclear structure, nuclear reactions; quark model of hadrons; strong, electromagnetic, weak interactions of elementary particles; gauge theories, intermediate vector bosons; unification of electromagnetic and weak interactions. Prerequisites: PHYS:3741 (029:140).

PHYS:4750 (029:133) Advanced Laboratory 3 s.h.

Topics in electricity; electronics; magnetism; atomic, nuclear, plasma, solid state physics; techniques in data analysis, including error analysis.

PHYS:4761 (029:171) Mathematical Methods of Physics I 3 s.h.

Functions of complex variables, integration methods, linear vector spaces, tensors, matrix algebra. Prerequisites: MATH:2850 (22M:028).

PHYS:4762 (029:172) Mathematical Methods of Physics II 3 s.h.

Continuation of PHYS:4761 (029:171); Hilbert space, special functions, Fourier transform and expansions in orthogonal polynomials, differential equations, Green's functions. Prerequisites: PHYS:4761 (029:171).

PHYS:4820 (029:184) Optical Signal Processing 3 s.h.

Linear systems description of optical propagation; diffraction and angular plane wave spectrum; lenses as Fourier transformers, lens configurations as generalized optical processors; lasers, coherence, spatial frequency analysis; holography; convolvers, correlators, matched filters; synthetic aperture radar; optical computing. Requirements: for ECE:5780 (055:178) — ECE:3700 (055:070); for PHYS:4820 (029:184) — PHYS:3812 (029:130). Same as ECE:5780 (055:178).

PHYS:4860 (029:196) Computational Physics 3 s.h.

Introduction to contemporary use of computers by physicists; topics such as numerical solutions of ordinary differential equations in classical mechanics, boundary value problems in electricity and magnetism, eigenvalue problems in quantum mechanics, Monte Carlo simulations in statistical mechanics, methods of data analysis. Prerequisites: PHYS:3710 (029:115), PHYS:3741 (029:140), and PHYS:3811 (029:129).

PHYS:4905 (029:105) Special Topics in Physics arr.

PHYS:4990 (029:103) Reading in Physics arr.
Selected topics in physics.

PHYS:4999 (029:099) Undergraduate Research arr.

Supervised research leading to written report or oral presentation.

Physics, Graduate

PHYS:5000 (029:202) Workshops and Special Training in Physics arr.

Workshops and special training opportunities for postbaccalaureate students; may include collaborations with other departments, institutions, or externally funded research organizations.

PHYS:5710 (029:205) Classical Mechanics 3 s.h.

Dynamics of mass points; Lagrange multipliers, small oscillations, Hamilton's equations; canonical transformations, Hamilton-Jacobi theory; chaos. Prerequisites: PHYS:3710 (029:115).

PHYS:5729 (029:210) Fluid Mechanics 3 s.h.

Basic equations of fluid mechanics and solutions of these equations for various cases of special interest; compressible and incompressible flows in two- and three-dimensions, rotational and irrotational flows, self-similar solutions, instabilities, turbulence; relate solutions to application of general interest to physicist and engineers; subsonic and supersonic flows around wings and bodies, gravity waves in oceans and atmospheres, transition to supersonic flow in a rocket nozzle, supersonic outflow of gas from the Sun and other stars, and physics of high energy explosions. Prerequisites: PHYS:3710 (029:115). Requirements: knowledge of vector calculus at level used in PHYS:3811 (029:129) and PHYS:3812 (029:130).

PHYS:5730 (029:212) Statistical Mechanics I 3 s.h.

Probability concepts; kinetic equations; classical and quantum equilibrium statistical mechanics with applications, including ideal and imperfect gases and phase transitions, irreversible processes, fluctuation-dissipation theorems. Prerequisites: PHYS:3730 (029:118) and PHYS:3741 (029:140).

PHYS:5741 (029:245) Quantum Mechanics I 3 s.h.

Nonrelativistic quantum mechanics, Schrödinger wave mechanics, Hilbert space methods, perturbation theory, scattering, spin and angular momentum, identical particles, selected applications, introduction to relativistic theory. Prerequisites: PHYS:3741 (029:140) and PHYS:3742 (029:141).

PHYS:5742 (029:246) Quantum Mechanics II 3 s.h.

Continuation of PHYS:5741 (029:245). Prerequisites: PHYS:5741 (029:245).

PHYS:5811 (029:213) Classical Electrodynamics I 3 s.h.

Advanced electrostatics, boundary value problems, Green's functions, Maxwell's equations, radiation theory, physical optics, multipole expansion of radiation field. Prerequisites: PHYS:3812 (029:130).

PHYS:5812 (029:214) Classical Electrodynamics II 3 s.h.

Special relativity, motion of charges in fields, theories of radiation reaction, special topics. Prerequisites: PHYS:5811 (029:213).

PHYS:6710 (029:206) Nonlinear Dynamics 3 s.h.

Deterministic approach of turbulence and chaotic dynamical systems; qualitative theory of ordinary differential equations, perturbation in classical mechanics, ergodicity, bifurcation, universal properties of discrete maps, intermittency, fractals, quantitative characterizations of chaos.

PHYS:6720 (029:222) Nonlinear Optics 3 s.h.

Classical treatment of second- and third-order optical nonlinearities; phase matching, harmonic generation, three- and four-wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Requirements: for PHYS:6720 (029:222) — PHYS:3812 (029:130); for ECE:6720 (055:276) — ECE:5700 (055:170) or PHYS:3812 (029:130). Same as ECE:6720 (055:276).

PHYS:6726 (029:224) Laser Principles 3 s.h.

Laser theory, stimulated emission, dispersion theory, broadening mechanisms, rate equations, gain saturation, optical resonators, mode-locking, Q-switching techniques, survey of laser types, modes of operation. Requirements: for PHYS:6726 (029:224) — PHYS:3812 (029:130); for ECE:6726 (055:274) — ECE:5700 (055:170). Same as ECE:6726 (055:274).

PHYS:6822 (029:228) Topics in Quantum Electronics arr.

Quantum optics, optical properties of matter, laser science, photonics.

PHYS:7270 (029:269) Ethics in Physics for Graduate Students arr.

Responsible conduct and ethics training.

PHYS:7604 (029:299) Ethics in Physics for Postdocs 0 s.h.

Responsible conduct and ethics training.

PHYS:7720 (029:229) Semiconductor Physics 3 s.h.

Electronic, optical, and materials properties of semiconductors. Prerequisites: PHYS:4728 (029:193) and PHYS:5742 (029:246). Same as ECE:7720 (055:273).

PHYS:7725 (029:277) Special Topics in Condensed Matter 3 s.h.

Current topics, such as superconductivity and magnetism. Prerequisites: PHYS:7820 (029:271).

PHYS:7729 (029:293) Plasma Physics II 3 s.h.

Continuation of PHYS:4731 (029:194); cold plasma waves, MHD stability, kinetic theory of plasmas, including Landau damping and velocity space instabilities; nonlinear evolution. Prerequisites: PHYS:4731 (029:194).

PHYS:7730 (029:294) Advanced Plasma Physics I 3 s.h.

Microscopic plasma behavior: statistical mechanics of plasmas; Liouville equation; BBGKY hierarchy; Fokker-Planck equation and relaxation processes; Balescu-Lenard equation; Vlasov equation and linearized wave motion; shocks, nonlinear plasma motions, and instabilities; fluctuations and radiation processes; topics from recent literature.

PHYS:7740 (029:247) Introduction to Quantum Field Theory	3 s.h.	PHYS:7946 (029:268) Seminar: Elementary Particle Physics	arr.
Quantization of relativistic and nonrelativistic field theories, covariant perturbation theory, theory of renormalization, dimensional regularization, renormalization group theory, introduction to gauge theories and anomalies. Prerequisites: PHYS:5742 (029:246).		Current research.	
PHYS:7745 (029:276) Special Topics in Quantum Mechanics	arr.	PHYS:7990 (029:281) Research: Physics	arr.
Current topics in quantum mechanics, such as string theory, relativistic quantum mechanics, quantum gravity, axiomatic quantum field theory.		PHYS:7992 (029:220) Individual Critical Study	arr.
PHYS:7746 (029:275) Particle Physics	3 s.h.	Essay on topic chosen in consultation with faculty member. Requirements: candidacy for M.S. with critical essay.	
Elementary particle properties and phenomenology, quark-parton models, quantum chromodynamics, unified theory of weak and electromagnetic interactions.		Astronomy, Lower-Level Undergraduate	
PHYS:7760 (029:273) General Relativity and Cosmology	2-3 s.h.	ASTR:1060 (029:040) Origins of Life in the Universe (Part 1)	3 s.h.
Einstein's theory of gravitation; applications to astrophysics and cosmology.		Fundamental questions (How old is the universe? What is the nature of life? How has life evolved on Earth? What are our human origins? Are there other habitable planets in the universe?) that revolve around understanding origins from different perspectives (i.e., astronomy, physics, geoscience, biology, chemistry, anthropology); work with faculty from several departments to investigate these questions; inquiry-based activities to build success in critical thinking, teamwork, effective written and oral communication; origin of the universe, biochemistry of life, and origin of life on Earth; first of a two-part sequence. Recommendations: first-year or sophomore standing. GE: Natural Sciences without Lab. Same as BIOL:1060 (002:050), EES:1060 (012:045).	
PHYS:7820 (029:271) Theoretical Solid State Physics I	3 s.h.	ASTR:1061 (029:041) Origins of Life in the Universe (Part 2)	4 s.h.
Central principles of the quantum theory of solids; lattice dynamics, electronic structure, optical properties, superconductivity, magnetism; emphasis on viewpoint of elementary excitations. Prerequisites: PHYS:4728 (029:193) and PHYS:5742 (029:246).		Fundamental questions (How old is the universe? What is the nature of life? How has life evolved on Earth? What are our human origins? Are there other habitable planets in the universe?) that revolve around understanding origins from different perspectives (i.e., astronomy, physics, geoscience, biology, chemistry, anthropology); work with faculty from several departments to investigate these questions; inquiry-based activities to build success in critical thinking, teamwork, and effective written and oral communication; second of a two-part sequence. Prerequisites: ASTR:1060 (029:040) or BIOL:1060 (002:050) or EES:1060 (012:045). Recommendations: first-year or sophomore standing. GE: Natural Sciences with Lab. Same as BIOL:1061 (002:051), ANTH:1061 (113:041), EES:1061 (012:046).	
PHYS:7840 (029:248) Quantum Gauge Theories	3 s.h.	ASTR:1070 (029:050) Stars, Galaxies, and the Universe	3-4 s.h.
Gauge invariance, introductory group theory, Yang-Mills theories, electroweak theory, quantum chromodynamics, running coupling constants, operator product expansions, Ward identities, spontaneous symmetry breaking, chiral anomalies, instantons, monopoles, effective Lagrangians, supersymmetry, quantum gravity, introduction to string theory. Prerequisites: PHYS:7740 (029:247).		Survey of stars, galaxies, and the universe; life cycles of stars, including black holes and pulsars; diversity of galaxies, including the Milky Way and distant quasars; cosmology—the history, structure, and fate of the universe; current results from recent astronomical observations; night sky observation. Recommendations: closed to physics and astronomy majors. GE: Natural Sciences without Lab; Natural Sciences with Lab.	
PHYS:7905 (029:225) Special Topics in Physics	arr.	ASTR:1079 (029:051) Introductory Astronomy Laboratory	1 s.h.
PHYS:7920 (029:262) Seminar: Solid State Physics	arr.	Laboratory for ASTR:1070 (029:050) or ASTR:1080 (029:052). GE: Natural Sciences Lab only.	
Current research.			
PHYS:7930 (029:261) Seminar: Plasma Physics	arr.		
Current research. Same as ECE:7930 (055:291).			
PHYS:7936 (029:266) Seminar: Space Physics	arr.		
Current research.			
PHYS:7940 (029:267) Seminar: Nuclear Physics	arr.		
Current research.			
PHYS:7945 (029:264) Seminar: Math/Physics	arr.		
Current research.			

ASTR:1080 (029:052) Exploration of the Solar System 3-4 s.h.

Survey of the solar system; physical properties of the planets, comets, and asteroids; origin of the solar system; search for extrasolar planetary systems; search for life in the universe; current results of recent planetary space missions; night sky observation. Recommendations: closed to physics and astronomy majors. GE: Natural Sciences without Lab; Natural Sciences with Lab.

ASTR:1090 (029:053) Life in the Universe 3 s.h.

Are we alone? Scientific foundations of this question, technology behind searches for extraterrestrial life in the solar system and on extrasolar planets; evolution of life on Earth, likelihood that such conditions exist elsewhere in the universe; cultural consequences of discovering extraterrestrial life. GE: Natural Sciences without Lab.

ASTR:1771 (029:061) General Astronomy I 4 s.h.

Qualitative and quantitative introduction to the development of astronomy, celestial mechanics, time, electromagnetic radiation, telescopes and astronomical instrumentation, planets, smaller solar system objects; laboratory emphasis on observation with telescopes. Requirements: four years of high school math. GE: Natural Sciences with Lab.

ASTR:1772 (029:062) General Astronomy II 4 s.h.

Continuation of ASTR:1771 (029:061); qualitative and quantitative introduction to properties and evolution of sun, stars, interstellar matter, galaxies; cosmology; laboratory emphasis on observation with telescopes. Requirements: four years of high school math. GE: Natural Sciences with Lab.

ASTR:2991 (029:094) Reading in Astronomy arr.

Selected topics in astronomy.

Astronomy, Upper-Level Undergraduate and Graduate**ASTR:3771 (029:119) Introduction to Astrophysics I** 3 s.h.

Fundamentals of astrophysical processes in solar system objects, stars, nebulae, interstellar medium, galaxies, cosmology; topics include stellar spectra, binary stars, interstellar gas and dust, stellar and galactic kinematics, stellar evolution, HII regions, radiation processes in galaxies and quasars, mathematical descriptions of the universe. Prerequisites: ASTR:1771 (029:061), ASTR:1772 (029:062), PHYS:2704 (029:030), MATH:2700 (22M:027), and MATH:2850 (22M:028). Recommendations: computer programming experience.

ASTR:3772 (029:120) Introduction to Astrophysics II 3 s.h.

Continuation of ASTR:3771 (029:119). Prerequisites: ASTR:3771 (029:119).

ASTR:4770 (029:186) Radio Astronomy 3 s.h.

Survey of radio astronomy, emphasizing technical aspects; radiation, antennas, receivers, radio spectroscopy, interferometer arrays and aperture synthesis; emission mechanisms, pulsars, supernova remnants, radio galaxies.

ASTR:4850 (029:137) Astronomical Laboratory 3 s.h.

Techniques and instrumentation in optical and radio astronomy. Prerequisites: ASTR:1771 (029:061), ASTR:1772 (029:062), and PHYS:2704 (029:030).

ASTR:4906 (029:106) Special Topics in Astronomy arr.**ASTR:4996 (029:104) Reading in Astronomy** arr.**Astronomy, Graduate****ASTR:6781 (029:238) Galactic Astronomy** 3 s.h.

Structure of the Milky Way galaxy; distance indicators, orbits in the galaxy, spiral structure; evidence for dark matter in the Milky Way, the galactic center; comparison of Milky Way with nearby galaxies.

ASTR:6782 (029:239) Extragalactic Astronomy 3 s.h.

Normal and active galaxies, large scale structure, the early Universe, cosmology.

ASTR:6785 (029:233) The Interstellar Medium 3 s.h.

The interstellar medium: optical properties of small interstellar grains, radiative processes in interstellar gas, structure of HII regions, interstellar shock waves, supernova remnants, modification of interstellar medium by luminous stars, molecular clouds.

ASTR:6790 (029:234) Stellar Astrophysics 3 s.h.

Stellar interiors, nuclear astrophysics; advanced topics.

ASTR:6870 (029:232) Radiative Processes in Astrophysics 3 s.h.

Physical mechanisms for generation of electromagnetic radiation in astrophysics; continuum mechanisms (bremsstrahlung, Compton scattering, synchrotron radiation); spectral line radiation from atoms, molecules, and nuclei, including fine structure effects; fundamental physics of processes; application to astronomical observations.

ASTR:6880 (029:237) High Energy Astrophysics 3 s.h.

Detection of X-rays and gamma-rays, analysis of X-ray data, black holes and neutron stars, accretion onto compact objects, pulsars, supernova remnants, cosmic rays, gamma-ray bursts.

ASTR:7775 (029:235) Special Topics in Astrophysics 1-3 s.h.

Advanced lectures.

ASTR:7830 (029:278) Space and Astrophysical Plasma Physics 3 s.h.

Dynamics and evolution of space and astrophysical plasmas; heliosphere, planetary magnetospheres, accretion disks; plasma waves, shock waves, turbulence.

ASTR:7970 (029:263) Seminar: Astrophysics arr.

Current research.

ASTR:7991 (029:282) Research: Astronomy arr.
Original research in observational, theoretical astronomy.

Political Science

Chair

- Sara Mitchell

Professors

- Frederick J. Boehmke, G. Robert Boynton, John A.C. Conybeare, Vicki L. Hesli, Sara Mitchell, John S. Nelson, William M. Reisinger, Tom W. Rice, Wenfang Tang, Caroline Tolbert

Associate professors

- Cary R. Covington, Douglas Dion, Timothy M. Hagle, Kelly M. Kadera, Brian H. Lai, Tracy Osborn, Rene Rocha

Assistant professors

- Kyle Mattes, Julianna Pacheco, Alyssa Prorok, Frederick Solt

Professors emeriti

- Alfonso J. Damico, Chong Lim Kim, Michael S. Lewis-Beck, Gerhard Loewenberg, Douglas K. Madsen

Undergraduate majors: political science (B.A., B.S.); international relations (B.A., B.S.)

Undergraduate minors: political science; international relations

Graduate degrees: M.A. in political science; Ph.D. in political science

Web site: <http://clas.uiowa.edu/polisci/>

The Department of Political Science offers two undergraduate majors and minors as well as graduate degree programs. In addition, it offers several courses that undergraduate students in all majors may use to fulfill General Education Program (p. 323) requirements and a First-Year Seminar designed for entering undergraduate students. The department also partners with the Departments of Economics, Philosophy, and Sociology to offer the undergraduate major in ethics and public policy, an interdisciplinary program administered by the Department of Philosophy; see Ethics and Public Policy (p. 297) in the Catalog.

Undergraduate Programs of Study

- Major in political science (Bachelor of Arts, Bachelor of Science)
- Major in international relations (Bachelor of Arts, Bachelor of Science)
- Minor in political science
- Minor in international relations

B.A. and B.S.: Political Science

The Bachelor of Arts with a major in political science requires a minimum of 120 s.h., including 33 s.h. of work for the major (all in political science courses). The Bachelor of Science with a major in political science requires a minimum of 120 s.h., including 44 s.h. of work for the major (33 s.h. in political science courses and 11 s.h. of approved mathematics/statistics courses). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. In addition, they must maintain a g.p.a. of at least 2.00 in all political

science courses taken at The University of Iowa, and in all political science courses taken at other institutions and at the University combined. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Most of the political science course work required for the major is the same for B.A. and B.S. students, but the major for the B.S. includes a political science research component. The major for the B.S. also requires a set of mathematics/statistics courses, while the major for the B.A. does not.

Students must earn at least 12 s.h. of the political science credit required for the major (33 s.h.) at The University of Iowa. Credit earned in POLI:1000 (030:029) First-Year Seminar, POLI:3124 (030:187) Political Science Des Moines Internship Program, and POLI:4900 (030:191) Government Internship does not count toward the major, but grades in these courses become part of a student's grade-point average.

In planning course work, students should be guided by the College of Liberal Arts and Sciences maximum hours rule: students earning a B.A. or B.S. may apply a maximum of 56 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 56 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

The major in political science requires the following course work.

POLITICAL SCIENCE COURSES (B.A. AND B.S.)

Introductory course:

POLI:1100 (030:001) Introduction to American Politics	3 s.h.
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Additional introductory courses—four of these:

POLI:1001 (030:020) Introduction to Politics	3 s.h.
POLI:1002 (030:021) Lawyers in the American Political System	3 s.h.
POLI:1200 (030:050) Introduction to Political Behavior	3 s.h.
POLI:1300 (030:030) Introduction to Political Thought and Action	3 s.h.
POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
POLI:1401 (030:041) Introduction to the Politics of Russia and Eurasia	3 s.h.
POLI:1403 (030:043) Introduction to Politics in the Muslim World	3 s.h.
POLI:1500 (030:060) Introduction to International Relations	3 s.h.
POLI:1501 (030:061) Introduction to American Foreign Policy	3 s.h.
POLI:1600 (030:070) Introduction to Political Communication	3 s.h.
POLI:1601 (030:071) Introduction to Political Media	3 s.h.

POLI:1700 (030:072) Introduction to Political Analysis 3 s.h.

Advanced courses:

Political science courses numbered 2000 or above, offered as regularly scheduled classroom courses 12 s.h.

The following courses do not count toward the 12 s.h. taken in regularly scheduled classroom work.

POLI:3124 (030:187) Political Science Des Moines Internship Program
 POLI:4600 (030:185) Honors Research Project
 POLI:4601 (030:186) Honors Senior Thesis
 POLI:4700 (030:190) Independent Study
 POLI:4701 (030:193) Undergraduate Research Tutorial
 POLI:4702 (030:194) Senior Research Project/Paper
 POLI:4900 (030:191) Government Internship

ADDITIONAL POLITICAL SCIENCE COURSES (B.A.)

Bachelor of Arts students also complete the following political science course work.

At least two additional political science courses numbered 2000 or above 6 s.h.

ADDITIONAL POLITICAL SCIENCE COURSES (B.S.)

Bachelor of Science students also complete the following political science course work.

POLI:3000 (030:100) Understanding Political Research 3 s.h.

One of these:

POLI:4600 (030:185) Honors Research Project 3 s.h.
 POLI:4701 (030:193) Undergraduate Research Tutorial 3 s.h.

Recommended but not required:

POLI:4702 (030:194) Senior Research Project/Paper 3 s.h.

MATHEMATICS/STATISTICS COURSES (B.S.)

Bachelor of Science students complete one of the following approved sets of mathematics/statistics courses (11 s.h.). Other sets of courses may be used with written approval of the B.S. program advisor.

Set 1:

MATH:1380 (22M:017) Calculus and Matrix Algebra for Business (students may substitute MATH:1550 or MATH:1850) 4 s.h.
 STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods 3 s.h.
 STAT:6513 (22S:148) Intermediate Statistical Methods 4 s.h.

Set 2:

ECON:2800 (06E:071) Statistics for Strategy Problems 3 s.h.
 MATH:1380 (22M:017) Calculus and Matrix Algebra for Business 4 s.h.
 STAT:1030 (22S:008) Statistics for Business 4 s.h.

Set 3:

MATH:1850 (22M:025) Calculus I (students may substitute MATH:1550) 4 s.h.
 MATH:1860 (22M:026) Calculus II (students may substitute MATH:1560) 4 s.h.
 STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods 3 s.h.

EMPHASES IN POLITICAL SCIENCE (B.A. AND B.S.)

Students may elect to complete one or two emphases while fulfilling the requirements for the major. The emphasis is indicated on the transcript at graduation if the student completes the emphasis and requests recognition from the department.

Each emphasis consists of four courses. Emphases are available in American institutions, American political practice, international relations, law and politics, identity politics, political communication, political economy, political processes, political theory, politics of democratization, politics of developing areas, and politics of industrial democracies. For lists of courses approved in each area, contact the Department of Political Science.

B.A. and B.S.: International Relations

The Bachelor of Arts with a major in international relations requires a minimum of 120 s.h., including at least 33 s.h. of work for the major. The Bachelor of Science with a major in international relations requires a minimum of 120 s.h., including at least 44 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. In addition, they must maintain a g.p.a. of at least 2.00 in all international relations courses taken at The University of Iowa, and in all international relations courses taken at other institutions and at the University combined. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Students must complete a minimum of 18 s.h. of work for the major at The University of Iowa. A maximum of 15 s.h. of approved transfer credit may be applied toward the major.

The major in international relations focuses on economic relations between states, a crucial area of study in today's globalized world. Students in the major are introduced to the politics of foreign countries. They develop an understanding of how countries interact and acquire a deep appreciation for the root causes of problems that transcend national boundaries.

Students choose one of five tracks: conflict and foreign policy, international business and economic relations, regional politics and relationships, transnational issues, or a self-defined track. Requirements for the major are the same for B.A. and B.S. students, except that the major for the B.S. requires a set of mathematics/statistics courses, while the major for the B.A. does not.

The major in international relations requires the following course work.

INTERNATIONAL RELATIONS CORE (B.A. AND B.S.)

All of these:

POLI:1500 (030:060) Introduction to International Relations	3 s.h.
POLI:3512 (030:165) International Conflict	3 s.h.
POLI:3516 (030:170) The Politics of International Economics	3 s.h.

One of these:

HIST:2403 (016:003) Western Civilization III	3-4 s.h.
HIST:3143 (016:143) International Politics: The History of the Present	3-4 s.h.
HIST:3255 (016:082) The World Since 1945	3 s.h.

METHODS COURSE (B.A. AND B.S.)

POLI:3000 (030:100) Understanding Political Research	3 s.h.
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SENIOR SEMINAR (B.A. AND B.S.)

POLI:4800 (030:179) Senior Seminar in International Relations	3 s.h.
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MATHEMATICS/STATISTICS COURSES (B.S.)

Bachelor of Science students must complete one of the following approved sets of mathematics/statistics courses (11 s.h.) with a g.p.a. of at least 2.00. Substitutions must be approved by the director of undergraduate studies.

Set 1:

MATH:1380 (22M:017) Calculus and Matrix Algebra for Business (or equivalent or higher level calculus course)	4 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.
STAT:6513 (22S:148) Intermediate Statistical Methods	4 s.h.

Set 2:

ECON:2800 (06E:071) Statistics for Strategy Problems	3 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business (or equivalent or higher level calculus course)	4 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.

Set 3:

MATH:1850 (22M:025) Calculus I	4 s.h.
MATH:1860 (22M:026) Calculus II	4 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.

Tracks (B.A. and B.S.)

International relations students complete one of the following five tracks, each of which requires 15 s.h. of course work. Students who would like to declare the major in international relations before deciding on a track may declare the open track for advising purposes. They should talk with an advisor and decide on a track as soon as possible.

CONFLICT AND FOREIGN POLICY TRACK

The conflict and foreign policy track requires the following course work (minimum of 15 s.h.).

This course:

POLI:1501 (030:061) Introduction to American Foreign Policy	3 s.h.
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Four of these, including at least 6 s.h. of course work offered by each of two departments:

POLI:3410 (030:146) Russian Foreign Policy	3 s.h.
POLI:3419 (030:145) War in the Muslim World	3 s.h.
POLI:3423 (030:105) The Middle East: Policy and Diplomacy	3 s.h.
POLI:3500 (030:162) American Foreign Policies	3 s.h.
POLI:3503 (030:168) Politics of Terrorism	3 s.h.
POLI:3505 (030:178) Causes, Consequences, and Management of Civil War	3 s.h.
POLI:3506 (030:130) Consequences of War	3 s.h.
POLI:3510 (030:173) State Failure in the Developing World	3 s.h.
POLI:3514 (030:198) Regional Peace and Security	3 s.h.
POLI:3520 (030:163) National Security Policy	3 s.h.
POLI:3550 (030:169) Problems of International Politics	3 s.h.
POLI:4500 (030:184) Honors Seminar on International Politics	3 s.h.
HIST:4105 (16W:105) World Events in Historical Context	3 s.h.
HIST:4125 (016:144) War and Peace in the Twentieth Century	3 s.h.
HIST:4146 (016:186) The History of Warfare	3 s.h.
HIST:4230 (16A:155) The Political Culture of U.S. Foreign Policy	3 s.h.
HIST:4232 (16A:152) United States in World Affairs	3-4 s.h.
HIST:4264 (16A:153) U.S.A. in a World at War 1931-1945	3 s.h.
HIST:4435 (16E:132) War and Society in Modern Europe	3 s.h.
HIST:4499 (16E:185) First World War	3-4 s.h.
HIST:4620 (16W:175) Japan-US Relations	3 s.h.

INTERNATIONAL BUSINESS AND ECONOMIC RELATIONS TRACK

The international business and economic relations track requires the following course work (minimum of 15 s.h.).

Two of these:

ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
GEOG:2910 (044:030) The Global Economy	3 s.h.

Three of these, including courses from at least two different departments:

POLI:3400 (030:137) Introduction to Political Economy	3 s.h.
POLI:3502 (030:167) Politics and the Multinational Enterprise	3 s.h.

POLI:3504 (030:177) Globalization	3 s.h.
POLI:4500 (030:184) Honors Seminar on International Politics	3 s.h.
ECON:3345 (06E:125) Global Economics and Business	3 s.h.
ECON:3620 (06E:129) Economic Growth and Development	3 s.h.
ECON:4110 (06E:173) International Economics	3 s.h.
FIN:4240 (06F:130) International Finance (prerequisite required)	3 s.h.
GEOG:2410 (044:104) Environment and Development	3 s.h.
GEOG:3910 (044:194) Geographic Perspectives on Development	3 s.h.
HIST:3126 (016:126) History of Globalization	3 s.h.
MGMT:3450 (06J:146) International Business Environment	3 s.h.
MKTG:4300 (06M:151) International Marketing (prerequisite required)	3 s.h.

REGIONAL POLITICS AND RELATIONSHIPS TRACK

The regional politics and relationships track requires the following course work (minimum of 15 s.h.).

This course:

POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
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Four of these, including at least 6 s.h. of courses from each of two departments:

POLI:1401 (030:041) Introduction to the Politics of Russia and Eurasia	3 s.h.
POLI:1403 (030:043) Introduction to Politics in the Muslim World	3 s.h.
POLI:3401 (030:142) European Union	3 s.h.
POLI:3403 (030:147) Parties and Elections Around the World	3 s.h.
POLI:3404 (030:150) Public Policy Around the World	3 s.h.
POLI:3405 (030:159) Authoritarian Politics	3 s.h.
POLI:3408 (030:148) Government and Politics of China	3 s.h.
POLI:3410 (030:146) Russian Foreign Policy	3 s.h.
POLI:3412 (030:140) Government and Politics of Europe	3 s.h.
POLI:3413 (030:141) Russian Politics	3 s.h.
POLI:3415 (030:144) Latin American Politics	3 s.h.
POLI:3416 (030:172) France in the 21st Century	3 s.h.
POLI:3419 (030:145) War in the Muslim World	3 s.h.
POLI:3420 (030:102) Southeast Asia: Democracy, Identity, and Development	3 s.h.
POLI:3421 (030:103) The Politics of Southern Africa	3 s.h.
POLI:3422 (030:135) Transnational Issues and the Horn of Africa	3 s.h.
POLI:3423 (030:105) The Middle East: Policy and Diplomacy	3 s.h.
POLI:3450 (030:149) Problems in Comparative Politics	3 s.h.

POLI:3510 (030:173) State Failure in the Developing World	3 s.h.
POLI:3514 (030:198) Regional Peace and Security	3 s.h.
POLI:4400 (030:183) Honors Seminar on Comparative Politics	3 s.h.
HIST:1008 (016:023) Issues in European Politics and Society	3 s.h.
HIST:2602 (016:005) Civilizations of Asia: China	3 s.h.
HIST:2604 (016:006) Civilizations of Asia: Japan	3-4 s.h.
HIST:2606 (016:007) Civilizations of Asia: South Asia	3-4 s.h.
HIST:2708 (016:008) Civilizations of Africa	3 s.h.
HIST:3145 (16W:155) Europe and the U.S. in the Twentieth Century	3 s.h.
HIST:4289 (16W:160) The Atlantic World c. 1450-1850	3 s.h.
HIST:4460 (16E:135) Twentieth-Century Europe: The Nazi Era	3 s.h.
HIST:4464 (16E:143) Modern France 1789-1871	3 s.h.
HIST:4475 (16E:156) Germany Since 1914: Weimar, Hitler, and After	3-4 s.h.
HIST:4486 (16E:152) Modern Britain: The Twentieth Century	3 s.h.
HIST:4493 (16E:178) Soviet Union 1917-1945	3-4 s.h.
HIST:4501 (16W:106) Society and Revolution in Cuba	3 s.h.
HIST:4502 (16W:107) History of Mexico	3 s.h.
HIST:4515 (16W:112) Introduction to Modern Latin America	3 s.h.
HIST:4525 (16W:115) Latin American Revolution	3 s.h.
HIST:4615 (16W:173) Modern Japan	3 s.h.
HIST:4640 (16W:194) Imperialism and Modern India	3 s.h.
HIST:4655 (16W:198) China Since 1927	3 s.h.
HIST:4666 (16W:178) Topics in Asian History	3 s.h.
HIST:4685 (16W:185) Modern Korean History	3 s.h.
HIST:4715 (16W:121) African History Since 1880	3 s.h.
HIST:4810 (16W:152) History of the Modern Middle East	3 s.h.
HIST:4815 (16W:153) Topics in the Modern Middle East	3 s.h.

TRANSNATIONAL ISSUES TRACK

The transnational issues track requires the following course work (minimum of 15 s.h.).

At least five of these, including 3 s.h. of credit in courses from each of three departments:

POLI:3422 (030:135) Transnational Issues and the Horn of Africa	3 s.h.
POLI:3501 (030:161) International Organization and World Order	3 s.h.
POLI:3507 (030:160) Women and Politics in Global Perspective	3 s.h.
POLI:3508 (030:164) Race in World Politics	3 s.h.

POLI:3509 (030:155) International Courts: The Intersection of Law and Politics	3 s.h.
POLI:3511 (030:195) International Law	3 s.h.
POLI:3513 (030:197) Politics of International Human Rights Law	3 s.h.
ECON:3760 (06E:113) Health Economics (two prerequisites required)	3 s.h.
GEOG:1020 (044:003) The Global Environment	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.
GEOG:1090 (044:010) Globalization and Geographic Diversity	3 s.h.
GEOG:2110 (044:011) Population Geography	3 s.h.
GEOG:3110 (044:131) Geography of Health	3 s.h.
GEOG:4770 (044:177) Environmental Justice	3 s.h.
GHS:3030 (152:152) Global Health Conference	1 s.h.
GHS:3110 (152:121) Health of Indigenous Peoples	3 s.h.
GHS:3720 (152:160) Global Health Seminar	3 s.h.
GHS:3850 (152:158) Promoting Health Globally	3 s.h.
GHS:4160 (152:137) History of Public Health	3 s.h.
GHS:4162 (152:138) History of Global Health	3 s.h.
GHS:4210 (152:111) International Health	3 s.h.
GHS:4340 (152:135) Global Health and Global Food	3 s.h.
GHS:4600 (152:120) Global Health and Human Rights	2-3 s.h.
GWSS:3157 (131:157) Gender, Sexuality, and Human Rights	3 s.h.
HIST:4101 (016:101) History of Human Rights	3 s.h.
HIST:4438 (16E:130) Modern European Imperialism	3 s.h.
HIST:4725 (16W:125) Women and Gender in African History	3 s.h.
HIST:4730 (16W:126) Slavery, Jihads, and Saints in Islamic Africa	3 s.h.
SOC:3415 (034:045) Global Criminology	3 s.h.

SELF-DEFINED TRACK

Students may create their own track with permission from the director of undergraduate studies. A self-defined track may not duplicate an existing track or another academic program of study at The University of Iowa. It must consist of at least 15 s.h. of course work, which must include 3 s.h. of credit earned in courses from each of three departments.

B.A. or B.S. with Teacher Licensure

Political science majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

The Department of Political Science course POLI:1100 (030:001) Introduction to American Politics is approved for teacher education requirements.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A.: Political Science

In addition to the following checkpoints, B.A. honors students must complete POLI:4000 (030:180) Honors Seminar on the Study of Politics and one additional honors seminar before the seventh semester begins.

Before the fifth semester begins: two courses in the major

Before the seventh semester begins: six courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Political Science

In addition to the following checkpoints, B.S. honors students must complete POLI:4000 (030:180) Honors Seminar on the Study of Politics and one additional honors seminar before the seventh semester begins.

Before the fifth semester begins: two courses in the major

Before the seventh semester: eight courses in the major, including two of the three required mathematics/statistics courses and POLI:3000 (030:100) Understanding Political Research; and at least 90 s.h. earned toward the degree

Before the eighth semester begins: 11 courses in the major, including POLI:4701 (030:193) Undergraduate Research Tutorial

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A.: International Relations

Before the third semester begins: POLI:1500 (030:060) Introduction to International Relations

Before the fifth semester begins: all core courses and the methods course

Before the seventh semester begins: at least 12 s.h. in the track and at least 90 s.h. earned toward the degree

Before the eighth semester begins: all track requirements

During the eighth semester: enrollment in all remaining course work in the major, all remaining General

Education courses, and a sufficient number of semester hours to graduate

B.S.: International Relations

Before the third semester begins: POLI:1500 (030:060) Introduction to International Relations

Before the fifth semester begins: all core courses and the methods course

Before the seventh semester begins: at least two of the mathematics/statistics courses, at least 12 s.h. in the track, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: all core courses, the methods course, the remaining mathematics/statistics course, and all track requirements

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major: Political Science

Students majoring in political science have the opportunity to graduate with honors in the major. To enter the major's honors program, students must have a g.p.a. of at least 3.33 in the major and must be members of the University's honors program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University of Iowa Honors Program.

Departmental honors students must maintain a g.p.a. of at least 3.50 in the major. They must complete 9 s.h. in honors courses numbered 2000 or above with a grade of B or higher in each course, and they are encouraged to take honors sections of introductory courses whenever available. Their work must include the following courses.

POLI:4000 (030:180) Honors Seminar on the Study of Politics (preferably taken during the second year)	3 s.h.
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At least one additional honors seminar, from these:

POLI:4100 (030:181) Honors Seminar on American Politics	3 s.h.
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POLI:4300 (030:182) Honors Seminar on Political Theory	3 s.h.
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POLI:4400 (030:183) Honors Seminar on Comparative Politics	3 s.h.
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POLI:4500 (030:184) Honors Seminar on International Politics	3 s.h.
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One course numbered 5000 or above, with the instructor's consent

Final honors project—one of these:

POLI:4600 (030:185) Honors Research Project	3 s.h.
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POLI:4601 (030:186) Honors Senior Thesis	3 s.h.
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For more information about honors in the political science major, contact the Department of Political Science honors advisor.

Honors in the Major: International Relations

Students majoring in international relations have the opportunity to graduate with honors in the major. Departmental honors students must maintain a g.p.a. of at least 3.50 in the major. They must complete POLI:4500 (030:184) Honors Seminar on International Politics or POLI:4400 (030:183) Honors Seminar on Comparative Politics. They also must designate POLI:4800 (030:179) Senior Seminar in International Relations as an honors course and complete an honors thesis, registering in POLI:4601 (030:186) Honors Senior Thesis.

Honors students in international relations must be members of the University's honors program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University of Iowa Honors Program.

Minor: Political Science

The minor in political science requires a minimum of 15 s.h. in political science courses, including 12 s.h. in courses numbered 2000 or above and 12 s.h. taken at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Credit by exam is not accepted. Credit from POLI:1000 (030:029) First-Year Seminar, POLI:3124 (030:187) Political Science Des Moines Internship Program, and POLI:4900 (030:191) Government Internship does not count toward the minor. Credit earned through a University of Iowa Regents program is considered credit earned at The University of Iowa.

Students may complete an emphasis area (see "Emphases in Political Science" above); however, emphasis areas in the minor are not recorded on the transcript. Students may request a letter from the Department of Political Science noting the completion of an emphasis area in the minor.

Minor: International Relations

The minor in international relations requires a minimum of 15 s.h. in course work approved for the international relations major, including at least 9 s.h. in courses numbered 3000 or above and at least 12 s.h. taken at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students may count a maximum of 9 s.h. earned in course work from one department toward the minor.

Courses for the minor must include this:

POLI:1500 (030:060) Introduction to International Relations	3 s.h.
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And one of these:

POLI:3512 (030:165) International Conflict	3 s.h.
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POLI:3516 (030:170) The Politics of International Economics	3 s.h.
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National Honor Society

The department sponsors a chapter of Pi Sigma Alpha. Students who have a cumulative g.p.a. of at least 3.30,

have attained junior standing, and have completed 15 s.h. of course work in political science are considered for membership. Contact the Department of Political Science honors advisor for more information.

Graduate Programs of Study

- Master of Arts in political science
- Doctor of Philosophy in political science

Graduate study in political science emphasizes the Doctor of Philosophy program, which is designed for students planning academic careers. The department usually offers the master's degree only as a preliminary step toward the Ph.D.

Master of Arts

The Master of Arts program in political science requires a minimum of 30 s.h. of graduate credit, with a g.p.a. of at least 3.25. No thesis is required. Each student's record is reviewed by a final examination committee, which may waive the final oral examination.

A first-year evaluation committee convenes at the end of the student's first year of courses; if the committee finds that a student's work provides sufficient evidence of the research and writing skills ordinarily demonstrated in a master's thesis, it may recommend that the student be allowed to proceed with a doctoral program. When the first-year evaluation committee finds the quality of a student's work inadequate for recommending continuation toward the Ph.D., the committee may recommend that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy

The Doctor of Philosophy program in political science requires a minimum of 72 s.h. of graduate credit. The program is designed to prepare students for research, teaching, and scholarly endeavor in academic settings and private or governmental institutions. It produces graduates who are deeply committed to the study of politics, familiar with fundamental knowledge about political processes, well trained in methods and techniques for careful investigation of basic and applied research questions, and determined to make contributions to the discipline of political science and to society.

The department usually admits seven to ten Ph.D. students each year, so students work closely with faculty members, often collaborating on research and publication. Graduate students know one another and enjoy supportive, congenial working conditions.

Doctoral study usually lasts four to five years. The first-year curriculum for all students consists of core courses equally divided between substance and methodology. Emphasis is on basic research methods, including quantitative methods, that political scientists must understand thoroughly. Special attention is given to research design, collection of observations, and data analysis and interpretation.

The second and third years of study are spent in small seminars with focused, substantive topics. Papers written for these seminars might be submitted to journals or read at professional meetings. Students must take their qualifying examinations by the end of the third year. They take their comprehensive examination (oral defense of the

dissertation proposal) by the middle of the first semester of their fourth year.

The fourth and fifth years are spent on dissertation research and writing. Students who do basic research and gather data abroad often require an additional year to complete the dissertation.

Six fields of study are available: American politics, comparative politics, international relations, political theory, formal theory, and for those who wish to go beyond the basic methodology training, research methods. Each student chooses three fields of study for qualifying examinations.

The Guide to Doctoral Study in Political Science, available from the Department of Political Science and on its web site, provides a comprehensive statement of departmental requirements.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Courses

Lower-Level Undergraduate

The following courses are numbered below 3000; they are introductory undergraduate courses. Course POLI:1000 (030:029) First-Year Seminar does not count toward the major or the minor in political science.

POLI:1000 (030:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

POLI:1001 (030:020) Introduction to Politics 3 s.h.

Introduction to selected processes, institutions, or behaviors central to the study of politics.

POLI:1002 (030:021) Lawyers in the American Political System 3 s.h.

Training and careers of lawyers; various roles they play in the American political system. Requirements: no prior enrollment in POLI:3150 (030:119) with subtitle Lawyers in the American Political System.

POLI:1100 (030:001) Introduction to American Politics 3 s.h.

Structure and processes of American national government; how the United States manages political conflict; impact of the U.S. Constitution; effect of public opinion, interest groups, and media on government; role and evolution of Congress, presidency, bureaucracy, and Supreme Court. GE: Social Sciences.

POLI:1200 (030:050) Introduction to Political Behavior 3 s.h.

Patterns and basis of political behavior of American electorate; trends in voter turnout; vote choice; ideology, partisanship, and public opinion. GE: Social Sciences.

POLI:1300 (030:030) Introduction to Political Thought and Action 3 s.h.

Common problems, literature, analytic techniques. GE: Social Sciences; Values, Society, and Diversity.

POLI:1400 (030:045) Introduction to Comparative Politics 3 s.h.

Politics worldwide, including all regions and levels of development; wide-ranging themes, including regime types, political change, political culture, public opinion, government structures, state-society relationship, electoral systems, public policy issues. GE: International and Global Issues; Social Sciences.

POLI:1401 (030:041) Introduction to the Politics of Russia and Eurasia 3 s.h.

Political dynamics in postcommunist countries of east-central Europe and Eurasia; imperial legacies, ideology and practice of communist politics, patterns of democracy and authoritarianism. GE: International and Global Issues; Social Sciences.

POLI:1403 (030:043) Introduction to Politics in the Muslim World 3 s.h.

Processes of politics and government in pivotal countries of the Muslim world; foundations of Islam, legacies of Western imperialism, regime types, regional conflicts, oppositional organizations; domestic and foreign policy; selected countries include Syria, Iran, Iraq, Egypt, Turkey, Saudi Arabia, Palestine, and Israel. GE: International and Global Issues; Social Sciences.

POLI:1500 (030:060) Introduction to International Relations 3 s.h.

Survey of key issues in international relations, including causes of wars, different types of theories of international relations, international organizations, and global environmental problems. GE: International and Global Issues; Social Sciences.

POLI:1501 (030:061) Introduction to American Foreign Policy 3 s.h.

Foreign policies: goals, basic themes and general patterns, problems encountered by policy makers, means employed in dealing with other nations and international organizations, processes by which policies are formulated, factors that influence structure of policies. GE: International and Global Issues; Social Sciences.

POLI:1600 (030:070) Introduction to Political Communication 3 s.h.

Institutions, dynamics, issues of political communities considered as networks of communication; representative topics include political actors, ads, films, media, myths, news, publics, regulations, rhetorics, symbols. GE: Social Sciences.

POLI:1601 (030:071) Introduction to Political Media 3 s.h.

Politics in news, culture, commerce, campaigns, and government with attention to current media (e.g., cinema, internet, print, television).

POLI:1700 (030:072) Introduction to Political Analysis 3 s.h.

Tools necessary to analyze and solve puzzles in politics (i.e., Why do countries go to war rather than negotiate? Why do lifelong enemies become allies? Why do majorities act irrationally?); questions approached from a quantitative perspective (unlike most political analyses), in particular, game theory—a branch of mathematics that investigates how rational players act in situations (like those in politics) of strategic interaction. GE: Quantitative or Formal Reasoning.

POLI:2107 (030:099) Black Literature and Politics: Controversies of National Allegiance 3 s.h.

Black literature born amid political controversy, from slave narratives to award-winning texts of late 20th century; evolving politics of African American writers; changing political landscape of this expansive period and representative literature; how African American writers shape U.S. political debate; surprising politics of many canonical African American writers. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as AFAM:2781 (129:081), ENGL:2460 (008:080).

POLI:2700 (030:189) Business, Government, and Society 3 s.h.

How business, governments, and societies interact and fail to interact; exploration of questions that are empirical (i.e., how does the relationship between business and government impact society?) and normative (i.e., how should the relationship between business and government impact upon society?); where one sits on business-government-society (BGS) triangle often shapes how normative questions are answered; how such an approach helps to better understand these relationships and how they lead to specific corporate, government, and societal outcomes.

Upper-Level Undergraduate and Graduate

The following courses are numbered 3000-4999; they are considered advanced for undergraduates. Course POLI:4900 (030:191) Government Internship does not count toward the major or the minor in political science; it is offered only satisfactory/fail.

POLI:3000 (030:100) Understanding Political Research 3 s.h.

Creating knowledgeable evaluators of current research in political science; interpretation of different quantitative techniques with examples from current political science research.

POLI:3001 (030:101) Hawkeye Poll 3 s.h.

Basics of survey design, sampling, question wording, interpreting responses, and writing press releases; students work together to help design questions as part of the Hawkeye Poll, a collaborative teaching and research enterprise in the Department of Political Science.

POLI:3100 (030:113) American State Politics 3 s.h.

Approaches to analysis of political behavior in American state governments; emphasis on cultures, parties, actors, processes, issues.

POLI:3101 (030:116) American Constitutional Law and Politics 3 s.h.

Role of U.S. Supreme Court in American political system; emphasis on analysis of Supreme Court cases.

POLI:3102 (030:152) The U.S. Congress 3 s.h.

History of Congress, how congressional elections shape what legislators do, how laws are made in Congress, rules and maneuvers that shape these laws, and the future of Congress as one of the major institutions of American government; gain an understanding of Congress and why Americans continue to be confused and fascinated by this complicated branch and its politics.

POLI:3104 (030:108) Immigration Politics 3 s.h.

United States immigration policy and political consequences of Latino population growth; contrast of political experiences of Latinos with groups and ideals of democratic political systems; analyses of past immigration policies; studies of public opinion, voter turnout, and campaign tactics.

POLI:3105 (030:112) Minority Representation in American Politics 3 s.h.

Effects of voting rights legislation, election laws, interest groups, and institutional constraints on minority representation in American politics.

POLI:3106 (030:114) Racism and Politics in the U.S. 3 s.h.

Evolution of white racial attitudes over time; political experiences of African Americans contrasted with other groups and the ideals of democratic political systems; effect of race on political participation, partisan affiliation, vote choice, and policy preferences.

POLI:3107 (030:104) Writing in Political Science: Writing for "Science" and for "Politics" arr.

Writing for "science" and "politics" of political science; science writing emphasis on clear explanation to produce understanding; political writing emphasis on advocacy, which can highlight, obscure, and "spin" to motivate readers; evaluation of examples of each writing form; principles that help clear or obfuscate, explain or persuade, depending on their purpose; students compose examples of each writing form.

POLI:3108 (030:118) American Political Development 3 s.h.

Transformations in American political behavior and institutions over time.

POLI:3109 (030:109) Fixing America's Electoral System 3 s.h.

What's wrong with American politics and what can be done to fix it; overview of major problems facing American democracy from polarized political parties and money in politics, to low voter turnout and trust in government, to growing gap between super rich and middle class; focus on problem solving, including movement towards digital politics and new media, participatory democracy, reform of congressional elections and non-partisan redistricting, presidential elections (Electoral College), presidential nomination process, campaign finance, voter registration and voting, proportional representation. Requirements: no prior enrollment in POLI:3150 (030:119) with subtitle Election Reform.

POLI:3110 (030:111) Local Politics 3 s.h.

Models of city government, relation to state and federal governments; rights, liabilities of municipalities; city elections, campaigns, issues; role of pressure groups.

POLI:3111 (030:126) American Public Policy 3 s.h.

Functions and policies of national government; emphasis on domestic policy making, impact of public policy.

POLI:3112 (030:128) Direct Legislation 3 s.h.

Direct democracy—lawmaking by the citizenry without legislative action; origins, historical perspectives, usage across politics, regulations; consequences of direct democracy; concerns about equality of access, tyranny of majority; United States, other countries.

POLI:3113 (030:106) Research in Judicial Politics 3 s.h.

Applied research training in courts and judicial politics. Prerequisites: POLI:3120 (030:158) or POLI:3101 (030:116) (30:116) or POLI:3121 (030:153).

POLI:3114 (030:107) Women and Politics in the United States 3 s.h.

Involvement of women in the U.S. political system; topics include political theories about women's involvement in politics and government, women and constitutional law, public policies that affect women, women's participation in politics at the mass and elite levels.

POLI:3116 (030:115) The Presidency 3 s.h.

Constitutional foundations, subsequent development, current status of the office of the presidency; evolution of presidential selection process; powers, structures, functions of the office; role of president as legislative, executive, and public leader.

POLI:3117 (030:120) Public Administration and Bureaucratic Politics 3 s.h.

Administrative and organizational theory and behavior; techniques of management; relations between administration and other branches in federal and state governments; administrative politics.

POLI:3118 (030:125) Interest Groups 3 s.h.

Theory, organization, and structure of interest groups; how they influence Congress, executive branch, courts, elections.

POLI:3119 (030:129) Policy Matters: Perspective on Contemporary Problems 3 s.h.

Public policy issues in scholarly perspective; UI experts provide background introduction to weekly issues; presentations of new policy initiatives, roundtable on policy options; panels representing local, state, and national options and experience involving policy practitioners, legislators, and advocates. Same as HIST:3115 (016:115).

POLI:3120 (030:158) The Criminal Justice System 3 s.h.

Role of actors, institutions that constitute and participate in the American criminal justice system.

POLI:3121 (030:153) The Judicial Process 3 s.h.

Role of courts, lawyers, judges, interest groups in the American political system.

POLI:3122 (030:121) Public Choice 3 s.h.

Introduction to some of the most important topics in public choice (i.e., How do we explain what the public "wants"? Can we determine group preferences and group choices even if individual incentives run contrary to society's needs?); study of public choice theory problems in political science—how we determine society's preference among candidates, public policies, or even types of government.

POLI:3123 (030:110) State Politics in Iowa 3 s.h.

Introduction to Iowa government and politics; emphasis on Iowa Constitution, founding and history, political institutions, voting, political parties, mass movements and interest groups; evangelical movement in Iowa, immigration, and Iowa's role in national politics given the state's first-in-the-nation caucus.

POLI:3124 (030:187) Political Science Des Moines Internship Program 1-6 s.h.

Supervised professional work experience in government and nongovernment organizations, as well as private industry. Corequisites: POLI:3125 (030:188). Requirements: sophomore or higher standing.

POLI:3125 (030:188) Perspectives on Contemporary Iowa 3 s.h.

In-depth examination of the state of Iowa; culture, politics, and contemporary issues facing the state and Midwest region in which it resides; historical and political development of Iowa as a state; policy implications of development on contemporary Iowa; how history, culture, and politics impact citizenry of the state; designed to enrich internship program in Des Moines, IA.

POLI:3150 (030:119) Problems in American Politics 1-3 s.h.

Problems in studying American system; structures, functions, behavior.

POLI:3201 (030:127) Political Campaigning 3 s.h.

Current state of political campaigning at all levels of government; history of campaigning, role of money and campaign finance reform, television and negative advertising, Internet campaigning.

POLI:3202 (030:154) Political Psychology 3 s.h.

Political phenomena from psychological perspective; political behaviors of individuals, including decision making by elites and masses, evaluations of political candidates, mass mobilization, response to mass media; psychological concepts including stereotyping, social cognition, attitude, group identification.

POLI:3203 (030:157) Campaigns, Elections, and Voting Behavior arr.

Determinants of voting behavior; correlates of political participation, political apathy; political socialization processes; nature and functions of elections.

POLI:3204 (030:171) Public Opinion 3 s.h.

Role in making public policy; formation, change of political attitudes and opinions; political ideology; measurement of public opinion; how opinion polls are conducted; experience with interviewing and conducting public opinion research. Same as SOC:3525 (034:153).

POLI:3300 (030:133) Postmodern Political Theory 3 s.h.

Major writers and intellectual trends, from 19th century to World War II.

POLI:3302 (030:138) Current Political Theory 3 s.h.

Thinkers or schools of thought, from World War II to present.

POLI:3303 (030:139) Political Issues 3 s.h.

Representative topics include democracy, revolution, justice, obligation, technology, authority.

POLI:3305 (030:132) Modern Political Theory 3 s.h.

Major writers and intellectual trends in political thought from Renaissance and Reformation to 19th century.

POLI:3306 (030:134) Problems of Democracy 3 s.h.

Theory and practice of democracy; democratic ideals and the institutions and practices necessary for those ideals to work in everyday politics—power, equality, majority rule, participation, trust, representation.

POLI:3400 (030:137) Introduction to Political Economy 3 s.h.

Economic reasoning applied to political issues, including evolution of institutions, voting, leadership, interest groups, bargaining tactics, federalism, bureaucracy, fairness and compensation for wrongs, legitimacy of democracy, electoral cycles in economic policy, revolutions.

POLI:3401 (030:142) European Union 3 s.h.

Politics of the European Union; institutional characteristics and major political issues of the European Union, including popular and national responses to European integration.

POLI:3403 (030:147) Parties and Elections Around the World 3 s.h.

Comparative approach and exploration of political parties and elections around the world; party formation and development, identification and voter behavior, competition and strategies; election outcomes; electoral systems and their consequences. Recommendations: POLI:1400 (030:045) is strongly recommended.

POLI:3404 (030:150) Public Policy Around the World 3 s.h.

Does the design of democratic institutions lead to poor or slow government response to crises (e.g., Hurricane Katrina, Gulf Oil Spill)? Does increased citizen participation in policy making help or hurt? How can citizens in democracies hold government accountable, especially when it is under pressure to adopt certain policies (e.g., economic stimulus packages, environmental or financial regulations, health care, taxation)? Implementation of laws in democracies, accountability of policy makers and consequences of controlling them, and so forth.

POLI:3405 (030:159) Authoritarian Politics 3 s.h.

Political dynamics in countries with authoritarian governing regimes; how those dynamics differ from their counterparts in democracies; how decisions are reached and get enforced; forms political struggles take; how interest groups pursue influence; ways individuals deal with the government; tension between regime control and societal progress.

POLI:3406 (030:156) Ethnic and Religious Conflict in the Muslim World 3 s.h.

Ethnic and religious conflict in the Muslim world; language rights, cultural preservation, and religious nationalism examined through case studies of ethnic and religious groups in countries such as Afghanistan and Iraq; conditions under which conflict becomes violent, protracted, and regionalized; strategies available to states and minority groups for resolving or managing conflicts.

POLI:3408 (030:148) Government and Politics of China 3 s.h.

Comprehensive introduction to modern Chinese history; current Chinese political system and political culture; public policy issues.

POLI:3410 (030:146) Russian Foreign Policy 3 s.h.

Russia's behavior as a major economic, military, and diplomatic power in the world and what shapes that behavior; Russians' perceptions of other countries; Russian national interests; capabilities and domestic political dynamics; implications for foreign policy of the United States and other countries.

POLI:3411 (030:196) Democracy: Global Trends and Struggles 3 s.h.

Diverse contemporary understandings and practices of democracy; worldwide democratization trends; what political, economic, cultural and transnational factors shape those trends; how elites and citizens struggle to promote or retard democracy; the news full of people around the world taking action to demand democracy and what this term, so highly prized, really means; what is known about when democracy will replace authoritarianism; how can democracies more fully live up to their promise.

POLI:3412 (030:140) Government and Politics of Europe 3 s.h.

Political institutions, processes of selected European countries. GE: International and Global Issues; Social Sciences.

POLI:3413 (030:141) Russian Politics 3 s.h.

Institutions and processes of governing this large world power; Russian political dynamics, including struggles to unify or diversify power; political responses to major economic, technical, and social challenges. Recommendations: POLI:1401 (030:041). GE: International and Global Issues; Social Sciences.

POLI:3414 (030:143) Government and Politics of the Far East 3 s.h.

Functions, institutions of government in countries of Far East; focus on social, economic, historical environments. GE: International and Global Issues; Social Sciences. Same as ASIA:3414 (039:178).

POLI:3415 (030:144) Latin American Politics 3 s.h.

Governmental institutions, major interest groups; focus on area as a whole. GE: International and Global Issues; Social Sciences.

POLI:3416 (030:172) France in the 21st Century 3 s.h.

French politics from the end of the 20th century to beginning of the 21st century; history of France's Fifth Republic; institutional development; key events that influenced politics in France over the last 50 years; major issues that shape France today—citizenship, immigration, identity, France's role in the European Union, electoral and institutional reform, rise of the extreme right, role of women in French society, how protest still affects French politics.

POLI:3417 (030:151) Political Leadership 3 s.h.

Foundations, effects of leadership in different political systems.

POLI:3418 (030:176) Governance in the Middle East 3 s.h.

Institutions and social systems that are affected by political behavior; ways in which Islam, oil production, and international forces shape political evolution in the region; comparative political inquiry of the operation of government institutions in the context of specific historical legacies, economic structures, and population characteristics in Iran, Iraq, Egypt, Turkey, Saudi Arabia.

POLI:3419 (030:145) War in the Muslim World 3 s.h.

Foundations, evolutions, and outcomes of recent wars in the Middle East; primary focus on insurgencies in Syria, Afghanistan, Pakistan, and Iraq, together with Arab-Israeli conflict; Sunni-Shiite, Jewish-Arab, Arab-Kurd cleavages; military activities of international forces; rise of insurgent forces (i.e., the Taliban); Al Qaeda alliance; shadow governments; institutions of governance; strategies and ideologies of oppositional organizations. Requirements: no prior enrollment in POLI:3450 (030:149) with subtitle War in the Muslim World.

- POLI:3420 (030:102) Southeast Asia: Democracy, Identity, and Development** arr. Operations of multinational business enterprises; relationship between business and politics; focus on corporations interacting with sovereign states, other companies, interest groups, international governmental organizations (IGOs), and non-governmental organizations (NGOs).
Eleven states of Southeast Asia; governance, development strategies, domestic politics, approach to democracy and national identity; regional politics and important transnational issues; role of ASEAN, terrorism, trans-Pacific trade and investment issues, China's looming presence, impact of ongoing and historic conflicts; briefings, discussions, presentations.
- POLI:3421 (030:103) The Politics of Southern Africa** 3 s.h. Comparative approach to politics of ten countries in the Southern Africa region; mineral riches, substantial agricultural resources, millions of hard working and talented people; poverty, underdevelopment, and inequality; varied paths toward development; mosaic of ethnic, religious, and regional groups that impact domestic and regional politics; politics analyzed at regional, state, and sub-state level.
- POLI:3422 (030:135) Transnational Issues and the Horn of Africa** arr. Eight states in the Horn of Africa region; important transnational and regional issues; governance, development strategies, domestic politics, social and civic dynamics of countries in the region; wildlife trafficking, piracy, fight against HIV/AIDS, imprint of colonialism, secession, ethnic and national identities, democratization, role of women in society, impact of ongoing and historic conflicts; briefings, discussions, presentations.
- POLI:3423 (030:105) The Middle East: Policy and Diplomacy** 3 s.h. Nineteen states and entities of North Africa and the Middle East; issues of governance, development strategies, domestic politics, and approach to democracy and national identity; regional politics and important transnational issues; role of political Islam; impacts of the Arab Spring, terrorism, oil, role of women in society, ongoing and historic conflicts; briefings, discussions, presentations.
- POLI:3450 (030:149) Problems in Comparative Politics** 3 s.h. Structures, functions, behaviors of different political systems.
- POLI:3500 (030:162) American Foreign Policies** 3 s.h. Ends pursued, problems encountered, means employed by the United States in relations with other states and international organizations.
- POLI:3501 (030:161) International Organization and World Order** 3 s.h. Different conceptualizations of world order; multiple sources of world order including force, power, norms, international institutions; International order and main sources; question peace being the same as world order.
- POLI:3502 (030:167) Politics and the Multinational Enterprise** 3 s.h. Operations of multinational business enterprises; relationship between business and politics; focus on corporations interacting with sovereign states, other companies, interest groups, international governmental organizations (IGOs), and non-governmental organizations (NGOs).
- POLI:3503 (030:168) Politics of Terrorism** 3 s.h. Interplay between technological change and military strategy; changes in warfare brought about by information revolution; cyber weapons and other features of war in computer age; unmanned systems including aerial drones and ground-based robots; moral considerations associated with military robotics; anti-missile systems; predicting future changes in technology and military strategy.
- POLI:3504 (030:177) Globalization** 3 s.h. Introduction to multidisciplinary literature on political economy and culture of globalization; major topics of debate on globalization.
- POLI:3505 (030:178) Causes, Consequences, and Management of Civil War** 3 s.h. Causes, duration, management, and consequences of civil war; factors that create more frequent, longer civil wars (e.g., greed, grievance, ethnic conflict, state capacity); conflict management strategies for ending civil wars and minimizing long-term negative consequences.
- POLI:3506 (030:130) Consequences of War** 3 s.h. War's enduring effects: war's impact on individuals, including combatants and noncombatants; war's impact on states, including states' development, economic, political, and social effects; war's effects on the international system.
- POLI:3507 (030:160) Women and Politics in Global Perspective** 3 s.h. Women and politics in Europe and the global South; women's participation in political parties and social movements, women in the bureaucracy, women and the politics of intersectionality, feminism and the state, emergence of female gender identities.
- POLI:3508 (030:164) Race in World Politics** 3 s.h. Fundamental questions about racial and ethnic politics; racial and ethnic identities and their intersection with other major social cleavages such as class, nationality, sexuality, religion, gender; concepts and use of race and ethnicity viewed through varied theoretical perspectives; contemporary events around the globe.
- POLI:3509 (030:155) International Courts: The Intersection of Law and Politics** 3 s.h. Introduction to important international courts including (Permanent) International Court of Justice, European Court of Justice, International Criminal Tribunal for Yugoslavia, International Criminal Tribunal for Rwanda, and International Criminal Court; the formation, design, and expansion of international courts from political and legal perspectives; states' capabilities, regime type, and war; intersection of domestic and international law, emphasizing the major legal systems in the world (civil law, common law, Islamic law).

- POLI:3510 (030:173) State Failure in the Developing World** 3 s.h.
State failure in the developing world, including notable cases like Somalia and Zimbabwe; causes of state failure; potential policy interventions designed to address consequences of state failure.
- POLI:3511 (030:195) International Law** 3 s.h.
Introduction to field of international law from a political and legal perspective; history and contemporary status of international law in several areas: human rights, humanitarian (law of war), environmental law, trade; structure and areas of international law; ask if international law is or can it be an effective tool of international cooperation from a political science perspective; structure of the basic documents of international law and organizations, key cases in the field from a legal perspective. Requirements: no prior enrollment in POLI:3550 (030:169) with subtitle International Law.
- POLI:3512 (030:165) International Conflict** 3 s.h.
International conflict as the primary ingredient of international politics; sources, causes, and effects of conflict, alliance structures, power distribution, geography, arms races, deterrence.
- POLI:3513 (030:197) Politics of International Human Rights Law** 3 s.h.
Interaction between politics and international human rights law; international law and organizations, human rights, ratification of human rights treaties; theories of international law and cooperation, exposure to tools of international relations (diplomacy, trade, aid, shaming, sanctions), the role that international and domestic civil society groups play in advocating for states to commit to human rights laws.
- POLI:3514 (030:198) Regional Peace and Security** 3 s.h.
Analysis of the causes of peace and conflict between countries in various regions of the world; theories of zones of peace, security communities, regional security complexes.
- POLI:3515 (030:166) Global Communication and Politics** 3 s.h.
How distance and language barriers in communication have fallen since 2000; how politics and the world are affected when such barriers to communication disappear.
- POLI:3516 (030:170) The Politics of International Economics** 3 s.h.
Politics of international trade and financial systems, including rise of free trade in 19th century and breakdown between the two world wars, postwar trading system framed around the World Trade Organization, different types of international monetary systems, relations between rich countries and poor countries, and global environmental politics.
- POLI:3517 (030:131) Global Justice** 3 s.h.
Introduction to normative issues in international politics (i.e., Under what conditions are wars just? When is intervention justified? Do wealthier nations owe anything to those elsewhere who are in need?); theoretical works on global justice by Rawls, Kant, Pogge, Walzer, and others; normative theories analyzed against background of empirical examples, such as recent humanitarian interventions, contemporary wars, current trade regime, global environmental problems; seminar. Requirements: no prior enrollment in POLI:3550 (030:169) with subtitle Global Justice.
- POLI:3520 (030:163) National Security Policy** 3 s.h.
Nuclear weapons and deterrence, credible commitments, value of emphasizing sea power or land power, strategic differences between symmetric and asymmetric conflict, information and intelligence, domestic politics and use of force abroad, United Nations Security Council and international law, role of private military contractors, and integration of armed forces by race, gender, and sexual orientation.
- POLI:3550 (030:169) Problems of International Politics** 3 s.h.
Problems in studying international system, structures, functions, behavior.
- POLI:3600 (030:174) Multimedia Politics** 3 s.h.
How increasingly universal access to communication affects political campaigning and advocacy; the use of blogging, video, and developing communication media by citizens and candidates to talk politics.
- POLI:3601 (030:175) Politics of Film** 3 s.h.
Issues in the popular politics of aesthetics, communication, culture, and myth, explored through analysis of films.
- POLI:3602 (030:199) New Media and Politics** 3 s.h.
Blogging, microblogging, and video production as tools of new media (anyone can twitter and reach a large audience); how these technologies work, how they are being used in current politics, what they portend for the future, and what tools are next. Requirements: no prior enrollment in POLI:3303 (030:139) with subtitle New Media and Politics.
- POLI:3700 (030:136) Strategy in Politics** 3 s.h.
How to isolate the most important elements in strategic political behavior, build models to understand them, recognize common scenarios, devise institutional resolutions to the Prisoners' Dilemma and coordination problems.
- POLI:3701 (030:192) Special Topics in Politics** 1-2 s.h.
Presentations by distinguished lecturers on topics in the study of politics not covered in other courses. One or two weeks.
- POLI:4000 (030:180) Honors Seminar on the Study of Politics** 3 s.h.

Selected topics in philosophy, theory, and methods for the systematic study of politics; foundations of scientific inquiry, including processes of theory building, concept formation, and hypotheses testing; political research; challenges faced when conducting good political science; questions of research design, measurement accuracy, and sample selection; application of multivariate research process. Requirements: honors standing in political science.

POLI:4100 (030:181) Honors Seminar on American Politics 3 s.h.

Ideas, issues, methods in selected area. Requirements: junior or senior honors standing in political science.

POLI:4300 (030:182) Honors Seminar on Political Theory 3 s.h.

Intensive study of ideas, issues, methods in an area of political theory. Requirements: junior or senior honors standing in political science.

POLI:4400 (030:183) Honors Seminar on Comparative Politics 3 s.h.

Exploration of a selected topic in comparative politics, its cross-national patterns, strategies used to study it, and major debates among scholars; study of politics by comparing two or more countries or other political units; new light on how societies are divided on major issues (whether state regulation of economy or role of religion in society), how people behave politically (from voting to demonstrations to revolution), role played by political institutions (e.g., legislatures, courts, political parties). Requirements: junior or senior honors standing in political science.

POLI:4500 (030:184) Honors Seminar on International Politics 3 s.h.

Ideas, issues, methods in selected area. Requirements: junior or senior honors standing in political science.

POLI:4600 (030:185) Honors Research Project 3 s.h.

Special research assistance to political science faculty. Requirements: junior or senior honors standing in political science.

POLI:4601 (030:186) Honors Senior Thesis 3 s.h.

Supervised research and writing. Requirements: honors standing in political science and more than one semester before graduation.

POLI:4700 (030:190) Independent Study arr.

Supervised special projects.

POLI:4701 (030:193) Undergraduate Research Tutorial 3 s.h.

Individual training in applied research.

POLI:4702 (030:194) Senior Research Project/Paper 3 s.h.

Supervised research and writing. Requirements: political science major and more than one semester before graduation.

POLI:4800 (030:179) Senior Seminar in International Relations 3 s.h.

Completion of final research project as a culmination of student's work in the major; research supervised by a faculty member; required for international relations major. Recommendations: taken during one of student's final two semesters at The University of Iowa.

POLI:4900 (030:191) Government Internship 1-3 s.h.

Undergraduate internships in state or national legislative office, executive agency, or with election campaign official.

Graduate

Courses numbered 5000-6000 are graduate core courses; those numbered 7000 or above are advanced graduate courses.

POLI:5000 (030:200) Introduction to Political Analysis 4 s.h.

Conceptual problems of political analysis; empirical research strategies, philosophy of science. Requirements: M.A. or Ph.D. standing in political science.

POLI:5001 (030:201) Introductory Methodology 3-4 s.h.

Introduction to quantitative techniques in political science; set theory, probability distributions, estimation, testing; emphasis on acquiring mathematical skills for more advanced quantitative work in political science. Requirements: M.A. or Ph.D. standing in political science.

POLI:5003 (030:301) Intermediate Methodology 4 s.h.

Techniques of data analysis; statistical models and their relationship to hypotheses tested. Requirements: doctoral standing in political science and one semester of intermediate statistics.

POLI:5100 (030:210) American Politics 4 s.h.

Major literature of American politics, emphasis on comparative, systemic, behavioral studies. Requirements: M.A. or Ph.D. standing in political science.

POLI:5300 (030:230) Political Theory 4 s.h.

Methods of political theory, epistemological and moral foundations of political inquiry; terms of political discourse (e.g., power, legitimacy, equality, ideological foundations of politics); schools of thought and current controversies in political theory. Requirements: M.A. or Ph.D. standing in political science.

POLI:5400 (030:240) Comparative Politics 4 s.h.

Conceptual, theoretical, and methodological issues in comparative study of politics; developments in comparative politics subfield. Requirements: M.A. or Ph.D. standing in political science.

POLI:5500 (030:260) International Politics 4 s.h.

Approaches to study of international politics. Requirements: M.A. or Ph.D. standing in political science.

POLI:5700 (030:205) Introduction to Formal Models in Political Science 4 s.h.

Use of formal mathematical models; current modeling techniques, applications in American politics, comparative politics, international politics. Requirements: M.A. or Ph.D. standing in political science.

POLI:6632 (030:243) Crossing Borders Proseminar arr.

Same as HIST:6632 (016:244), GEOG:6632 (044:287), ANTH:6632 (113:248), GRMN:6632 (013:260), SPAN:6903 (035:271), CINE:6632 (048:244).

POLI:6635 (030:242) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).

POLI:7000 (030:302) Writing Political Science 4 s.h.

Practice in planning and completing political inquiries, with emphasis on writing for scholarly publication; experience refining one's prior research projects for submission to disciplinary journals, and drafting dissertation proposals. Requirements: doctoral standing in political science.

POLI:7001 (030:304) Experimental Methods 4 s.h.

Methods, techniques used in political science experiments.

POLI:7002 (030:306) Topics Methodology 4 s.h.

Application of advanced statistical techniques in political science; limited dependent variable regression techniques, simulation methods, missing data techniques, history/rare event analysis and maximum likelihood, and topics tailored to students' research; focus on learning how and when to apply these techniques.

POLI:7003 (030:303) Advanced Methodology 4 s.h.

Introduction to regression techniques for limited dependent and qualitative variables in political science; logit, probit, multinomial logit and probit, ordered logit and probit, event history models, event count models; emphasis on understanding how and when to apply these models.

POLI:7004 (030:307) Qualitative Methods 4 s.h.

Introduction to qualitative methods in political science research; interviewing, ethnographic research, process tracing, comparative historical analysis, content and discourse analysis, fuzzy set theory.

POLI:7100 (030:310) Modeling American Politics 4 s.h.

Exploration of how well formal models explain the real world and how the fit between models and world can be improved.

POLI:7102 (030:315) The Presidency 4 s.h.

American chief executive: history, recruitment, behavior, roles, responsibilities, powers, relationships with other institutions.

POLI:7150 (030:319) Problems in American Politics 4 s.h.

Problems in study of American political system; structures, functions, behavior.

POLI:7200 (030:352) Legislative Behavior 4 s.h.

Institutions, processes, behavior in the United States, Europe, or developing countries.

POLI:7201 (030:353) Political Psychology 4 s.h.

Political phenomena from a psychological perspective; decision making by elites and masses, evaluations of political candidates, mass mobilization, response to mass media; psychological theories used to explain these behaviors, including stereotyping, social cognition, attitude, group identification, attribution.

POLI:7202 (030:357) Public Opinion and Electoral Behavior 4 s.h.

Political attitudes and beliefs in mass publics; voting behavior; how electoral systems function.

POLI:7350 (030:339) Problems in Political Theory 4 s.h.

Prescriptive and explanatory political theory.

POLI:7401 (030:344) European Union 4 s.h.

Politics of the European Union; institutional characteristics and major political issues of the European Union, including popular and national responses to European integration.

POLI:7409 (030:341) Democratization and Authoritarianism 4 s.h.

Rival understandings and practices of democracy and authoritarianism, including challenges of quantifying them for comparative analyses; major theoretical and empirical approaches to studying democratization and other forms of regime change.

POLI:7423 (030:346) Comparative Parties and Elections 4 s.h.

Introduction to important questions and puzzles in the study of political parties; party formation and development, the role of parties in society, how parties are organized, party systems, electoral systems, party strategy and behavior, development of new parties, whether parties are still relevant, regeneration of communist parties in post-communist regimes, ethnic parties, failure of party consolidation.

POLI:7450 (030:349) Problems of Comparative Politics 4 s.h.

Problems in study of comparative political systems; structures, functions, behavior.

POLI:7500 (030:361) Foreign Policy 4 s.h.

Foreign policy making and international behavior in relation to theories, findings from selected countries.

POLI:7502 (030:368) International Systems and Global Governance 4 s.h.

Literature of international systems and international organization; major schools of thought in international relations theory, their utility in explaining evolution of the international system and recent developments in international organization and global governance.

POLI:7503 (030:362) International Conflict and Cooperation 4 s.h.

Recent theoretical and empirical debates in international relations literature; emphasis on formal and quantitative research.

POLI:7504 (030:367) Theories of International Political Economy 1-4 s.h.

Theories focusing on international system, the state, bureaucracies, interest groups, international organizations, bargaining processes, distributive norms.

POLI:7550 (030:369) Problems in International Politics 4 s.h.

Issues of international politics, emphasis on problems of theoretical analysis.

POLI:7701 (030:363) Dynamic Models of International Politics 2-4 s.h.

Overview of several dynamic modeling techniques used to study international relations; modeling assumptions, the kinds of information models can provide, evaluation of models.

POLI:7900 (030:390) Readings Tutorial arr.
Independent study.

POLI:7901 (030:393) Research Tutorial arr.
Individual training in applied research.

POLI:7910 (030:398) Ph.D. Dissertation arr.

Psychology

Chair

- Jodie M. Plumert

Professors

- Mark S. Blumberg (F. Wendell Miller Professor), Alan J. Christensen (Psychology/Internal Medicine), Steven W. Duck (Communication Studies/Psychology), John H. Freeman, Gary J. Gaeth (Marketing/Psychology), Andrew R. Hollingworth, A. Kim Johnson (F. Wendell Miller Professor), Grazyna Kochanska (Stuit Professor of Developmental Psychology), Susan K. Lutgendorf, James N. Marchman, Cathleen M. Moore, Michael W. O'Hara, Jane S. Paulsen (Psychiatry/Psychology), Jodie M. Plumert, Larissa K. Samuelson, John P. Spencer, Scott P. Stuart (Psychiatry/Psychology), Daniel T. Tranel (Neurology/Psychology), Shaun P. Vecera, Edward A. Wasserman (Stuit Professor of Experimental Psychology), Paul D. Windschitl

Associate professors

- Joseph Barrash (Neurology/Psychology), Prahlad Gupta, Richard Eliot Hazeltine, Erika Lawrence, Kristian E. Markon, Robert M. McMurray, J. Toby Mordkoff, Amy Poremba, Teresa A. Treat, Mark W. Vander Weg (Internal Medicine/Psychology)

Assistant professors

- C. Daryl Cameron, Jason K. Clark, Susan Wagner Cook, Lillian N. Dindo (Psychiatry/Psychology), Thomas A. Farmer, Julie J. Gros-Louis, Jody L. Jones (Surgery/Psychology), Ryan T. LaLumiere, Rebecca Neel, Molly A. Nikolas, Jason J. Radley, Lisa S. Segre (Nursing/Psychology), Andrew R. Todd, Michelle W. Voss

Lecturer

- Meara Habashi

Adjunct professor

- Lori J. Nelson

Adjunct associate professor

- Robert F. Kirby

Adjunct assistant professors

- Alex Casillas, Leyre Castro, Brian K. Gehl, Gregory L. Gullickson, M. Bryant Howren, Debra L. Johnson, Robert L. Thunhorst

Professors emeriti

- Robert S. Baron, Joan H. Cantor, Don C. Fowles, Isidore Gormezano, John H. Harvey, John F. Knutson, Irwin P. Levin, Lola L. Lopes, Peter E. Nathan, Gregg C. Oden, Rudolph W. Schulz, J. Richard Simon, Arnold M. Small, Jerry M. Suls

Associate professor emeritus

- Sue R. Rosner

Undergraduate major: psychology (B.A., B.S.)

Undergraduate minor: psychology

Graduate degrees: M.A. in psychology; Ph.D. in psychology

Web site: <http://www.psychology.uiowa.edu/>

The Department of Psychology offers an undergraduate major and minor as well as graduate degree programs. It also offers courses that undergraduate students in all majors may use to satisfy the General Education Program (p. 323) Social Sciences requirement and a First-Year Seminar designed for entering undergraduate students.

Undergraduate Programs of Study

- Major in psychology (Bachelor of Arts, Bachelor of Science)
- Minor in psychology

The major in psychology is designed to contribute to students' general liberal arts and sciences education and to provide a foundation for postbaccalaureate training in psychology and closely related disciplines as well as areas such as business, law, communication, medicine, and the allied health sciences. Students who intend to enter the job market immediately after completing an undergraduate degree should complement their psychology major with substantial preparation in another program more closely tied to the world of work (e.g., education, social work, business, journalism, nursing). Almost all vocational opportunities in psychology require advanced degrees.

The psychology major for the Bachelor of Science is intended for students who plan to pursue advanced work in psychology or in a related discipline. It requires a specific grade-point average for admission and certain courses in statistics, experimental psychology, mathematics, and natural science. The psychology major for the Bachelor of Arts has fewer specific requirements and puts less emphasis on methodology. Both programs leave time for students to supplement the psychology major with another program of study.

Students who change to a psychology major after two years of undergraduate work may find they do not have sufficient background for the B.S. program. They may wish to enrich the B.A. program with courses in experimental psychology and other advanced electives if they intend to pursue graduate work in psychology or a related field.

Students in either program begin with a general introductory course, followed by biological psychology, statistics, and methodology courses and introductory courses in several broad areas: developmental science, clinical psychology, cognitive psychology, and social psychology. These courses are followed by upper-level psychology course work selected by the student.

The department maintains excellent facilities to support teaching and research on human and animal behavior. All faculty members are directly engaged in research, and they bring to their undergraduate teaching the excitement that such activity generates. Many opportunities exist for interested and capable students to participate in current research projects in the department.

The department has an active undergraduate organization, the Iowa Students Psychology Association, which is open to all interested students. The group sponsors speakers, films, career days, and student symposia.

ADMISSION TO THE MAJOR

Admission to the psychology major for the Bachelor of Arts is open; any University of Iowa undergraduate student may enter the B.A. program.

Admission to the major for the Bachelor of Science is selective. To be eligible for admission to the B.S. program, students must have completed 30 s.h. of college course work (excluding any credit by exam) and must have a cumulative g.p.a. of 2.67 or higher. There is no limit on the number of qualified students admitted to the B.S. program. Students who do not meet the minimum admission requirements may petition the department in writing, presenting additional evidence of their qualifications.

Entering first-year and transfer students who have completed less than 30 s.h. of course work and are interested in entering the B.S. program are admitted to the B.A. program until they satisfy the admission requirements for the B.S. program. New transfer students who meet the admission requirements for the B.S. program may choose to enter the B.S. or the B.A. program.

Any student in the B.A. program may switch to the B.S. program if he or she meets admission requirements at the time of the request. Students may switch from the B.S. to the B.A. program at any time.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts with a major in psychology requires a minimum of 120 s.h., including 44-46 s.h. of work for the major, with at least 29 s.h. in psychology courses. The Bachelor of Science with a major in psychology requires a minimum of 120 s.h., including 53-56 s.h. of work for the major, with at least 36 s.h. in psychology courses. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). Transfer students must complete at least 15 s.h. of the major at The University of Iowa.

The major for the B.A. is designed for students who wish to gain considerable knowledge in psychology but do not necessarily plan a professional career in the discipline. It is appropriate for students preparing for careers in law, business, counseling, social work, or secondary school teaching (see "B.A. or B.S. with Teacher Licensure" below). It can be combined with a second major more easily than can the Bachelor of Science program.

The major for the B.S. emphasizes research methodology, so the B.S. may be the degree of choice for students who plan to do graduate work in psychology and related research fields. However, a Bachelor of Science is not required for graduate study in psychology.

Choice of a degree program should be dictated by the student's personal career goals. B.A. students interested in pursuing graduate study in psychology or other social sciences may enrich their program by taking courses in mathematics, statistics, research methods, and the natural sciences.

B.A. and B.S. students complete the same psychology core and psychology electives. The major for the B.A. also requires an additional statistics or computer science course plus a second concentration area, while the major for the B.S. also requires a pair of natural science courses,

one semester of calculus, and an additional mathematics course.

The psychology major requires the following courses or their equivalents.

Common Requirements (B.A. and B.S.)

PSYCHOLOGY CORE (B.A. AND B.S.)

All psychology majors (B.A. and B.S.) complete the following course work for the psychology core.

Psychology—all of these:

PSY:1001 (031:001) Elementary Psychology	3 s.h.
PSY:2701 (031:002) Biological Psychology	4 s.h.
PSY:2810 (031:010) Research Methods in Psychology	4 s.h.

Statistics—one of these (3-4 s.h.):

STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:3510 (22S:101) Biostatistics (recommended for B.S. students)	3 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods (recommended for B.S. students)	3 s.h.

LOWER-LEVEL PSYCHOLOGY ELECTIVES (B.A. AND B.S.)

B.A. and B.S. students take three of these (9 s.h.) after completing PSY:1001 (031:001) Elementary Psychology.

PSY:2301 (031:013) Introduction to Clinical Psychology	3 s.h.
PSY:2401 (031:014) Introduction to Developmental Science	3 s.h.
PSY:2501 (031:015) Introduction to Social Psychology	3 s.h.
PSY:2601 (031:016) Introduction to Cognitive Psychology	3 s.h.

UPPER-LEVEL PSYCHOLOGY ELECTIVES (B.A. AND B.S.)

B.A. and B.S. students take three advanced psychology courses (total of 9 s.h.) after satisfactorily completing the psychology core and other specified prerequisites. Psychology courses (prefix PSY) numbered 3000 or above may be used to fulfill this requirement, except those in the following list.

PSY:4020 (031:121) Laboratory in Psychology	4 s.h.
PSY:4090 (031:190) Psychology Seminar	3 s.h.
PSY:4960 (031:188) Advanced Research Practicum	1-3 s.h.
PSY:4990 (031:199) Honors Thesis Research	1-3 s.h.

Additional Bachelor of Arts Requirements

COGNATE REQUIREMENT (B.A.)

Psychology majors earning a B.A. complete one of the following upper-level statistics or computer science courses. Students who fulfill the psychology core statistics requirement (above) with STAT:3510 (22S:101) Biostatistics or STAT:4143 (22S:102) Introduction to

Statistical Methods must use a different course to fulfill the cognate requirement.

Statistics:

ECON:2800 (06E:071) Statistics for Strategy Problems	3 s.h.
STAT:3120 (22S:120) Probability and Statistics	4 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.
STAT:6513 (22S:148) Intermediate Statistical Methods	4 s.h.

Computer science:

CS:1020 (22C:001) Principles of Computing	3 s.h.
CS:1110 (22C:005) Introduction to Computer Science	3 s.h.
CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.

SECOND CONCENTRATION AREA (B.A.)

B.A. students complete 9 s.h. of course work in a single department other than psychology. Courses used to fulfill this requirement must be taken at The University of Iowa and may not be used to fulfill General Education Program (p. 323) requirements. A second major or a minor may be used to fulfill the requirement.

Additional Bachelor of Science Requirements

PSYCHOLOGY TOPICS COURSES (B.S.)

Psychology majors earning a B.S. take both of these.

PSY:4020 (031:121) Laboratory in Psychology	4 s.h.
PSY:4090 (031:190) Psychology Seminar	3 s.h.

NATURAL SCIENCE COURSES (B.S.)

B.S. students are required to complete one of the following pairs of specified natural science courses (at least 7 s.h.).

One semester each of chemistry and biology
One semester each of chemistry and physics
Two semesters of chemistry
Two semesters of physics

All of these combinations can be used to fulfill the General Education Program (p. 323) natural sciences requirement. Students should consult with their advisors concerning specific courses that satisfy these requirements.

CALCULUS AND ADDITIONAL MATHEMATICS (B.S.)

B.S. students must complete at least one semester of calculus; in most cases, students also must have completed at least one precalculus mathematics course.

One of these:

MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.

B.S. students also complete at least one additional course in advanced mathematics, statistics, or computer science chosen from the following lists.

Mathematics:

MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:1860 (22M:026) Calculus II	4 s.h.
MATH:2700 (22M:027) Introduction to Linear Algebra	4 s.h.

Statistics:

ECON:2800 (06E:071) Statistics for Strategy Problems	3 s.h.
STAT:3120 (22S:120) Probability and Statistics	4 s.h.
STAT:6513 (22S:148) Intermediate Statistical Methods	4 s.h.

Computer science:

CS:1020 (22C:001) Principles of Computing	3 s.h.
CS:1110 (22C:005) Introduction to Computer Science	3 s.h.
CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.

B.A. or B.S. with Teacher Licensure

Psychology majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Joint B.A./M.P.H. with Community and Behavioral Health Subprogram

Bachelor of Arts students majoring in psychology who are interested in earning a Master of Public Health degree with community and behavioral health subprogram may apply to the joint B.A./M.P.H. program offered by the College of Liberal Arts and Sciences and the College of Public Health. The program permits students to count 12 s.h. of credit toward the requirements for both degrees, enabling them to begin the study of public health before they complete the bachelor's degree. For information about the public health program, see "Community and Behavioral Health Subprogram" in the Master of Public Health Program (p. 1225) section of the Catalog.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

In addition to courses in psychology, the B.A. requires three courses in a second concentration area.

Before the third semester begins: PSY:1001 (031:001) Elementary Psychology

Before the fifth semester begins: PSY:2701 (031:002) Biological Psychology, statistics, one or more lower-level electives

Before the seventh semester begins: four courses in the major [including PSY:2810 (031:010) Research Methods in Psychology], one course in the second concentration area, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two additional courses in the major and an additional course in the second concentration area

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Note: The psychology major for the B.S. is open only to students who have earned 30 s.h. and have a g.p.a. of at least 2.67. Students must complete a natural science sequence, either as part of the General Education Program or in addition to it. Students also must complete a semester of calculus and an advanced math, statistics, or computer science course, which may require some preliminary work.

Before the third semester begins: PSY:1001 (031:001) Elementary Psychology and PSY:2701 (031:002) Biological Psychology

Before the fifth semester begins: calculus, statistics, and three additional courses in the major [including PSY:2810 (031:010) Research Methods in Psychology]

Before the seventh semester begins: two more courses in the major, one course for the major's natural science requirement, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: the advanced mathematics/statistics/computer science course and two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in psychology have the opportunity to graduate with honors in the major. Departmental honors students must complete PSY:4090 (031:190) Psychology Seminar and write an honors thesis, which is based on an approved original honors research project that the student has conducted under the guidance of a faculty member. Interested students should contact the department's honors advisor.

Departmental honors students must be members of the University's honors program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33; visit Honors at Iowa to learn about the University of Iowa Honors Program.

Minor

The minor in psychology requires a minimum of 15 s.h., including 12 s.h. in psychology courses taken at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and all UI courses for the minor. Course work in the minor may not be taken pass/nonpass or satisfactory/fail. Before registering for a psychology course, students must complete the course's prerequisites.

A minor in psychology complements majors in a variety of disciplines. Department advisors can help students identify courses for the minor that are especially appropriate for their major.

National Honor Society

The department sponsors a chapter of Psi Chi, the national honor society in psychology and affiliate of the American Psychological Association. Students who have a g.p.a. of at least 3.00 overall and 3.10 in psychology course work and who have completed 9 s.h. of psychology may request a membership application form. Consult the department's academic coordinator for more information.

Graduate Programs of Study

- Master of Arts in psychology (with or without thesis)
- Doctor of Philosophy in psychology

Graduate study in psychology is designed for students seeking the Ph.D.; students enrolled in the doctoral program may elect to receive a Master of Arts when they have completed the M.A. requirements.

Master of Arts

The Master of Arts program in psychology requires 30 s.h. of graduate credit with thesis, and 37 s.h. of graduate credit without thesis. The department ordinarily offers the M.A. only to students enrolled in the Ph.D. program.

Thesis students must earn 24 of the required 30 s.h. at The University of Iowa. Course work for the thesis program must include a statistics course, courses outside the primary specialization area, and at least an additional 8 s.h. earned in Department of Psychology courses and seminars. Thesis students also must complete an acceptable scholarly thesis and perform successfully in an oral defense of their thesis.

Nonthesis students must earn 30 of the required 37 s.h. at The University of Iowa. Course work for the nonthesis program must include a statistics course, courses outside the primary specialization area, and at least an additional 15 s.h. earned in Department of Psychology courses and seminars. Nonthesis students also must perform successfully on an examination covering their area of specialization.

Doctor of Philosophy

The Doctor of Philosophy program in psychology requires a minimum of 72 s.h. of graduate credit. Students entering without previous graduate work usually require at least four years to complete the program; those entering with previous graduate training usually require three to five additional years in the department, depending on the nature of the earlier preparation.

The Ph.D. program places strong emphasis on preparation for research, teaching, and scholarly endeavor, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to produce graduates who are deeply committed to the study of psychology, familiar with fundamental knowledge about psychological processes, well-trained in the methods and techniques for careful investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society.

Graduate training is organized in six broad areas: behavioral and cognitive neuroscience, clinical psychology, cognition and perception, developmental science, health psychology, and social psychology (see "Graduate Training Areas" below). Each entering student is expected to identify one of these as his or her primary area and to follow a program that develops thorough understanding of the substantive material and methods of investigation central to that subdiscipline. While pursuing specialty training, all students must meet course requirements in statistics and research methods and in content areas other than their primary one.

The training area programs are sufficiently flexible to permit students to develop substantial competence in a second training area. Individually tailored programs are possible.

The 72 s.h. required for the Ph.D. includes at least 33 s.h. in Department of Psychology courses. All students must satisfy, through one of several options, requirements in statistics and research methods. They also must take course work outside the primary training area to develop a background in the discipline of psychology as a whole.

During each of the first two semesters, graduate students ordinarily take three courses—for example, a statistics course, a course or two in the primary training area, and/or an outside area elective. Students also begin their research under the supervision of their advisor and with the guidance of their research advisory committee.

Near the end of the fall semester of the second year, students submit a report describing their research to date. At the beginning of the following semester, they present their research at the annual graduate research symposium.

During subsequent years, students continue selected course work in their training and interest areas and continue to develop their research programs. In addition, they develop a prospectus for the dissertation research and take the comprehensive examination, which covers material in the specialty area. The final year is devoted primarily to conducting the Ph.D. study and preparing the dissertation. In the Ph.D. final examination, students present an oral defense of their dissertation and are expected to relate the dissertation work to broader issues in the discipline of psychology.

Graduate Training Areas

Behavioral and Cognitive Neuroscience

The program in behavioral and cognitive neuroscience focuses on the analysis of learning, memory, attention, motivation, aging, sensory processing, and sleep, in both human and nonhuman subjects, through the application of behavioral and biological principles. Special faculty strengths are in classical and operant conditioning, motivation and emotion, developmental

psychobiology, neurobiology of learning, comparative psychology, cognitive neuroscience, neuropharmacology, neuroendocrinology, and neuroanatomy. Students in this program have the opportunity to learn state-of-the-art techniques in computer-controlled experimentation and electronic instrumentation as well as advanced analytic and laboratory methods in neurophysiology, nonhuman neurosurgery, histology, imaging, and assays of biochemical activity.

Faculty members in the behavioral and cognitive neuroscience area interact extensively with colleagues from other divisions in the psychology department and from several basic science and clinical departments in the Carver College of Medicine, including anatomy, anesthesia, pharmacology, internal medicine, pediatrics, and neurology. These collaborative activities provide excellent research and training opportunities for students interested in emerging interdisciplinary fields such as behavioral medicine.

Clinical Psychology

The clinical training program emphasizes a scientific approach to the understanding of psychological disorders and the influence of psychological factors on human relationships and health. The program is accredited by the Psychological Clinical Science Accreditation System (PCSAS), has been continuously accredited by the Commission on Accreditation of the American Psychological Association since 1948, and is a charter member of the Academy for Psychological Clinical Science.

The program is designed for students who are interested primarily in helping to advance scientific understanding of clinical phenomena and in acquiring the research skills necessary to do so. Faculty members and students have active research collaborations with colleagues from many departments in the University's Carver College of Medicine and College of Public Health and at the Iowa City Veterans Affairs Medical Center. Many of the program's faculty members conduct externally funded research programs that use cutting-edge behavioral science to develop improved understanding of mechanisms, processes, and interventions for mental disorders. Faculty members have strong training records, and many of the program's graduates have gone on to top-tier research, teaching, and clinical service positions.

The clinical psychology program provides the first-hand clinical experience and opportunities to develop clinical competence that are integral to clinical research. It closely integrates practicum experience in the Seashore Clinic with course work and supervised research experience. Advanced students have opportunities to gain additional clinical experience through placement in the Benton Neuropsychology Clinic, Women's Wellness and Counseling Clinic, adult and child psychiatry clinics, the Iowa City Veterans Affairs Medical Center, and other venues. After five to six years of on-campus work, including completion of all course work and most of the dissertation, students serve a one-year internship at an approved site.

Cognition and Perception

The cognition and perception training area is guided by the philosophy that understanding a specific cognitive process requires an understanding of how it interacts with other cognitive processes. The area pursues empirical rigor and theoretical development, so its research is theory driven and data tested.

Research programs of the area's laboratories overlap with each other, and most content areas are studied by multiple laboratories and with multiple methodologies. Areas of strength include categorization, computational modeling, cognitive control, language and language learning, learning and memory, visual cognition, attention, and working memory.

Students in perception and cognition take basic courses and seminars in specialty areas, but they devote most of their time to research activities. Students work closely with a faculty mentor at first and then become progressively independent as they gain knowledge and skills. The program encourages students to work with more than one faculty member, both in the program and across the department and the University. Students often combine basic work on cognition with work in areas such as neuroscience, psychiatry, marketing, law, social psychology, and human factors engineering.

Developmental Science

The developmental science program focuses on understanding the processes that underlie change as each individual follows a unique developmental pathway. Students examine influences on development ranging from the level neurons to neighborhoods, and they work to understand the step-by-step accumulation of effects across these levels and over time. Students are taught a broad range of developmental theory and acquire expertise in multiple research paradigms, such as observational research, experimentation, computational methods, and neuroimaging. They also have the opportunity to study and collaborate with faculty members whose research cuts across domains such as perception, cognition, action, social processes, and basic biological mechanisms. Faculty members collaborate with their colleagues across the University, including those in the Carver College of Medicine. These collaborations provide students with a unique breadth of training.

Students take courses in many areas of developmental science as well as in other areas of psychology. They also have research opportunities in early communication and social development, cognitive development in infancy and childhood, neuroimaging in toddlers and adults, and developmental psychobiology. The developmental research group meets regularly in conjunction with other members of the University of Iowa's DELTA Center, providing students and faculty members the opportunity to present and discuss their own research as well as to gain exposure to other developmental work being conducted in the department and at the University.

Health Psychology

The health psychology program is concerned with application of psychological theory, methods, and treatment to understanding of physical health and illness. The program's perspective is based on the biopsychosocial model, which posits that biological, psychological, and social processes are integrally and interactively involved in physical health and illness.

Graduate training in health psychology emphasizes the integration of knowledge about biological, psychological, and social factors. Students are involved in research whose content and methods reflect the biopsychosocial perspective. Training in health psychology is facilitated by the faculty's longstanding collaborations with medical practitioners and researchers at the University's Carver

College of Medicine and University of Iowa Hospitals and Clinics. Availability of medical populations and state-of-the-art medical technologies afford a unique opportunity for doctoral students in health psychology.

Research areas of the health psychology program include stress and illness, psychoneuroimmunology, patient adherence, animal models of hypertension and heart failure, postpartum depression, women's health issues, and psycho-oncology.

Students who are interested in clinical training with a focus on health psychology should apply directly to the clinical program and indicate an interest in clinical health psychology.

Social Psychology

The social psychology program offers a variety of perspectives on interpersonal and intrapersonal processes. Examples of research foci of faculty and students are social cognition, social comparison, close relationships, social and emotional development, attitudes and persuasion, stereotyping and prejudice, decision making, health psychology, and individual differences.

Graduate training in the social psychology program is designed primarily to prepare students for careers in psychology research and teaching. In addition to their experiences and course work in the program and in the Department of Psychology, students can benefit from opportunities in related academic units at the University, such as the Departments of Sociology, Communication Studies, and Statistics and Actuarial Sciences and the Tippie College of Business. Such experience can broaden a student's training, research opportunities, and employment prospects.

Admission

Since the graduate program in psychology is designed primarily for students seeking the Ph.D., all applicants are considered on that basis. Occasionally, a qualified applicant who is in good standing in another UI graduate program and is interested in advanced work in psychology only through the M.A. level may be admitted to pursue a joint graduate program. Students interested in such a program should contact the department chair before filing an application.

The application deadline is December 1. For all materials to be on file by that date, applicants should take the Graduate Record Examination (GRE) General Test in October, and no later than November. The subject test in psychology is not required. Applications may be submitted any time but are considered only once each year—between December 1 and February 1—for admission the following fall. Admission decisions are based on a composite consideration of prior academic and research performance; letters of reference; scores on the verbal, quantitative, and analytic writing sections of the GRE General Test; and the applicant's statement about background and purpose. Admission materials are reviewed initially by faculty members in the applicant's primary training area.

An undergraduate major in psychology—including a laboratory course in experimental psychology, a course in statistics, and additional work in the natural sciences and in mathematics—is desirable but not required. Students who have not had such a background but are strongly qualified on other grounds may be admitted. They are

expected to remedy deficiencies through special course work or independent study before embarking on the regular graduate program.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

All students admitted to the Ph.D. program in psychology are guaranteed five years of financial support, as long as they make satisfactory progress and remain in good academic standing. Financial support is provided through fellowships, teaching assistantships, research assistantships, and traineeships, depending on merit and availability. No separate application for financial aid is required.

Faculty

Faculty members of the Department of Psychology are nationally and internationally renowned leaders in a variety of subdisciplines. Their research is funded by numerous federal and private research grants, their findings are documented in many publications, and their accomplishments have won many awards.

Facilities

The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Spence Laboratories of Psychology, adjoining space in Seashore Hall, and the newly renovated Stuit Hall provide a variety of laboratories for human and animal studies. Facilities include animal housing areas; a histology laboratory; observation suites with remote audiovisual control and recording equipment; soundproof chambers; electrophysiological recording rooms; conditioning laboratories; the Seashore Clinic; and well-equipped electronic, mechanical, and woodworking shops. Computers are widely available. Office space for graduate students and faculty members is provided in Seashore Hall.

The research and teaching activities of the department benefit greatly from the facilities and staff of other University and local agencies, including University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, the University Counseling Service, the Center for Disabilities and Development, the Wendell Johnson Speech and Hearing Clinic, the Center for Health Policy and Research, and the School of Social Work.

Courses

Lower-Level Undergraduate

The following courses are open to first-year students who have satisfactorily completed an introductory psychology course [PSY:1001 (031:001) Elementary Psychology or equivalent].

- PSY:2301 (031:013) Introduction to Clinical Psychology
- PSY:2401 (031:014) Introduction to Developmental Science
- PSY:2501 (031:015) Introduction to Social Psychology

- PSY:2601 (031:016) Introduction to Cognitive Psychology
- PSY:2701 (031:002) Biological Psychology
- PSY:2910 (031:019) Industrial/Organizational Psychology

PSY:1000 (031:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Requirements: first- or second-semester standing.

PSY:1001 (031:001) Elementary Psychology 3 s.h.

Psychology as a behavioral science. GE: Social Sciences.

PSY:2130 (031:030) Advanced Psychology for Pre-Medical Track 3 s.h.

Psychology as a behavioral science; elementary psychology in more depth, advanced topics. Prerequisites: PSY:1001 (031:001). Requirements: non-psychology major.

PSY:2301 (031:013) Introduction to Clinical Psychology 3 s.h.

Introduction to abnormal psychology; scientist-practitioner model, training, ethics, research methods in clinical psychology; current approaches to intellectual, personality, behavioral assessment; theories, research on treatment of psychological disorders. Prerequisites: PSY:1001 (031:001). GE: Social Sciences.

PSY:2401 (031:014) Introduction to Developmental Science 3 s.h.

Current research in developmental science; prenatal development, brain development, motor and physical development, perceptual development, language development, cognitive development, aspects of socio-emotional development; emphasis on modern theoretical approaches. Prerequisites: PSY:1001 (031:001). GE: Social Sciences.

PSY:2501 (031:015) Introduction to Social Psychology 3 s.h.

Research and theories on people's thoughts, feelings, and behaviors in social situations; attitudes, attributions, person perception, aggression, stereotypes and prejudice, attraction, relationships, social influence, group processes, altruism. Prerequisites: PSY:1001 (031:001).

PSY:2601 (031:016) Introduction to Cognitive Psychology 3 s.h.

Individual human cognition; perception, attention, memory, language, learning, problem solving, decision making, thought considered from viewpoint of information processing. Prerequisites: PSY:1001 (031:001). GE: Social Sciences.

PSY:2701 (031:002) Biological Psychology 4 s.h.

Biological mechanisms of behavior; comparative study of behavior, behavioral organization, animal intelligence, social behavior, communication; behavioral neuroscience, how brain systems control sensation, movement, homeostasis, emotion, learning. Prerequisites: PSY:1001 (031:001).

- PSY:2810 (031:010) Research Methods in Psychology** 4 s.h.
Logic of experimental and nonexperimental methods, application of methods to analysis of behavioral phenomena; skills for critical evaluation of professional and public literature dealing with scientific study of behavior: philosophy of scientific psychology, principles of research design and control, psychological testing, applications in several research areas. Prerequisites: PSY:1001 (031:001), and PSQF:1020 (07P:025) or PSQF:4143 (07P:143) or SOC:2160 (034:010) or STAT:1020 (22S:025) or STAT:1030 (22S:008) or STAT:3510 (22S:101) or STAT:4143 (22S:102).
- PSY:2910 (031:019) Industrial/Organizational Psychology** 3 s.h.
Applications of psychology to problems in world of work; emphasis on personnel selection, training, attitudes, motivation, measurement of job performance. Prerequisites: PSY:1001 (031:001).
- PSY:2915 (031:050) Psychology of Aging** 3 s.h.
The later years of human life viewed from perspectives of developmental psychology, biology, sociology. Prerequisites: PSY:1001 (031:001). Same as ASP:3150 (153:150).
- PSY:2930 (031:063) Abnormal Psychology: Health Professions** 3 s.h.
Introduction to psychological disorders; description of psychopathology; general issues in etiology and treatment; for non-psychology students in allied health professions. Prerequisites: PSY:1001 (031:001). Requirements: non-psychology major.
- PSY:2960 (031:185) Research Practicum in Psychology** arr.
Small-group participation in faculty research projects; literature review, study planning, data collection, analysis, interpretation, write-up.
- PSY:2970 (031:189) External Practicum in Psychology** 1-3 s.h.
Student participation in career-related professional activities in community and University of Iowa agencies.
- PSY:2980 (031:192) Teaching/Advising Practicum in Psychology** 1-3 s.h.
Participation in faculty teaching as undergraduate teaching assistant or the Psychology Peer Advisor Program.
- PSY:2990 (031:191) Individual Readings and Projects** 1-3 s.h.
Requirements: psychology major and undergraduate standing.
- PSY:3010 (031:152) Health Psychology** 3 s.h.
Psychological contributions to understanding etiology, prevention, treatment of physical illness; basic and clinical research that addresses reciprocal effects of behavior and physical health. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2301 (031:013) or PSY:2501 (031:015) or PSY:2701 (031:002), and grade of C- or higher in PSY:2810 (031:010).
- PSY:3015 (031:140) Psychology of Interpersonal Relations** 3 s.h.
Theories, empirical findings, speculation from social psychology and related disciplines regarding how people form, maintain, and alter close, interpersonal relationships. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2301 (031:013) or PSY:2501 (031:015) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3020 (031:174) Mind and Behavior** 3 s.h.
Theories of what it is to act and know, of what intelligence might be in animals, humans, machines; perspectives from philosophy, psychology. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2601 (031:016) or PSY:2701 (031:002), grade of C- or higher in PSY:2810 (031:010), and junior or senior standing.
- PSY:3030 (031:103) Social and Personality Development** 3 s.h.
Emotional, social, and personality development from infancy to adolescence; major theories and empirical research; child temperament, parent-child relationship, and social context as contributors to individual differences. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2401 (031:014) or PSY:2501 (031:015) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3040 (031:123) Psychology of Learning** 3 s.h.
Psychological science of acquired behavior; interests in experimental study of Pavlovian conditioning, operant conditioning, cognition in humans and nonhuman animals, relevance to behavioral adaptation. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2601 (031:016) or PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3060 (031:133) Visual Perception and Cognition** 3 s.h.
Psychological and neurophysiological examination of vision. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2601 (031:016) or PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3065 (031:136) The Aging Mind and Brain** 3 s.h.
Current theories and research on biological, cognitive, and emotional changes that occur during aging; methodologies for studying cognitive and brain aging. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2601 (031:016) or PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).

Upper-Level Undergraduate and Graduate

Before enrolling in any upper-level undergraduate courses, students must complete all specified lower-level prerequisites or obtain consent of instructor.

- PSY:3085 (031:122) Language Development** 3 s.h.
Introduction to first language acquisition, with focus on infancy through five years; sound discrimination abilities, word learning, babbling and speech production, acquisition of grammar; perspectives from psychology, audiology, linguistics, speech pathology. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2401 (031:014) or PSY:2601 (031:016) and grade of C- or higher in PSY:2810 (031:010). Same as SLA:3401 (164:140).
- PSY:3090 (031:159) Psychology of Workplace Behaviors** 3 s.h.
Introduction to theory and research of workplace and work-related behaviors; focus on industrial and organizational psychology. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2501 (031:015) or PSY:2601 (031:016), and grade of C- or higher in PSY:2810 (031:010).
- PSY:3210 (031:125) Animal Cognition** 3 s.h.
Mental functions of animals, comparison to humans; intelligence, memory, communication, language, social learning, consciousness, human-animal interaction. Requirements: grade of C- or higher in PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3220 (031:126) Behavioral Neuroscience** 3 s.h.
Basic concepts and techniques in neurosciences, their application to analysis of sensory processes, arousal mechanisms, motivation, learning. Requirements: grade of C- or higher in PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3230 (031:128) Psychopharmacology** 3 s.h.
How drugs act to influence behavior; general principles of drug action on the nervous system; licit and illicit drugs, use/abuse, historical perspective on drug use. Requirements: grade of C- or higher in PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3240 (031:132) Motivation, Addiction, and the Brain** 3 s.h.
Analysis of motivated behaviors (e.g., behaviors to obtain specific goals, such as food) and the brain processes that guide such behavior; exploration of brain processes underlying addiction. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3250 (031:129) Neuroscience of Learning and Memory** 3 s.h.
Major topics in the neuroscience of learning and memory; focus on anatomical, cellular, molecular bases of various learning and memory processes. Requirements: grade of C- or higher in PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3270 (031:139) Neurobiology of Stress** 3 s.h.
Introduction to concept of stress and physiological systems involved; factors modulating stress vulnerability versus resilience; stress interactions with other systems with health relevance; emphasis on current research on brain mechanisms. Requirements: grade of C- or higher in PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3280 (031:153) Introduction to Health Biopsychology** 3 s.h.
Physiological basis of behavior and cognition; interaction between brain and body in normal and pathological states. Requirements: grade of C- or higher in PSY:2701 (031:002) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3320 (031:163) Abnormal Psychology** 3 s.h.
Etiology, phenomenology, and treatment of child and adult DSM-IV psychological disorders (e.g., mood disorders, psychotic disorders, anxiety disorders, personality disorders). Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2301 (031:013) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3330 (031:166) Childhood Psychopathology** 3 s.h.
Major forms of childhood psychopathology; current theoretical approaches and methodological issues in diagnosis, conceptualization, treatment of developmental psychopathology. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2301 (031:013) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3340 (031:170) Behavior Modification** 3 s.h.
Basic approaches to modification of clinically distressing behavior; learning theory principles underlying techniques, translation into procedures, experimental evaluation of effectiveness. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2301 (031:013) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3350 (031:168) Psychotherapies** 3 s.h.
Current theories and research on frequently used psychotherapeutic approaches; focus on methodology in psychotherapy research, specific types of therapy, and empirically supported therapies. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2301 (031:013) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3420 (031:114) Cognitive Development of Children** 3 s.h.
Developmental research, theory concerning children's concepts, thinking, problem solving, memory, communication. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2401 (031:014) and grade of C- or higher in PSY:2810 (031:010).

- PSY:3451 (031:148) Infant Development** 3 s.h.
Physical, motor, perceptual, cognitive, and social development during first two years of life; focus on early mechanisms of change; locomotion, perceptual abilities, precursors of cognition, early language acquisition, social interaction. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2810 (031:010) and grade of C- or higher in PSY:2401 (031:014).
- PSY:3530 (031:105) Personality** 3 s.h.
Classic theoretical models and contemporary empirical research in personality, including influence of heredity and environment, consistency and stability of behavior. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2301 (031:013) or PSY:2501 (031:015) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3540 (031:106) Attitude Change** 3 s.h.
Current theoretical approaches; laboratory and field methods of research; basic processes of change considered within broader framework of psychology. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2501 (031:015) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3560 (031:116) Psychology of Gender** 3 s.h.
Origins of gender roles, gender socialization in childhood, gender differences across lifespan; research on gender differences in cognition, emotions, behavior, physical and mental disorders, communication. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2501 (031:015) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3570 (031:111) Social Cognition** 3 s.h.
Research and theory on cognitive structures and processes that underlie judgment, decision, belief, and behavior in social situations; attribution, heuristics, schemas, person perception, stereotypes, attitudes. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2501 (031:015) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3580 (031:158) Judgment and Decision Making** 3 s.h.
Processes and biases that shape judgments and decisions of various types (e.g., about other people, the future, competitions, products, medical treatments, health risks, crime suspects). Prerequisites: PSY:2701 (031:002). Requirements: Grade of C- or higher in PSY:2501 (031:015) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3620 (031:119) Human Memory** 3 s.h.
Contemporary psychological theory and research on short-term and long-term memory, acquisition processes, related topics in cognition. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2601 (031:016) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3630 (031:130) Psychology of Thinking** 3 s.h.
Problem solving, reasoning, judgment and decision making, language and thought, intelligence, creativity. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2601 (031:016) and grade of C- or higher in PSY:2810 (031:010).
- PSY:3660 (031:156) Human Information Processing** 3 s.h.
Early through contemporary theory and research on human information processing; focus on human-machine interaction and ergonomics. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2501 (031:015) or PSY:2601 (031:016) and grade of C- or higher in PSY:2810 (031:010) , or graduate standing.
- PSY:3670 (031:137) Language Processes** 3 s.h.
Psychological processes involved in using languages, including speech perception and production, the meaning of words, understanding and producing sentences, and basics of discourse and pragmatics; developmental and neural bases of language processes. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2601 (031:016), grade of C- or higher in PSY:2810 (031:010), and psychology major; or nonmajor and CSD:1015 (003:015) or LING:3001 (103:100). Same as LING:3670 (103:137).
- PSY:4020 (031:121) Laboratory in Psychology** 4 s.h.
Laboratory study of an aspect of behavior; topics in a particular area (e.g., learning and memory, perception, social behavior, operant behavior, physiological processes). Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2810 (031:010).
- PSY:4090 (031:190) Psychology Seminar** 3 s.h.
Readings from original sources, presentations, papers, student participation. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2810 (031:010), psychology B.S. enrollment, and senior standing.
- PSY:4960 (031:188) Advanced Research Practicum** 1-3 s.h.
Individual participation in faculty research projects; significant reading and writing. Requirements: two semesters of PSY:2960 (031:185) or HONR:3200 (143:100).
- PSY:4990 (031:199) Honors Thesis Research** 1-3 s.h.
Supervised original project; leads to written thesis, oral defense. Requirements: honors standing.
- Graduate**
- PSY:5050 (031:245) Quantitative Methods in Psychology** 4 s.h.
Overview of statistical methods based on the general linear model, including ANOVA, ANCOVA, and multiple regression; how to conduct these analyses using SPSS. Requirements: first-year graduate standing in psychology.
- PSY:5055 (031:247) Mixed-Effects Modeling in Psychology** 4 s.h.
Introduction to mixed-effects analysis of hierarchically structured and cross-classified psychological data using R. Prerequisites: PSY:5050 (031:245).
- PSY:5203 (031:255) Fundamental Neurobiology** 4 s.h.

Neurobiology from molecular/cellular to systems levels, including cell biology of neuron; membrane electrophysiology, synaptic transmission and plasticity, functional neuroanatomy, sensory systems from periphery to CNS, peripheral and central motor systems, autonomic systems emotion, memory, sleep, language, attention and cognition, development of nervous system; discussion of classic and recent journal articles. Same as BIOL:5653 (002:244), NSCI:5653 (132:247).

PSY:5210 (031:241) Fundamentals of Behavioral Neuroscience 4 s.h.

Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of neuroscience, sensation, motivation, emotion. Same as NSCI:6241 (132:241).

PSY:5212 (031:242) Foundations in Behavioral and Cognitive Neuroscience 4 s.h.

Concepts, methods, and findings in behavioral and cognitive neurosciences. Prerequisites: BIOL:3253 (002:180) or PSY:5210 (031:241) or NSCI:6241 (132:241) or NSCI:7180 (132:180). Same as NSCI:6242 (132:242).

PSY:5320 (031:260) Descriptive Psychopathology 3 s.h.

Psychiatric syndromes, including description, etiology, experimental and clinical research; development, function of classification systems.

PSY:5330 (031:263) Principles of Psychological Assessment 4 s.h.

Assessment theory and basic psychometric principles in test construction, evaluation, application; ethical, social, psychological, psychometric issues and controversies in assessment.

PSY:5332 (031:264) Psychological Appraisal II 3 s.h.

Introduction to assessment with children and adults, including assessment of cognitive abilities and achievement testing, neuropsychological assessment, and psychodiagnostic/personality assessment. Prerequisites: PSY:5330 (031:263).

PSY:5365 (031:365) Seminar: Neuropsychology and Neuroscience arr.

Clinical neuropsychology and cognitive neuroscience: cutting-edge research from scientific journals, case presentations in clinical neuropsychology, and current research. Same as NEUR:5365 (064:365), NSCI:5365 (132:365).

PSY:5410 (031:210) Proseminar in Developmental Science 3 s.h.

Introduction to developmental process and developmental science; topics organized around mechanisms of development, with cross-disciplinary focus.

PSY:5610 (031:220) Proseminar in Cognition and Perception 3 s.h.

Broad overview of study of cognition, including cognitive psychology, computer science and artificial intelligence, linguistics, neuroscience, philosophy of mind.

PSY:5710 (031:250) Introduction to Health and Behavioral Science 3 s.h.

Evolution of health psychology; survey of major physiological systems in which pathology is affected by behavioral processes; review of theoretical approaches, experimental paradigms from behavioral science as they may apply to assessment of health problems; prevention, intervention, psychological adaptation to physical disease.

PSY:6050 (031:252) Clinical Behavioral Medicine 3 s.h.

Biopsychosocial framework applied to study, treatment of chronic and acute physical conditions; clinical concepts, procedures.

PSY:6101 (031:273) Cognitive Science of Language Proseminar I 3 s.h.

Survey of five major disciplines within language sciences: formal linguistic, communication disorders, psychological, neuroscience, and computational approaches. Requirements: graduate standing in communication sciences and disorders, linguistics, psychology, or neuroscience. Same as CSD:6101 (003:273), LING:6101 (103:273).

PSY:6102 (031:274) Cognitive Science of Language Proseminar II 3 s.h.

Survey of five major disciplines within language sciences: formal linguistic, communication disorders, psychological, neuroscience, and computational approaches. Requirements: graduate standing in communication sciences and disorders, linguistics, psychology, or neuroscience. Same as CSD:6102 (003:274), LING:6102 (103:274).

PSY:6210 (031:230) Behavioral Pharmacology 3 s.h.

Behavioral analysis of drug action; emphasis on physiological and biological mechanisms underlying behavioral processes in experimental animals, humans.

PSY:6230 (031:235) Foundations of Learning, Memory, and Cognition 3 s.h.

Determinants of adaptive behavior in humans and animals; emphasis on behavioral analysis of learning, memory, and cognition; relevance of laboratory research to real life activities.

PSY:6265 (031:265) Neuroscience Seminar 0-1 s.h.

Research presentations. Offered fall and spring semesters. Same as ACB:6265 (060:265), MPB:6265 (072:265), NSCI:6265 (132:265), BIOL:6265 (002:265).

PSY:6270 (031:253) Fundamentals of Health Biopsychology 3 s.h.

Biological basis of behavior and cognition in relation to disordered regulation of body-brain systems in pathological states.

PSY:6280 (031:231) Structural and Functional MRI Methods and Application 3 s.h.

Introduction to basic principles of magnetic resonance imaging and its application to psychology; imaging of brain structure; focus on functional MRI. Requirements: graduate-level introductory statistics.

PSY:6340 (031:266) Psychological Therapies 3 s.h.

Historical development and current status of empirically based therapies for psychological disorders, including anxiety, depression, schizophrenia, childhood disorders; emphasis on critical evaluation of therapy techniques.

PSY:6350 (031:380) Ethics and Professional Concerns arr.

Major ethical and legal issues relevant to clinical psychologists' varied roles; understanding of legal and ethical issues encountered by psychologists in varied settings, development of personal working model for resolving ethical and professional concerns.

PSY:6370 (031:278) Principles of Neuropsychology 3 s.h.

Principles of human neuropsychology, including foundations (history, methods, approaches), major functional systems (vision, memory, language, spatial processing), executive functions (emotional processing and personality), and applications (experimental, clinical). Recommendations: prior course work in psychological assessment, psychopathology, and neuroanatomy.

PSY:6430 (031:218) Cognitive Development 3 s.h.

Theoretical and empirical analyses of children's cognitive development; spatial and numerical concepts, causal reasoning, categorization, metacognition, memory. Same as SLA:6466 (164:240).

PSY:6450 (031:214) Processes of Language Acquisition 3 s.h.

Theoretical and computational approaches to the study of first language acquisition from infancy to five years, including prelinguistic sound discrimination, babbling, semantic development, categorization abilities, syntactic and grammatical development.

PSY:6490 (031:216) Dynamic Systems and Development 3 s.h.

Dynamical systems theory, its application to basic problems in developmental psychology; development of motor control, cognition, language; comparisons with other theoretical approaches in developmental psychology.

PSY:6510 (031:201) Advanced Social-Personality Psychology 3 s.h.

Classic and contemporary theory, research, methodological issues in social-personality psychology.

PSY:6520 (031:202) Attitudes and Persuasion 3 s.h.

Classic and current theories and findings on persuasion, the formation and measurement of attitudes.

PSY:6530 (031:206) Advanced Social Cognition 3 s.h.

Research and theory on cognitive processes that underlie judgment, decision, belief, and behavior in social situations; attribution, heuristics, counterfactual thinking, schemas, person perception, stereotypes, attitudes.

PSY:6550 (031:211) Advanced Social and Personality Development 3 s.h.

Theory and research on social and personality development; overview of development and individual differences in emotions, temperament, attachment, self, social cognition, conscience; influence of biological factors, social relationships, and broader ecology on adaptive and maladaptive developmental pathways.

PSY:6560 (031:257) Stereotyping, Prejudice, and Discrimination 3 s.h.

Theory and research on origins and mechanisms of stereotyping, prejudice, and discrimination; implications for perceivers, targets, and interpersonal interactions.

PSY:6640 (031:226) Visual Perception 3 s.h.

Theoretical and empirical analyses of low- and high-level visual functions, including edge detection, surface representation, object identification.

PSY:6650 (031:227) Attention 3 s.h.

Theory and research on attention, from viewpoints of cognitive psychology and cognitive neuroscience, including historical perspectives, recent approaches.

PSY:6740 (031:254) Drug Addiction 3 s.h.

Analysis of factors involved in drug addiction; social, clinical, and biological processes.

PSY:7020 (031:335) Seminar: Cognitive Neuroscience 0-2 s.h.

Neurological and behavioral investigations of attention, perception, learning, memory, decision making, planning; contemporary models, theories.

PSY:7030 (031:370) Seminar: Health Psychology 0-3 s.h.

Theoretical and methodological issues; focus on specific topics (i.e., chronic disease, psychoneuroimmunology).

PSY:7090 (031:279) Principles of Scholarly Integrity: Psychology 1 s.h.

Training in responsible conduct of research; focus on psychological research and scholarly activities; student/mentor responsibilities; authorship; plagiarism/falsification/fabrication of data; intellectual property; conflict of interest; fiscal, institutional, societal; treatment of human and animal subjects. Requirements: enrollment in graduate psychology program.

PSY:7095 (031:604) Principles of Scholarly Integrity: Psychology 0 s.h.

Training in responsible conduct of research and scholarly activities; student/mentor responsibilities; authorship; plagiarism/falsification/fabrication of data; intellectual property; conflict of interest; fiscal, institutional, societal; treatment of human and animal subjects. Requirements: postdoctoral standing in psychology.

PSY:7110 (031:297) Research Projects arr.

PSY:7120 (031:295) M.A. Thesis Research arr.

PSY:7130 (031:296) Ph.D. Dissertation Research arr.

PSY:7150 (031:280) Current Topics in Psychology 3 s.h.

- PSY:7160 (031:291) Problems in Psychology** arr.
Individual study.
- PSY:7170 (031:470) Teaching Practicum** arr.
Supervised practice in teaching.
- PSY:7210 (031:338) Seminar: Advanced Topics in Behavioral and Cognitive Neuroscience** 3 s.h.
Prerequisites: PSY:5210 (031:241).
- PSY:7310 (031:360) Seminar: Orientation to Clinical Research** 0-1 s.h.
Issues in clinical research, including use of databases, advisor/advisee relationships, preparation of IRB proposals, paper presentation and publication, common early career problems, funding resources.
- PSY:7350 (031:461) Introductory Practicum** arr.
Orientation to Department of Psychology clinic, including instruction in interviewing, observation of clinic procedures, attendance at clinic rounds under supervision of clinical psychology faculty members.
- PSY:7355 (031:462) Assessment Practicum** arr.
Supervised practice in psychological assessment techniques.
- PSY:7360 (031:463) Therapy Practicum** arr.
Supervised practice and clinical experience in application and evaluation of psychological therapies.
- PSY:7365 (031:464) External Practicum** arr.
Supervised practice and clinical experience in field setting; psychological assessment techniques and/or application, evaluation of psychological therapies.
- PSY:7370 (031:465) Supervision and Consultation Practicum** arr.
Supervision and training of less advanced students; consultation to other programs and agencies.
- PSY:7430 (031:318) Seminar: Cognitive Development** 0-3 s.h.
Theoretical, methodological issues focused on cognitive and perceptual development.
- PSY:7510 (031:302) Seminar: Social Psychology** 1 s.h.
Professional issues, current topics relevant to social psychologists.
- PSY:7610 (031:330) Seminar: Cognitive Psychology** 2 s.h.

Religious Studies

Chair

- Diana Fritz Cates

Professors

- Diana Fritz Cates, Jay A. Holstein, Raymond A. Mentzer, Frederick M. Smith (Religious Studies/Asian and Slavic Languages and Literatures), Richard B. Turner (Religious Studies/African American Studies)

Associate professors

- Kristy Nabhan-Warren, Michelene Pesantubbee, Morten Schlütter, Ahmed Souaiaia

Assistant professors

- Robert Cargill (Religious Studies/Classics), Melissa Anne-Marie Curley, Paul Dilley (Religious Studies/Classics)

Lecturers

- Robert H. M. Gerstmyer, Jordan A. Smith

Professors emeriti

- Robert D. Baird, T. Dwight Bozeman, Helen T. Goldstein, David E. Klemm, J. Kenneth Kuntz, James F. McCue, George W.E. Nickelsburg, W. Pachow, Robert F. Weir

Undergraduate major: religious studies (B.A.)

Undergraduate minor: religious studies

Graduate degrees: M.A. in religious studies; Ph.D. in religious studies

Web site: <http://clas.uiowa.edu/religion/>

The Department of Religious Studies encourages multidisciplinary inquiry into religious ideas, experiences, philosophies, cultural expressions, and social movements. It studies a rich array of traditions and paths, including South Asian religions, ancient Judaism and early Christianity, African diaspora and Native American traditions, Chinese Buddhism, modern European Christianity, various Islamic sects, popular religions in Japan, American Christianities, and new forms of religion that many people may not yet recognize as religions.

Religion has taken countless forms over the millennia, and it continues to wind its way through history. The Department of Religious Studies helps students to think clearly and creatively about the many forms that religion takes and the subtle ways in which it operates.

Students gain many benefits through the critical study of religion. They learn how people from around the world have responded to age-old questions about life, love, suffering, and death. In the process, they deepen their own engagement with life. They learn about religion's impact on global events, especially its influences on the construction of personal and communal identities, and its roles in shaping processes of social change, historically and in the contemporary, digital era.

Undergraduate Programs of Study

- Major in religious studies (Bachelor of Arts)
- Minor in religious studies

The major in religious studies helps students gain strengths they will need in an increasingly globalized world: curiosity, open-mindedness, critical thinking and effective communication skills, global cultural competency, knowledge of diverse religions and their influences, and the ability to use intelligence and creativity in addressing humanitarian concerns.

Because religious ideas inform every aspect of life, many students who major in religious studies choose to earn a second major in another discipline, such as anthropology, biology, classics, English, history, journalism and mass communication, philosophy, political science, or psychology. Religious studies students often go on to graduate school; professional study in law, medicine, or dentistry; and careers in nursing, social work, human rights, nongovernmental organizations, counseling, or business, especially in areas that involve human resource management.

Bachelor of Arts

The Bachelor of Arts with a major in religious studies requires a minimum of 120 s.h., including 30 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). A maximum of 15 s.h. of transfer credit may be counted toward the major; transfer credit is evaluated individually.

Course work for the major includes core courses and electives. Courses for the major may not be taken pass/nonpass. Students may count a maximum of three religious studies courses toward General Education Program requirements.

The major in religious studies requires the following course work.

CORE COURSES

Both of these (6 s.h.):

RELS:1015 (032:015) Religions in a Global Context: The Critical Role of Religion in International Affairs	3 s.h.
RELS:4950 (032:196) Senior Majors Seminar	3 s.h.

The course RELS:1015 (032:015) Religions in a Global Context: The Critical Role of Religion in International Affairs provides an introduction to the study of the world's religions; students should take it as early as possible.

The capstone course RELS:4950 (032:196) Senior Majors Seminar is offered each spring semester. Ideally, students take it during their senior year, but they may take it during their junior year, instead.

ELECTIVES

Students complete 24 s.h. of elective course work (at least eight courses) chosen from either or both of two categories: religious traditions and critical issues (listed below). Students choose courses as follows.

At least two foundation courses numbered 1000-1999	6 s.h.
At least three advanced courses numbered 2000-4999	9 s.h.
At least three courses at any level	9 s.h.

The department advises students to choose electives that will enable them to examine a variety of traditions and issues.

Religious Traditions

Courses in this category generally focus on religious traditions or movements in historical perspective, within particular geographical areas, or across regions. They may address foundational stories of creation and cosmic order, archaeological findings, the compilation and interpretation of revered texts, religious doctrines, social norms, rituals and practices, or conflicts and schisms.

RELS:1000 (032:029) First-Year Seminar	1 s.h.
RELS:1001 (032:001) The Judeo-Christian Tradition	3 s.h.
RELS:1070 (032:011) Introduction to the Hebrew Bible/Old Testament	3 s.h.
RELS:1080 (032:012) Introduction to the New Testament	3 s.h.
RELS:1113 (032:013) Gateway to the Bible	3 s.h.
RELS:1130 (032:030) Introduction to Islamic Civilization	3 s.h.
RELS:1225 (032:025) Medieval Religion and Culture	3 s.h.
RELS:1250 (032:026) Modern Religion and Culture	3 s.h.
RELS:1410 (032:014) Introduction to Indian Religions	3 s.h.
RELS:1506 (032:006) Introduction to Buddhism	3 s.h.
RELS:1510 (032:010) Gods, Buddhas, and Ghostly Officials: The Past and Present of Chinese Religions	3 s.h.
RELS:1610 (032:017) Japanese Religions	3 s.h.
RELS:2050 (032:058) Liturgy and Devotion in Christian Tradition	3 s.h.
RELS:2090 (032:054) Issues in American Catholicism	3 s.h.
RELS:2182 (032:082) Ancient Mediterranean Religions	3 s.h.
RELS:2225 (032:092) Messianic and Apocalyptic Prophecy in the Bible	3 s.h.
RELS:2320 (032:094) Jesus and the Gospels	3 s.h.
RELS:2361 (032:061) Middle East and Mediterranean: Alexander to Suleiman	3 s.h.
RELS:2681 (032:081) Hindu Religion and Art	3 s.h.
RELS:2700 (032:060) Sacred World of Native Americans	3 s.h.
RELS:3003 (032:122) Classical and Hellenistic Periods I	3 s.h.
RELS:3103 (032:103) Biblical Archaeology	1-3 s.h.
RELS:3105 (032:105) The World of the Old Testament	3 s.h.
RELS:3190 (032:192) Traditions of Religious Reform	3 s.h.
RELS:3243 (032:143) Early Christianity: From Jesus to the Rise of Islam	3 s.h.
RELS:3245 (032:145) Mythology of Otherworldly Journeys	3 s.h.
RELS:3247 (032:142) Banned from the Bible: Introduction to Pseudepigrapha and Apocrypha	3 s.h.

RELS:3385 (032:085) Early Modern Catholicism	3 s.h.
RELS:3560 (032:170) Topics in Asian Religions	3 s.h.
RELS:3655 (032:188) Zen Buddhism	3 s.h.
RELS:3660 (032:116) Japanese Religion and Thought	3 s.h.
RELS:3666 (032:166) The History of a Religious and Spiritual Practice: Yoga in Asia and Beyond	3 s.h.
RELS:3704 (032:104) Egyptian Art	3 s.h.
RELS:3716 (032:164) Greek Religion and Society	3 s.h.
RELS:4001 (032:100) Biblical Hebrew I	4 s.h.
RELS:4002 (032:101) Biblical Hebrew II	4 s.h.
RELS:4155 (032:154) Religious Conflict: Early-Modern Period	3 s.h.
RELS:4181 (032:181) Special Topics in Western Religion	3 s.h.
RELS:4352 (032:152) The Dead Sea Scrolls	3 s.h.
RELS:4404 (032:186) The Literature of Daoism	3 s.h.
RELS:4870 (032:179) Islamic Cultural Presence in Spain	3 s.h.
RELS:4960 (032:195) Individual Study: Undergraduates	arr.
RELS:4970 (032:197) Honors Tutorial	2-3 s.h.
RELS:4975 (032:198) Honors Essay	2-4 s.h.

Critical Issues

Critical issues courses generally focus on ideas, arguments, or problems, often with reference to influential texts or oral traditions. They may explore religious perspectives on the nature of reality or the meaning of human existence, and they may focus on issues of gender, sexuality, race, ethnicity, class, globalization, human rights, or law and politics.

RELS:1000 (032:029) First-Year Seminar	1 s.h.
RELS:1350 (032:034) Introduction to African American Religions	3 s.h.
RELS:1404 (032:004) Living Religions of the East	3 s.h.
RELS:1702 (032:002) Religion in America Today	3 s.h.
RELS:1810 (032:016) Religion and Liberation	3 s.h.
RELS:1903 (032:003) Quest for Human Destiny	3 s.h.
RELS:2090 (032:054) Issues in American Catholicism	3 s.h.
RELS:2121 (032:121) The Bible and the Sacrifice of Animals	3 s.h.
RELS:2289 (032:089) Jerusalem from the Bronze to the Digital Age	3 s.h.
RELS:2351 (032:051) Religious Thinkers of the West	3 s.h.
RELS:2356 (032:056) Christianity and the Enduring Human Experience	3 s.h.
RELS:2720 (032:020) Religious and Ethnic Conflict in the Middle East	3 s.h.
RELS:2730 (032:063) African American Islam	3 s.h.
RELS:2771 (032:071) Sexual Ethics	3 s.h.
RELS:2775 (032:150) The Bible and the Holocaust	3 s.h.

RELS:2778 (032:078) American Indian Women: Myth, Ritual, and Sacred Power	3 s.h.
RELS:2834 (032:146) Philosophy of Religion	3 s.h.
RELS:2852 (032:052) Women in Islam and the Middle East	3 s.h.
RELS:2912 (032:112) The Bible in Film: Hollywood and Moses	3 s.h.
RELS:2947 (032:147) Quest II: Sex, Love, and Death	3 s.h.
RELS:2962 (032:062) Islam in the Public Sphere: Arts, Literature, Culture, and Politics	3 s.h.
RELS:2969 (032:169) Quest III: Heroes, Lovers, and Knaves	3 s.h.
RELS:2980 (032:080) Religion and Contemporary Popular Culture	3 s.h.
RELS:3020 (032:157) Religion and Politics	3 s.h.
RELS:3237 (032:137) Modern Religious Thought: 19th Century	3 s.h.
RELS:3320 (032:107) In Search of the Good Life	3 s.h.
RELS:3340 (032:109) Recovering Eden: The Afterlife in Early Judaism and Christianity	3 s.h.
RELS:3431 (032:131) Gender and Sexuality in East Asia	3 s.h.
RELS:3448 (032:148) The Allure of Krishna: Sacred Sexuality in Indian Culture	3 s.h.
RELS:3572 (032:172) Comparative Ritual	3 s.h.
RELS:3575 (032:178) East Meets West: The Western Reception of Eastern Religion	3 s.h.
RELS:3580 (032:180) Religion and Healing	3 s.h.
RELS:3582 (032:182) Enlightenment: Cross-Cultural Experiments in Religious Realization	3 s.h.
RELS:3645 (032:175) Buddhist Philosophy	3 s.h.
RELS:3700 (032:127) Nonprofit Organizational Effectiveness I	3 s.h.
RELS:3701 (032:128) Nonprofit Organizational Effectiveness II	3 s.h.
RELS:3711 (032:111) Religion and Women	3 s.h.
RELS:3714 (032:165) Anthropology of Religion	3 s.h.
RELS:3745 (032:126) Twentieth-Century African American Religion: Civil Rights to Hip-Hop	3 s.h.
RELS:3808 (032:108) Malcolm X, King, and Human Rights	3 s.h.
RELS:3855 (032:155) Human Rights and Islam	3 s.h.
RELS:3953 (032:153) Religion and the Arts	3 s.h.
RELS:3976 (032:076) American Indian Environmentalism	3 s.h.
RELS:4133 (032:133) Special Topics: Islamic and Middle Eastern Societies	3 s.h.
RELS:4660 (032:156) Buddhist Poetry	3 s.h.
RELS:4730 (032:130) Religion and Environmental Ethics	3 s.h.
RELS:4741 (032:141) Varieties of American Religion	3 s.h.
RELS:4748 (032:140) Religious Rhetoric: God and U.S. Politics	3 s.h.
RELS:4859 (032:159) Comparative Islamic Law	3 s.h.
RELS:4920 (032:158) Native American Women and Religious Change	3 s.h.

RELS:4939 (032:139) Religion and Violence in America	3 s.h.
RELS:4960 (032:195) Individual Study: Undergraduates	arr.
RELS:4970 (032:197) Honors Tutorial	2-3 s.h.
RELS:4975 (032:198) Honors Essay	2-4 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the fifth semester begins: one or two courses in the major

Before the seventh semester begins: three to six courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: five to seven courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in religious studies have the opportunity to graduate with honors in the major. Departmental honors students must complete all requirements for the major plus an additional 3 s.h. of advanced course work, earning at least 33 s.h. for the major. They may apply 3 s.h. of RELS:4960 (032:195) Individual Study: Undergraduates or RELS:4970 (032:197) Honors Tutorial toward the 33 s.h. of credit required for the honors major. Honors students must take RELS:4975 (032:198) Honors Essay under the supervision of a faculty advisor; copies of the completed and approved essay are submitted to the Department of Religious Studies and to the University of Iowa Honors Program.

Departmental honors students must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in religious studies requires a minimum of 15 s.h. in religious studies courses, including 12 s.h. completed at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work for the minor may not be taken pass/nonpass. With the recommendation of the department's undergraduate committee and approval of the faculty, students may count a maximum of 3 s.h. of transfer credit toward the minor.

The minor in religious studies requires the following course work.

At least two foundation courses numbered 1000-1999	6 s.h.
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At least two advanced courses numbered 2000-4999 6 s.h.

One course at any level 3 s.h.

Students are encouraged to include RELS:1015 (032:015) Religions in a Global Context: The Critical Role of Religion in International Affairs and RELS:4950 (032:196) Senior Majors Seminar in the minor.

Graduate Programs of Study

- Master of Arts in religious studies (with or without thesis)
- Doctor of Philosophy in religious studies

Graduate study in the department addresses the concept of religion and several religious traditions as they have originated, developed, and interacted over time. Students learn to identify and use multiple methods for the study of religion, including historical, philosophical, ethical, literary, linguistic, psychological, ethnographic, and digital approaches.

Graduate study is flexible. Students create individualized programs of study in consultation with their advisors and core committee members, in light of faculty expertise in the department and at the University. Programs often are developed in relation to one of the following four areas of concentration.

Religions in the Middle East, Ancient Near East, and Mediterranean: religion, law, and politics in the Islamic world; the history of interpretation of the texts and traditions of Judaism, Christianity, and Islam; Greco-Roman and Egyptian religion and culture; digital humanities

Religions of Asia: India, China, and Japan; Hinduism and Buddhism

Religions of Europe and the Americas: the Reformation; the Reformed tradition; Christianity and Islam in the United States; Native American, African American, and Latino American religions

Religion, ethics, and society: religion and morality; human rights; religion, gender, and ethnicity; uses of digital technology in the study and practice of religions

Programs of study may be developed in other areas that are supported by faculty resources.

The study of religion and public life, or religion's impact on world events, unites the areas of concentration. Departmental scholars specialize in the critical analysis of religion's influences on identity formation and the dynamics of social change, in history and in the contemporary, digital era.

A graduate degree in religious studies may lead to an academic career that includes teaching at the college or university level and the creation of new knowledge through scholarship. It also may lead to other careers, both inside and outside of academia. Knowledge gained through advanced study of religion can inform life and work in all domains and on all levels of social organization, from global to local.

For more information about graduate study and the faculty, see Graduate Program and People on the department's web site.

Master of Arts

The Master of Arts program in religious studies requires a minimum of 30 s.h. of graduate credit and is offered with or without thesis. The program is designed for students who wish to advance their understanding of a particular area of religious studies or explore a variety of traditions and topics. It is intended also to prepare students to educate the public about religion and its influences, within a variety of life and career contexts.

Students must complete 24 s.h. of the credit required for the degree at The University of Iowa and must maintain a cumulative g.p.a. of at least 3.20. Requirements for languages and other research tools vary according to the student's study focus. M.A. students are supervised by a three-person committee consisting of an advisor and two additional faculty members.

All M.A. students complete the following five courses.

RELS:5100 (032:201) Teaching and Public Engagement 3 s.h.

RELS:5200 (032:202) Varieties of Religion in the Contemporary World 3 s.h.

RELS:5300 (032:203) Genealogies of Religion 3 s.h.

RELS:5400 (032:205) Methods and Theories in the Study of Religion 3 s.h.

One graduate seminar

Students select remaining course work depending on their interest area and in consultation with their core committee.

In the M.A. thesis, students demonstrate and refine their research and writing skills. They may count a maximum of 6 s.h. of thesis credit toward the degree. Students who do not write a thesis must pass an M.A. examination that tests their competence in completed course work.

Doctor of Philosophy

The Doctor of Philosophy program in religious studies requires a minimum of 72 s.h. of graduate credit. Students may transfer up to 24 s.h. of credit from another accredited graduate school.

Course requirements for the Ph.D. vary according to concentration area. However, all students must complete the following eight required courses.

RELS:5100 (032:201) Teaching and Public Engagement 3 s.h.

RELS:5200 (032:202) Varieties of Religion in the Contemporary World 3 s.h.

RELS:5300 (032:203) Genealogies of Religion 3 s.h.

RELS:5400 (032:205) Methods and Theories in the Study of Religion 3 s.h.

Four graduate seminars, including at least two in religious studies

During their fourth semester in residence, students must submit a departmental program of study, which must be approved by the religious studies faculty. To gain approval, students must complete three of the required Ph.D. courses listed above and two of the graduate seminars; show satisfactory progress toward the language and course requirements of their individual programs; demonstrate the ability to write scholarly papers at a level satisfactory for the Ph.D., as assessed by the advisor

and core committee members (at least two papers must be submitted to the committee); and have a cumulative University of Iowa g.p.a. of at least 3.40 (language courses that do not count toward the Ph.D. are excluded).

Students must pass a comprehensive examination based on a bibliography that covers their concentration area. They also must write a dissertation based on original research and defend it in an oral examination. They may count a maximum of 12 s.h. of dissertation credit toward the degree.

Students working toward a Ph.D. may receive an M.A. upon completing at least 30 s.h. of course work and successfully passing the comprehensive examination.

For more detailed information on graduate programs in religious studies, contact the Department of Religious Studies or visit Graduate Program on the department's web site.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants to the M.A. program ordinarily must have a verbal reasoning score of at least 153 and a quantitative reasoning score of at least 147 on the revised Graduate Record Examination (GRE) General Test (verbal reasoning score of at least 500 and quantitative reasoning score of at least 580 on the old GRE General Test) and a g.p.a. of at least 3.00.

Applicants to the Ph.D. program ordinarily must have a verbal reasoning score of at least 158 and a quantitative reasoning score of at least 147 on the revised GRE General Test (verbal reasoning score of at least 580 and quantitative reasoning score of at least 580 on the old GRE General Test) and a g.p.a. of at least 3.40.

Application materials must include an application form; a transcript of all undergraduate and graduate work (one copy must be sent to the University's Office of Admissions and a second copy must be sent to the Department of Religious Studies); an application or waiver of consideration form for graduate assistantships; three confidential letters of recommendation; and a writing sample that demonstrates the applicant's ability to engage in critical analysis. Applicants also must submit a brief personal essay that explains their objectives for graduate study and states which area of graduate study in religion will suit their objectives best. Students may indicate one of the four areas of concentration listed under "Graduate Programs of Study" above or an area that crosses the concentrations and is well supported by faculty expertise. For details, see Graduate Admission and Financial Aid on the department's web site.

All application materials must be received by January 15 to receive full consideration for fall admission.

Financial Support

All Ph.D. students in religious studies receive funding. Ordinarily, no departmental funding is available for M.A. students.

The department offers financial support for graduate students in the form of teaching assistantships. The department may nominate eligible applicants for the

Presidential Graduate Fellowship or for the Dean's Graduate Fellowship, which promotes recruitment of students from underrepresented groups.

The Gilmore Scholarship, for doctoral students interested in the relationship among religion, the visual arts, and humanistic values, pays up to full tuition for one year. It is awarded every few years.

Language Study at the University

The University offers a variety of modern European languages (see French and Italian (p. 300), German (p. 347), and Spanish and Portuguese (p. 609) in the Catalog) as well as Greek and Latin (see Classics (p. 155) in the Catalog); Arabic and Swahili (see French and Italian (p. 300) in the Catalog); and Chinese, Czech, Hindi, Japanese, Korean, Russian, and Sanskrit (see Asian and Slavic Languages and Literatures (p. 102) in the Catalog).

Courses

Lower-Level Undergraduate

RELS:1000 (032:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

RELS:1001 (032:001) The Judeo-Christian Tradition 3 s.h.
Introduction to Judaism and Christianity; focus on scriptural foundation and historical development of these related traditions; texts and other forms of religious expression, especially in art, music, literature, and philosophy; readings from the Hebrew Bible and New Testament; other materials from selected Jewish and Christian thinkers. GE: Historical Perspectives.

RELS:1015 (032:015) Religions in a Global Context: The Critical Role of Religion in International Affairs 3 s.h.
Religion as a factor in many international events—World Trade Center bombings in New York City, wars in Iraq and Afghanistan, Ugandan government's criminalization of homosexuality, self-immolation of Buddhist monks in protest of China's role in Tibet; gateway to critical study of religion.

RELS:1021 (032:021) Judaism: The Sacred and the Secular 3 s.h.
Ways in which the sacred face of Judaism (Hebrew Bible and rabbinic additions) have transformed and been transformed by historical frameworks in which Jews and Judaism have existed; special attention given to the Holocaust, modern nation-state of Israel, and experiences of Jews in modern secular nation-states. GE: Values, Society, and Diversity.

RELS:1070 (032:011) Introduction to the Hebrew Bible/Old Testament 3 s.h.
History, religion, and thought of ancient Jews as recorded in their scripture. GE: Values, Society, and Diversity.

- RELS:1080 (032:012) Introduction to the New Testament** 3 s.h.
History, religion, and thought of early Christians as recorded in the New Testament. GE: Values, Society, and Diversity.
- RELS:1113 (032:013) Gateway to the Bible** 3 s.h.
Disagreement of Jews, Catholics, Protestants, and Eastern Orthodox Christians about the Bible, one of the most influential works in Western culture, on how it should be interpreted, what books should be included, and what versions of those books should be authoritative; introduction to issues involved in creating and interpreting the Bible; how academic study of religion seeks to provide answers.
- RELS:1130 (032:030) Introduction to Islamic Civilization** 3 s.h.
Major areas of Islamic religious tradition: Qur'an, traditions of the Prophet, development and character of Islamic law, theology. GE: International and Global Issues; Values, Society, and Diversity. Same as HIST:1130 (016:031).
- RELS:1225 (032:025) Medieval Religion and Culture** 3 s.h.
Religion in Europe from classical antiquity to dawn of the Reformation; the religious element in traditions such as art, architecture, literature. GE: Historical Perspectives. Same as HIST:1225 (016:035).
- RELS:1250 (032:026) Modern Religion and Culture** 3 s.h.
European and American religious life from Renaissance to 21st century; focus on specific themes, such as secularism, regionalism, pluralism. GE: Historical Perspectives. Same as HIST:1250 (016:036).
- RELS:1350 (032:034) Introduction to African American Religions** 3 s.h.
GE: Values, Society, and Diversity. Same as AFAM:1250 (129:050).
- RELS:1404 (032:004) Living Religions of the East** 3 s.h.
Religious beliefs, practices in India, China, Japan. GE: Values, Society, and Diversity. Same as ASIA:1040 (039:064).
- RELS:1410 (032:014) Introduction to Indian Religions** 3 s.h.
Religions with origins in the South Asian geographic region (e.g., Vedas in mid-second millennium BCE, Jainism and Buddhism from sixth to fourth centuries BCE, Sikhism in 15th century, Indian Christianity, Islam); focus on Hinduism and Buddhism; rise of varied literary forms, ritual, rise of devotional religion, Tantra, how religious practices affect indigenous medical traditions, how these traditions developed in different South Asian regions; broad changes in South Asian religion in 20th and early 21st centuries, current politicization of religion.
- RELS:1502 (032:008) Asian Humanities: India** 3 s.h.
Introduction to four thousand years of South Asian civilization, through popular stories. GE: Values, Society, and Diversity. Same as SOAS:1502 (039:018).
- RELS:1506 (032:006) Introduction to Buddhism** 3 s.h.
Basic tenets, religious paradigms, historical phases important in the development of Buddhism; from the Buddha's life to evolution of Mahāyāna Buddhism; readings from India, Tibet, China, Japan, Korea, Southeast Asia. GE: Values, Society, and Diversity. Same as ASIA:1060 (039:006).
- RELS:1510 (032:010) Gods, Buddhas, and Ghostly Officials: The Past and Present of Chinese Religions** 3 s.h.
History of religious beliefs and practices in China; role in modern-day Chinese society; specific case studies that illuminate current situation of religion in China and impact on Chinese society; focus on the still widespread worship of gods and ancestors, the Confucian, Buddhist and Daoist traditions, recent upsurge of Christianity in China, and emergence of new religions (e.g., the Falun gong). Same as ASIA:1110 (039:007).
- RELS:1610 (032:017) Japanese Religions** 3 s.h.
Religions of Japan from ancient times to the present day; elite and popular Japanese interpretations of Chinese Buddhist and Daoist traditions; the parallel development of an indigenous kami tradition; contemporary new religious movements; focus on the codification of a variety of religious (and sometimes quasi-religious) paths, including the way of tea, the way of the brush, and the way of the samurai. Same as JPNS:1115 (39J:017).
- RELS:1702 (032:002) Religion in America Today** 3 s.h.
How American men, women, and children practice their beliefs in today's society. GE: Values, Society, and Diversity.
- RELS:1810 (032:016) Religion and Liberation** 3 s.h.
Reflections on the life stories of Black Elk, Maya Angelou, and the Dalai Lama. GE: Values, Society, and Diversity.
- RELS:1903 (032:003) Quest for Human Destiny** 3 s.h.
Quests for destiny in terms of perceived options/goals and ability to recognize, pursue, achieve them. GE: Values, Society, and Diversity.
- RELS:2050 (032:058) Liturgy and Devotion in Christian Tradition** 3 s.h.
Liturgical traditions and devotional practices in western Christianity; Medieval Christian tradition, changes in liturgy and devotion that occurred with reformations of the 16th and 17th centuries; overview of modern developments. Same as HIST:2050 (16E:058).
- RELS:2068 (032:068) Jewish Identities: National, Ethnic, and Religious** 3 s.h.
Exploration of a wide variety of ways in which Jewish people around the world understand what it means to be Jewish.
- RELS:2090 (032:054) Issues in American Catholicism** 3 s.h.
Major issues that have faced Catholics in America; special attention to issues of gender, racial, and ethnic identities.

- RELS:2121 (032:121) The Bible and the Sacrifice of Animals** 3 s.h.
Why the biblical God permits humans to eat other animals' flesh; fundamental dietary differences between humans and the beasts.
- RELS:2182 (032:082) Ancient Mediterranean Religions** 3 s.h.
Introduction to major religious traditions of ancient Mediterranean world; Mesopotamia, the Levant (Hebrew Bible), Egypt, Greece, and Rome; central aspects of mythology, ritual, and archaeology, individually and in comparative perspective; ancient Judaism and Christianity considered in their various cultural contexts; basic concepts for understanding cultural exchange; fundamental theories in the study of religion. GE: Values, Society, and Diversity. Same as CLSA:2482 (20E:082).
- RELS:2225 (032:092) Messianic and Apocalyptic Prophecy in the Bible** 3 s.h.
Literary, historical, and theological analysis of biblical prophecies and their impact. Same as CLSA:2425 (20E:092).
- RELS:2289 (032:089) Jerusalem from the Bronze to the Digital Age** 3 s.h.
Religious, political, and cultural history of Jerusalem over three millennia as a symbolic focus of three faiths—Judaism, Christianity, and Islam; integration of several digital learning technologies, including digital reconstructions and Google Earth tours of Jerusalem. Same as CLSA:2489 (20E:089).
- RELS:2320 (032:094) Jesus and the Gospels** 3 s.h.
How Jesus was depicted in the writings of the early church; reasons for the different portrayals. Same as CLSA:2420 (20E:094).
- RELS:2351 (032:051) Religious Thinkers of the West** 3 s.h.
Augustine, Bonaventure, Fichte, Kierkegaard, Heidegger. GE: Values, Society, and Diversity.
- RELS:2356 (032:056) Christianity and the Enduring Human Experience** 3 s.h.
Topics in Christian history and thought; emphasis on the relationship between communities of belief and Christian traditions.
- RELS:2361 (032:061) Middle East and Mediterranean: Alexander to Suleiman** 3 s.h.
GE: Historical Perspectives. Same as HIST:2461 (016:045), CLSA:2461 (20E:071).
- RELS:2674 (032:074) Food and Identity in Global Religions** 3 s.h.
Introduction to study of food and identity in a global context.
- RELS:2681 (032:081) Hindu Religion and Art** 3 s.h.
Hinduism's mystery dispelled through examination of its basic concepts, using art works, sacred texts, myths, devotional poetry; what divine power is, what sculpted and painted images of gods and goddesses mean, how Hindu devotees relate to these awesome personages today.
- RELS:2700 (032:060) Sacred World of Native Americans** 3 s.h.
GE: Values, Society, and Diversity. Same as AINS:2700 (149:060).
- RELS:2720 (032:020) Religious and Ethnic Conflict in the Middle East** 3 s.h.
Relationship between religion and politics in the Middle East; examination of areas of conflict, including Lebanon, Iraq, and Israel/Palestine.
- RELS:2730 (032:063) African American Islam** 3 s.h.
Same as AFAM:2730 (129:063).
- RELS:2771 (032:071) Sexual Ethics** 3 s.h.
Introduction to religion and ethics; diverse secular, Jewish, and Christian perspectives on human sexuality and sexual activity; religious views underlying divergent attitudes toward same-gender sexuality and abortion. Same as GWSS:2771 (131:071).
- RELS:2775 (032:150) The Bible and the Holocaust** 3 s.h.
Religious and philosophic implications of the Holocaust viewed through survivors' writings.
- RELS:2778 (032:078) American Indian Women: Myth, Ritual, and Sacred Power** 3 s.h.
Participation of women and girls in native religious traditions; obstacles to knowing and understanding native women's religious roles and experiences. Same as AINS:2078 (149:082).
- RELS:2791 (032:091) Religion and Social Life** 3 s.h.
Religion as a dimension of experience that can find diverse forms of expression, especially in social life and production of culture, not simply a social institution that is defined by a set of beliefs and practices.
- RELS:2834 (032:146) Philosophy of Religion** 3 s.h.
Medieval to contemporary treatments of central issues: the nature of faith; the existence and nature of God; religion and ethics; the interpretation of religious texts. Requirements: sophomore or higher standing. Same as PHIL:2534 (026:134).
- RELS:2852 (032:052) Women in Islam and the Middle East** 3 s.h.
Women in the Islamic community and in non-Muslim Middle Eastern cultures; early rise of Islam to modern times; references to women in the Qur'an and Sunnah, stories from Islamic history; women and gender issues. GE: International and Global Issues; Values, Society, and Diversity. Same as GWSS:2052 (131:060).
- RELS:2877 (032:077) Sport and Religion in America** 3 s.h.

Sport as a religion; religiosity in sports; examination of religion and sport as connected in important ways in American society. Same as SPST:2077 (028:073).

RELS:2883 (032:083) Science and Christianity: Conflicts and Conversations 3 s.h.

Science, technology, and religion as some of the most powerful forces in the world and their dramatic interactions; various conflicts and conversations between science and Christianity in modern Western culture beginning with Galileo; evolution, intelligent design, Big Bang, "God Particle," Human Genome Project, and spiritual implications of neuroscience. Recommendations: nontechnical knowledge of physics, biology, and psychology.

RELS:2912 (032:112) The Bible in Film: Hollywood and Moses 3 s.h.

How Hollywood has interpreted the Biblical stories of Adam and Eve, Moses, and David the King.

RELS:2930 (032:093) Digital Media and Religion 3 s.h.

Influences of digital media on religion and spirituality today. Requirements: for COMM:2079 (036:079) — communication studies major, g.p.a. of at least 2.30, and completion of four Foundation of Communication courses chosen from COMM:1301 (036:001), COMM:1305 (036:005), COMM:1112 (036:012) or COMM:1170 (036:070), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Same as COMM:2079 (036:079).

RELS:2947 (032:147) Quest II: Sex, Love, and Death 3 s.h.

Readings from the Hebrew Bible, Sophocles' *Antigone*, Melville's *Billy Budd*, Hemingway's *The Sun Also Rises*, Salinger's *A Perfect Day for Banana Fish*, the film *From Here to Eternity*.

RELS:2962 (032:062) Islam in the Public Sphere: Arts, Literature, Culture, and Politics 3 s.h.

Religion as exerting undeniable influence in public sphere in communities around the world; examination of ways in which religion manifests itself in public sphere; religion in the arts, politics, science, literature, sports, communication, business, education, and many other domains of public sphere.

RELS:2969 (032:169) Quest III: Heroes, Lovers, and Knaves 3 s.h.

Tension between Paganism and the Bible regarding heroism and eroticism; the Song of Songs, stories of Rachel, Samson, Saul, Bathsheba; Plato's *Symposium*, Hemingway's *The Snows of Kilimanjaro*, Salinger's *For Esmé with Love and Squalor*; *The Highlander*, *The Matrix*, *Bridget Jones's Diary*; unmasking knaves to truly appreciate heroes and lovers.

RELS:2980 (032:080) Religion and Contemporary Popular Culture 3 s.h.

Representation and appropriation of world religions in contemporary popular culture (film, television, music, new media); new religious movements arising within popular culture; religion in the digital age; commodification and globalization; focusing on cultural production in North America and Asia.

Upper-Level Undergraduate and Graduate

RELS:3003 (032:122) Classical and Hellenistic Periods I 3 s.h.

Readings in Greek literature of the Classical and Hellenistic periods. Prerequisites: CLSG:2002 (20G:012). Same as CLSG:3003 (20G:122).

RELS:3020 (032:157) Religion and Politics 3 s.h.

Major trends in Islamic religious thought since the colonial period, focusing on encounters between Islamic and the modern world; Ibn Khaldun; renewal movements; varieties of religious reform and accommodation; nationalism, socialism, and so forth. Recommendations: prior course work in content topic.

RELS:3103 (032:103) Biblical Archaeology 1,3 s.h.

Contributions of Syro-Palestinian archaeological research to understanding historical, cultural backgrounds of biblical period.

RELS:3105 (032:105) The World of the Old Testament 3 s.h.

Historical, intellectual background; focus on patterns of thought, religion in Near East, relation to Israelite religion.

RELS:3129 (032:129) Native American Prophets and Prophecy 3 s.h.

Religious movements, effects of prophecies on followers of religious movements, and resulting tensions with Americans; powerful visions described as messages from a spirit being experienced by several 19th-century Native Americans after waking from coma-like states—wonderful prophecies of the restoration of Native American world to what it once was before American colonization, prophecies leading to religious movements that called for return to traditional practices, rejection of many elements of white American culture, and warnings of an impending destruction of the world.

RELS:3190 (032:192) Traditions of Religious Reform 3 s.h.

Same as HIST:3190 (016:192).

RELS:3237 (032:137) Modern Religious Thought: 19th Century 3 s.h.

RELS:3243 (032:143) Early Christianity: From Jesus to the Rise of Islam 3 s.h.

Introduction to the history of early Christianity, from the time of Jesus to the rise of Islam; focus on major movements, intellectuals, and institutions in this period; growth of Christianity in different geographical areas, including the Middle East, Greece, Western Europe, and Africa; Christian relations with Jews, pagans, and Muslims; conversion; orthodoxy, heresy, and the making of the biblical canon; martyrdom; women and gender roles; asceticism, monasticism, and sexuality; church and state; theological controversy and schisms; the cult of saints; the Holy Land and pilgrimage. Same as CLSA:3443 (20E:146).

RELS:3245 (032:145) Mythology of Otherworldly Journeys 3 s.h.

Examination of mythology of otherworldly journeys from earliest religions to Hellenistic period; historical context; comparison for common themes in their evolution over time; directed readings of mythological texts dealing with otherworldly journeys; ways in which past cultures confronted larger mysteries of life and death. Same as CLSA:3445 (20E:145).

RELS:3247 (032:142) Banned from the Bible: Introduction to Pseudepigrapha and Apocrypha 3 s.h.

Introduction to biblical Pseudepigrapha and Apocrypha; writings dating from third century BCE to third century CE fictionally attributed to characters in the Hebrew Bible and New Testament, or written as though they originated in the First or Second Temple periods, not included in Jewish or major Christian canons of scripture; English translations of documents from this period; key themes and interpretative techniques common throughout biblical texts that provide tremendous insight into the worlds that produced the Hebrew Bible and New Testament. Same as CLSA:3247 (20E:147).

RELS:3320 (032:107) In Search of the Good Life 3 s.h.

Works from Greco-Roman, Jewish, and Christian cultures to analyze various beliefs on how humans can live the good life and examine how these solutions are intimately connected to the specific conceptions of the divine world. Same as CLSA:3420 (20E:107).

RELS:3340 (032:109) Recovering Eden: The Afterlife in Early Judaism and Christianity 3 s.h.

Development of afterlife ideology in Jewish and Christian traditions; ideas that influenced this development, particularly as related to problem of suffering. Same as CLSA:3440 (20E:104).

RELS:3385 (032:085) Early Modern Catholicism 3 s.h.

Same as HIST:3385 (16E:085).

RELS:3431 (032:131) Gender and Sexuality in East Asia 3 s.h.

Conceptions of sex, gender, and sexuality in the religions of China, Korea, and Japan; asceticism and celibacy; sexual alchemy; the difference between male and female bodies and souls; intersexed persons; female saints and immortals; transgressive sexuality; gender and sexuality in colonial Asia; East Asian religions and postcolonial feminism. Same as GWSS:3131 (131:131).

RELS:3448 (032:148) The Allure of Krishna: Sacred Sexuality in Indian Culture 3 s.h.

For thousands of years, Krishna, the dark-skinned flute-player, has been central to the religious experience of many Hindus; his diverse roles as mischievous divine child, sensual teenage cowherd, and adult statesman, warrior, and philosopher celebrated in poetry and prose, painting and sculpture, music, dance, drama, film, and television; exploration of multiple facets of Krishna's character through literary and visual sources, performances; focus on Indian interpretations of erotic content prominent in his story and to the figure of Radha, Krishna's mistress and beloved. Same as SOAS:3448 (039:148).

RELS:3560 (032:170) Topics in Asian Religions 3 s.h.

Same as ASIA:3560 (039:168).

RELS:3572 (032:172) Comparative Ritual 3 s.h.

Practice and theory; rituals from religions, including Hinduism, Buddhism, Christianity, Indian religions; theories of interpretation. Same as ASIA:3890 (039:172).

RELS:3575 (032:178) East Meets West: The Western Reception of Eastern Religion 3 s.h.

Introduction of religious ideas and forms from India, China, and Japan into Europe and America to late 20th century, from Greeks to New Age. Same as ASIA:3775 (039:188).

RELS:3580 (032:180) Religion and Healing 3 s.h.

Historical evidence of religious healing in Christian, Hindu, Buddhist, Native American, and Shaman traditions. Same as ANTH:3113 (113:145), GHS:3113 (152:145).

RELS:3582 (032:182) Enlightenment: Cross-Cultural Experiments in Religious Realization 3 s.h.

Enlightenment as one of the most important ideas that feeds contemporary religious and spiritual imagination; exploration of this concept in contemporary religious and spiritual discourse. Same as SOAS:3920 (039:183).

RELS:3645 (032:175) Buddhist Philosophy 3 s.h.

Introduction to main ideas. Requirements: sophomore or higher standing. Same as PHIL:3845 (026:145).

RELS:3655 (032:188) Zen Buddhism 3 s.h.

Prerequisites: RELS:1404 (032:004) or RELS:1506 (032:006) or RELS:1510 (032:010). Same as ASIA:3655 (039:170).

RELS:3660 (032:116) Japanese Religion and Thought 3 s.h.

Same as JPNS:3660 (39:109).

RELS:3666 (032:166) The History of a Religious and Spiritual Practice: Yoga in Asia and Beyond 3 s.h.

Historical, textual, and anthropological readings; visual material, yoga demonstrations, discussions of yoga practices; theory underlies readings, including ritual theory and practice theory; psychology and inquiries into the nature of religious adaptation and syncretism.

RELS:3700 (032:127) Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financial aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as ENTR:3595 (06T:144), MUSM:3500 (024:147), SSW:3500 (042:157), NURS:3595 (096:168), MGMT:3500 (06J:147).

RELS:3701 (032:128) Nonprofit Organizational Effectiveness II 3 s.h.

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as MUSM:3600 (024:148), MGMT:3600 (06J:148), NURS:3600 (096:169), SSW:3600 (042:158).

RELS:3704 (032:104) Egyptian Art 3 s.h.

Sculpture, painting, architecture, and luxury arts from Pyramid Age to Death of Cleopatra. Same as ARTH:3320 (01H:110).

RELS:3711 (032:111) Religion and Women 3 s.h.

Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GE: Values, Society, and Diversity.

RELS:3714 (032:165) Anthropology of Religion 3 s.h.

Approaches; religious roles; shamanism, witchcraft, curing; mythology; place of religion in social and cultural change. Same as ANTH:3114 (113:142).

RELS:3716 (032:164) Greek Religion and Society 3 s.h.

From Bronze Age to the Hellenistic period, in context of Mediterranean culture; evidence such as choral hymn, inscribed prayers, magical curses inscribed on lead, architecture, sculpted offerings to the gods. GE: Values, Society, and Diversity. Same as CLSA:3416 (20E:115).

RELS:3745 (032:126) Twentieth-Century African American Religion: Civil Rights to Hip-Hop 3 s.h.

Twentieth-century African American religious history; major political and cultural movements, such as civil rights, black power, black feminism/womanism, hip-hop. Same as AFAM:3245 (129:123).

RELS:3767 (032:067) Theological Questions 3 s.h.

Treatment of basic religious questions, such as the meaning of "God," nature of religious symbols, phenomena of skepticism and atheism.

RELS:3808 (032:108) Malcolm X, King, and Human Rights 3 s.h.

Religion and politics of Malcolm X and Martin Luther King, Jr. in the context of U.S. civil rights and international human rights in West Africa and the Muslim world; emphasis on civil rights connections to Gandhi, the Nobel Peace prize, and other international experiences that have impacted Pan Africanists, such as Stokely Carmichael, who worked on human rights. Recommendations: international studies major or undergraduate standing. Same as AFAM:3500 (129:108).

RELS:3834 (032:134) Arab Spring in Context: Media, Religion, and Geopolitics 3 s.h.

Protest movements that started in Tunisia in 2011 and swept across North Africa and the Middle East transforming Arab and Islamic societies in radically different ways; function of social media, satellite television, communication technology; influence of religious leaders and groups on some protest outcomes; impact of wealth and geopolitics on social fabric of Islamic societies within and outside Arab countries. Requirements: for COMM:3834 (036:129) — g.p.a. of at least 2.50, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as IS:3834 (187:126), WLLC:3834 (218:165), JMC:3146 (019:146), COMM:3834 (036:129).

RELS:3855 (032:155) Human Rights and Islam 3 s.h.

Human rights in religious and secular discourse, seventh century to present; Islamic law, human rights law, religion, politics. GE: International and Global Issues.

RELS:3953 (032:153) Religion and the Arts 3 s.h.

Analysis, interpretation of religious themes in literature, film, painting.

RELS:3976 (032:076) American Indian Environmentalism 3 s.h.

Same as AINS:3276 (149:076).

RELS:4001 (032:100) Biblical Hebrew I 4 s.h.

RELS:4002 (032:101) Biblical Hebrew II 4 s.h.

RELS:4124 (032:124) Digital Archaeological Modeling 1-3 s.h.

Introduction to foundational theory, methodology, programming skills, and conceptual understanding necessary to model remains and reconstructions of archaeological sites in various three-dimensional digital modeling environments. Recommendations: background in archaeology. Same as CLSA:4131 (20E:131).

RELS:4133 (032:133) Special Topics: Islamic and Middle Eastern Societies 3 s.h.

Recent events in Islamic world and Middle East; varied topics.

RELS:4155 (032:154) Religious Conflict: Early-Modern Period 3 s.h.

Reformation of 16th century—Lutheran, Calvinist, Radical, English; readings from major representatives of each. Same as HIST:4455 (16E:123).

RELS:4181 (032:181) Special Topics in Western Religion 3 s.h.

Examination of a specific topic of interest related to Western religious traditions. Recommendations: some background in Judaism, Christianity, or classics.

RELS:4352 (032:152) The Dead Sea Scrolls 3 s.h.

Introduction to the Dead Sea Scrolls; reading of the scrolls in English translation; examination of Qumran site archaeology; survey of broader sociopolitical context of Second Temple Judaism (586 BCE to 135 CE) out of which the scrolls emerged. Same as CLSA:4452 (20E:152).

- RELS:4404 (032:186) The Literature of Daoism** 3 s.h.
Arabic grammar, syntax, and reading fluency. Prerequisites: ARAB:2001 (195:111). Corequisites: RELS:3855 (032:155) or RELS:4768 (032:168) or RELS:4859 (032:159).
Texts of philosophical, religious Daoism; Daoism in traditional Chinese political theory, literature, the arts, alchemy and medicine, sexual custom, combat. Taught in English. Same as CHIN:4204 (039:140).
- RELS:4660 (032:156) Buddhist Poetry** 3 s.h.
Native women's diverse experiences and their roles in native societies, examined through contact experiences between native and nonnative peoples; changes in women's roles in context of interactions between native people, missionaries, European colonists, and Americans; approaches to re-imaging women's early contact roles presented in cultural narratives, archaeology, history, ethnography, and missionary records. Same as AINS:4560 (149:158), GWSS:4560 (131:159).
Poetry across the Buddhist world as a favorite form of expression for talking about things that cannot be captured in words; content and style of some major works of Buddhist poetry; theories about relationships between words and meaning that inform poems; scandalous lives of poets; opportunity to explore Buddhist poetry analytically and creatively; no prior knowledge of Asian languages required. Same as ASIA:4660 (039:156).
- RELS:4730 (032:130) Religion and Environmental Ethics** 3 s.h.
Movements in North American history marked by violence (i.e., Peoples Temple, Lakota Ghost Dance, Branch Davidians, Shawnee Movement); the role of violence in expressing and shaping some religious movements.
How humans conceptualize the biophysical environment through religious beliefs and practices; how images of the environment influence people's activities, how they are used by grassroots environmental movements. Requirements: junior or senior standing. Same as ANTH:4130 (113:139).
- RELS:4741 (032:141) Varieties of American Religion** 3 s.h.
Issues central to academic study of religion.
Examination of varied 20th- and 21st-century American religious individuals and groups; understand and analyze unique communities. Same as HIST:4241 (16A:122).
- RELS:4748 (032:140) Religious Rhetoric: God and U.S. Politics** 3 s.h.
Use of religious language by American presidents, presidential hopefuls, and their religious supporters; begins with early presidents, then majority of focus is on last 65 years. Recommendations: previous course in religious studies.
- RELS:4768 (032:168) Islamic Sects** 3 s.h.
Nexus between key texts (i.e., the Qur'an, Hadith, Tafsir, usul, kalam, and other literatures) and the rise and development of Islamic sects and groupings, including Kharajites, Shiites, Ibadis, Salafis, and Sufis.
- RELS:4859 (032:159) Comparative Islamic Law** 3 s.h.
Sources of Islamic law; origins and functions of varied schools of jurisprudence; Islamic legal philosophy and Islamic legal rulings in contexts of five major schools of law; major legal topics covered by the Ottoman Legal Code. Same as LAW:8250 (091:223).
- RELS:4870 (032:179) Islamic Cultural Presence in Spain** 3 s.h.
Islamic history and culture in the Iberian Peninsula from Middle Ages to present. Taught in Spanish. Requirements: one literature or culture course taught in Spanish numbered SPAN:3200 (035:130) or above. Same as SPAN:4870 (035:179).
- RELS:4893 (032:193) Classical Arabic: Vocabulary, Syntax, and Grammar** 1-3 s.h.
Genealogies of the idea of religion, academic study of religion, and comparative study of religions; intellectual and ideological foundations of discipline; preparation to work skillfully across traditions.
- RELS:4920 (032:158) Native American Women and Religious Change** 3 s.h.
- RELS:4939 (032:139) Religion and Violence in America** 3 s.h.
- RELS:4950 (032:196) Senior Majors Seminar** 3 s.h.
- RELS:4960 (032:195) Individual Study: Undergraduates** arr.
- RELS:4970 (032:197) Honors Tutorial** 2-3 s.h.
- RELS:4975 (032:198) Honors Essay** 2-4 s.h.

Graduate

- RELS:5067 (032:267) Readings in Islamic Studies** arr.
Current scholarship in the field of Islamic studies; major works in areas such as modern Islamic thought, Islamic legal and philosophical traditions, religion and politics.
- RELS:5100 (032:201) Teaching and Public Engagement** 2-3 s.h.
Critical importance of educating people about religion within increasingly globalized and digitized contexts; preparation to excel as classroom teachers and facilitators of cross-religious dialogue in public sphere.
- RELS:5200 (032:202) Varieties of Religion in the Contemporary World** 3 s.h.
Limited content of multiple religious traditions from different parts of contemporary world; conversing knowledgeably about global religious diversity; preparation to design and teach a world religions course.
- RELS:5300 (032:203) Genealogies of Religion** 3 s.h.

- RELS:5400 (032:205) Methods and Theories in the Study of Religion** 3 s.h.
Principal methods, theories in academic study of religion.
- RELS:5900 (032:259) Advanced Readings in African American Culture** arr.
Textual, social, political analyses of works by Black authors. Same as AFAM:5900 (129:212).
- RELS:6040 (032:229) Tiberius to Trajan** arr.
Authors and topics from the first and second centuries C.E. Same as CLSL:6013 (20L:229).
- RELS:6050 (032:250) The Art of Reading Sacred Literature in Judaism and Islam** arr.
Ways in which Jews and Muslims in the Middle Ages interpreted sacred writ; works by al-Farabi, Averroes, Halevi, and Maimonides; tension between reason (the great attraction of these thinkers to Plato and Aristotle and their interpreters) and revelation (their faith commitment to revelation, i.e., sacred writ). Requirements: reading knowledge of Biblical Hebrew or Arabic.
- RELS:6070 (032:227) Nonprofit Organizational Effectiveness I** 3 s.h.
Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as SLIS:6430 (021:263), MGMT:9150 (06J:247), LAW:8751 (091:320), HMP:6360 (174:247), SSW:6247 (042:247), URP:6278 (102:278), MUSM:6010 (024:247), SPST:6010 (028:257).
- RELS:6075 (032:228) Nonprofit Organizational Effectiveness II** 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Requirements: for LAW:8752 (091:322) — LAW:8751 (091:320); for HMP:6365 (174:248) — HMP:6360 (174:247) or MGMT:9150 (06J:247) or MUSM:6010 (024:247). Same as MGMT:9160 (06J:248), LAW:8752 (091:322), SLIS:6435 (021:265), SSW:6248 (042:248), HMP:6365 (174:248), URP:6279 (102:279), MUSM:6020 (024:248), SPST:6020 (028:258).
- RELS:6150 (032:218) Seminar: Religion in America** 3 s.h.
Religious experience in America; topics.
- RELS:6200 (032:226) Seminar: Religious Ethics** 3 s.h.
- RELS:6475 (032:223) Seminar: Reformation Culture and Theology** arr.
Culture and theology of 16th-century Europe. Same as HIST:6475 (016:223).
- RELS:6520 (032:235) Seminar: South Asian Religion** 3 s.h.
Topics in South Asian religions. Same as ASIA:6520 (039:235).
- RELS:6580 (032:231) Seminar: Religion and Society** 3 s.h.
- RELS:6723 (032:225) Seminar on Islamic Law and Government** 3 s.h.
Islamic legal and political legacy from formative period until modern time; critical analysis of logic and context of development; development of jurisprudential, legal, and political literature; overview of theories and practices of governance in Islam beginning with Caliphate system and ending with modern nation-state models. Same as LAW:9723 (091:636).
- RELS:7100 (032:261) Readings in American Religions** arr.
- RELS:7200 (032:264) Readings in Religious Ethics** arr.
- RELS:7260 (032:260) French Paleography** 1,3 s.h.
Independent study of original French writings.
- RELS:7400 (032:263) Readings in Theology and Religious Thought** arr.
- RELS:7450 (032:262) Readings in History of Christianity** arr.
- RELS:7500 (032:265) Readings in Asian Religions** arr.
- RELS:7600 (032:266) Readings in Classical Arabic** 1-3 s.h.
Requirements: proficiency in Modern Standard Arabic.
- RELS:7650 (032:255) Readings in Ancient Near Eastern Religions** arr.
Ancient Near Eastern religious texts; focus on their place in ancient Near Eastern history and religious thought.
- RELS:7900 (032:290) Individual Study: Graduates** arr.
- RELS:7950 (032:291) Thesis** arr.

Rhetoric

Chair

- Steve Duck

Professors

- Leslie Margolin, Carol Severino

Associate professors

- Takis Poulakos, Mary Trachsel

Assistant professors

- Jennifer Buckley, Naomi Greysier

Lecturers

- Rebecca Blair, Lauren Cameron, Patrick Dolan, LuAnn Dvorak, Iris Frost, Matt Gilchrist, Perry Howell, Will Jennings, Tom Keegan, Megan Knight, Cinda Coggins Mosher, Margaret Murray, Consuelo Guayara Sanchez

Professor emeritus

- Douglas M. Trank

Associate professors emeriti

- Gene H. Krupa, Dennis M. Moore

Undergraduate minor: rhetoric and persuasion

Web site: <http://clas.uiowa.edu/rhetoric/>

The Department of Rhetoric offers undergraduate courses that fulfill the Rhetoric requirement of the College of Liberal Arts and Sciences General Education Program (p. 323). It also provides individual instruction in its Writing Center and Speaking Center and offers other undergraduate courses, graduate seminars, and an undergraduate minor.

Rhetoric for General Education

Rhetoric courses help students to develop skills in speaking, writing, listening, and critical reading. They also build competence in research and inquiry as well as in analysis and persuasion, starting with public controversies in their social contexts and generalizing to all forms of idea presentation, whether academic readings, everyday debates, media messages, or student papers. Writing and speaking skills are emphasized and developed.

All rhetoric classes follow specific department goals, but each instructor uses a unique set of texts and contexts to teach rhetorical concepts. Rhetoric courses are sometimes organized around a special topic, such as the STEM fields (science, technology, engineering, and mathematics), nursing, or law, but the primary emphasis is always on responsible inquiry and analysis. Some course sections involve special activities, such as service-learning components, but the workload across all sections is comparable, with a fixed number of major assignments and a department-approved library of readings.

During their first year at the University, students enroll in the rhetoric course indicated on their degree audit unless they are required to complete one or more prerequisite courses in English as a Second Language (ESL) as a result of their English proficiency evaluation. Students required to enroll in English as a Second Language (ESL) courses must complete all of their required ESL courses before they may register for any rhetoric course or use the

services of the Department of Rhetoric Writing Center or Speaking Center.

Students planning to transfer to The University of Iowa should discuss rhetoric course equivalencies as soon as possible with the University of Iowa Office of Admissions. To learn more about General Education's Rhetoric requirement, see General Education Program (p. 323) in the Catalog.

Students who undergo formal evaluation by Student Disability Services and are found to be learning disabled in reading, writing, or speaking should request reasonable accommodations in order to complete rhetoric. Accommodations may be arranged by Student Disability Services in consultation with the Department of Rhetoric and individual instructors.

Undergraduate Program of Study

- Minor in rhetoric and persuasion

The minor in rhetoric and persuasion educates students in responsible, credible, and effective methods to take active leadership roles in engaging social issues in personal, professional, and communal settings. The program empowers students to look at the world as a place open to change and receptive to influence and to view themselves as agents capable of improving the world and their place in it.

The minor aims to professionalize students—whether in their capacity as individual citizens, members of the community, or leaders in the workplace—by guiding them to understand audiences and situations, to use language responsibly and strategically, and to develop the integrity and authority of their own voice.

Minor

The minor in rhetoric and persuasion requires a minimum of 15 s.h., including 12 s.h. earned in courses taken at The University of Iowa and at least 9 s.h. earned in Department of Rhetoric courses. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. The minor requires the following course work.

At least 6 s.h. from these:

RHET:2055 (010:055) Practices of Rhetoric and Persuasion	3 s.h.
RHET:2065 (010:065) Persuading Different Audiences	3 s.h.
RHET:2075 (010:075) Crafting Electronic Identities	3 s.h.
RHET:2085 (010:085) Speaking Skills	3 s.h.
RHET:2095 (010:095) Fundamental Strategies of Persuasion	3 s.h.
CLSA:3742 (20E:142) Word Power: Building English Vocabulary	3 s.h.
THTR:1140 (049:020) Basic Acting	3 s.h.

At least 9 s.h. from these:

RHET:2990 (010:090) The Art of Marketing Ideas Online	3 s.h.
RHET:2993 (010:093) Online Portfolio	2-3 s.h.
RHET:3085 (010:105) Advanced Speaking Skills	3 s.h.

RHET:3140 (010:140) Nature and Society: Controversies and Images	3 s.h.
RHET:3610 (010:161)/ASP:3610 (153:161) Rhetorical Issues in Health Care	3 s.h.
RHET:3700 (010:170) Rhetoric of Sustainability	3 s.h.
COMM:1816 (036:016) Business and Professional Communication	3 s.h.
GWSS:3138 (131:138) Writing to Change the World	3 s.h.
THTR:3421 (049:114)/GWSS:3421 (131:114) Performing Autobiography	3 s.h.

Courses

Lower-Level Undergraduate

General Education

RHET:1030 (010:003) Rhetoric 4-5 s.h.

Analysis and critique to discover, question, explain, and justify positions and claims made in writing and speaking; reading and listening to comprehend and assess arguments; employment of rhetorical concepts (e.g., purpose, audience); understanding research as responsible inquiry for speaking and writing; special topics, activities. GE: Rhetoric.

RHET:1040 (010:004) Writing and Reading 3 s.h.

Introductory course in writing required of students who have completed a college-level public speaking course, but have not otherwise satisfied the rhetoric requirement. Requirements: completion of speaking requirement. GE: Rhetoric - Writing.

RHET:1060 (010:006) Speaking and Reading 3 s.h.

Introductory course in speaking required of students who have completed 6 s.h. of college writing instruction, but have not completed a 3 s.h. college-level speaking course; intended to improve speaking, listening, critical, analytical, and advocacy skills. Requirements: completion of writing requirement. GE: Rhetoric - Speech.

Other Lower-Level Courses

RHET:1000 (010:029) First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

RHET:1005 (010:020) Academic Seminar I 3 s.h.

IowaLink seminar. Requirements: first-year standing.

RHET:1010 (010:010) Writing for Academic Success 0 s.h.

Individualized instruction in the Writing Center; in conjunction with General Education rhetoric courses.

RHET:1011 (010:011) Rhetoric Lab 1 s.h.

Supplement to RHET:1030 (010:003); practice reading, writing, and speaking. Corequisites: RHET:1030 (010:003).

RHET:2031 (010:091) Desire, Consent, and Sex in U.S. Culture(s): Replacing Coercion and Violence with Respect 3 s.h.

Exploration of desire, sex, consent, and sexual violence in practical and theoretical dimensions; recent demands by students to change the way sexual violence is addressed; theory and sources from popular media; lectures by scholars, activists, and professionals; sexual violence, rape culture, and sexuality-based oppression confronted with academic/therapeutic/political knowledge; real world strategies to help better understand and combat sexual violence, theories. Prerequisites: RHET:1030 (010:003). Same as GWSS:2000 (131:090).

RHET:2055 (010:055) Practices of Rhetoric and Persuasion 3 s.h.

Exploration of historical approaches to the practice of rhetoric; use of multimodal presentations to apply course concepts to modern demands; various rhetorical and persuasive strategies; creating effective means of influence for special moments and situations; mediating personal expressions; awareness of audience reception. Prerequisites: RHET:1030 (010:003). Requirements: completion of General Education rhetoric requirement.

RHET:2065 (010:065) Persuading Different Audiences 3 s.h.

Examination of ways people sway one another in different contexts; best means to impel a specific audience in a particular moment, recognizing that audiences and contexts are multiplied by technology; students critique current presentational techniques with special attention to how each succeeds or fails in its approach to relevant audiences; creation of a multimodal project for a local advocacy group with focus on community action, environmental concerns, or other topics relevant to public engagement in a service-learning element; formal presentations on results of inquiry-guided research. Requirements: completion of General Education rhetoric requirement.

RHET:2075 (010:075) Crafting Electronic Identities 3 s.h.

Production of a persuasive self in social media; issues of identity and performance in electronic forms. Prerequisites: RHET:1030 (010:003). Requirements: completion of General Education rhetoric requirement.

RHET:2085 (010:085) Speaking Skills 3 s.h.

Five basic skills of speaking (the five canons) recognized by Rhetoricians—*invention, arrangement, style, memory, and delivery*; development of these skills by working from their classical roots to modern times and situations; builds on previous learning in basic rhetoric; various presentations using these five skills, all relevant to persuasion and active use of rhetoric in everyday life. Requirements: completion of General Education rhetoric requirement.

RHET:2095 (010:095) Fundamental Strategies of Persuasion 3 s.h.

Strategies of approaching persuasion in a variety of personal, professional, and communal contexts; fundamentals of persuasion including audience adaptation, creating reasoned and passionate appeals, conveying character, and enabling identification taught from perspective of production. Prerequisites: RHET:1030 (010:003). Requirements: completion of General Education rhetoric requirement.

RHET:2410 (010:099) Rhetoric and Past Public Controversy 3 s.h.

Role of rhetoric in public controversy in particular historical time periods; focus on various perspectives, diverse voices, and multiple arguments informing particular movements/issues. Requirements: for COMM:2079 (036:079) — communication studies major, g.p.a of at least 2.30, and completion of four Foundation of Communication courses chosen from COMM:1112 (036:012) or COMM:1170 (036:070), COMM:1117 (036:017) or COMM:1130 (036:030), COMM:1168 (036:068) or COMM:1174 (036:074), COMM:1301 (036:001), and COMM:1305 (036:005). Same as COMM:2058 (036:058).

RHET:2610 (010:092) Acting for Success 3 s.h.

How skills learned by actors in the theatre world can be applied to presentations and interactions in business, education, and beyond; business world reliance on technology for communication; ability to connect and communicate on a personal level with others as the x-factor to stand out as a team player and a leader; acting techniques traditionally used in theatre to open up communication in office and interviews; presentations and elevator pitches (armed with techniques to avoid stage fright); how to connect and bring authentic self to everything you do. Same as THTR:2610 (049:090).

RHET:2990 (010:090) The Art of Marketing Ideas Online 3 s.h.

Principles of persuasion, marketing, and new media; forms of self-presentation, current methods of targeting audiences, dynamics of social interaction; strategies and tactics for attracting and maintaining interest for audiences; emphasis on popular forms of new media technology today (Twitter, Facebook, LinkedIn, blogs); analysis of tools and techniques for presenting and interacting; formulate ideas about a product, event, fashion, social cause, or a way of life; express ideas persuasively; strategic marketing through social media sites.

RHET:2993 (010:093) Online Portfolio 2-3 s.h.

Practical training to create an online portfolio; creation of web page through WiX that gives a comprehensive view of student's experience and aspirations to enter job market; personal and professional identity profiles ("about me"), WordPress blogs to reinforce personal/professional identity profiles, section or video with pertinent experience, résumé or a link to LinkedIn. Requirements: satisfaction of General Education rhetoric requirement prior to enrollment.

Upper-Level Undergraduate and Graduate**RHET:3085 (010:105) Advanced Speaking Skills** 3 s.h.

Preparation for speaking as a leader; variety of speaking and public address situations relevant to academic and professional aspirations; practice speaking in settings such as video-recorded speeches (e.g., TED talks), impromptu formal and informal presentations, panel presentations, press conferences, elevator pitches, lectures, podcasts and radio broadcasts, interviews including video interviews (e.g., Skype), job talks; multimodal projects to engage with real audiences beyond the classroom.

RHET:3140 (010:140) Nature and Society: Controversies and Images 3 s.h.

Theoretical perspectives that explain and/or interpret environmental change and human environmental interactions; conceptual tools to understand complex relationship between nature and society at multiple scales; ways in which individuals and communities have overcome economic and environmental limitations in economically developed countries and economically developing countries; critical thinking through exposure to contentious viewpoints and assessment of their strengths and weaknesses. Prerequisites: RHET:1030 (010:003). Requirements: completion of General Education rhetoric requirement.

RHET:3153 (010:153) Networks, Strategies, and Tactics 3 s.h.

Reconsidering views on the city; how infrastructural, social, and digital networks influence daily lives; array of social and spatial theories that view the city as a constantly evolving landscape of needs and desires; how space is used, how spaces variably influence people; modes of social control and resistance; opportunities and problems that tend to be missed when daily life and its design is looked at as a foregone conclusion.

RHET:3600 (010:160) Issues in Rhetoric and Culture 3 s.h.

Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Requirements: for COMM:3600 (036:146) — communication studies major, g.p.a of at least 2.30, completion of Foundations of Communication requirement, and 6 s.h. of intermediate-level course work. Same as COMM:3600 (036:146).

RHET:3610 (010:161) Rhetorical Issues in Health Care 3 s.h.

Role of rhetoric in health care practice, decisions, and ethics; rhetorical production of patient and professional selves in health care; varied practices, diverse perspectives, and situated production of medical and health care knowledge. Requirements: satisfactory completion of General Education rhetoric requirement. Same as ASP:3610 (153:161).

RHET:3700 (010:170) Rhetoric of Sustainability 3 s.h.

How sustainable development and related concepts have been used to shape public opinion on a range of topics, from environmental protection to economic globalization; role in discourse of public policy. Requirements: fulfillment of rhetoric requirement.

RHET:4980 (010:198) Special Projects for Undergraduates

arr.

Graduate**RHET:5330 (010:330) Directing a Writing Center**

arr.

Supervised tutoring in Writing Center involving graduate and undergraduate tutors and fellows across disciplines; providing instruction on recruitment and development of writing support teams; helping a variety of persons on campus (undergraduate, graduate, faculty) to improve their writing skills in many different areas, ranging from class or conference papers to publicity materials. Requirements: professional development program and rhetoric teaching.

RHET:5335 (010:335) Directing a Speaking Center

arr.

Supervised tutoring in Speaking Center involving graduate and undergraduate tutors and fellows across disciplines; providing instruction on recruitment and development of writing support teams; helping a variety of persons on campus (undergraduate, graduate, faculty) to improve their speaking skills in many different areas, ranging from class or conference papers to publicity materials. Requirements: professional development program and rhetoric teaching.

RHET:5350 (010:350) Colloquium: Teaching Rhetoric

3 s.h.

Professional development program for new rhetoric teachers; includes three-day workshop.

RHET:5352 (010:352) Seminar: Advanced Topics in Rhetoric Instruction

3 s.h.

Readings on composition theory, learning process, and current principles and methods in higher education; focus on teaching as a rhetorical act; statement of teaching philosophy, teaching portfolio, and research project; for experienced rhetoric instructors interested in further professional development and advanced study of pedagogical theories and practices. Prerequisites: RHET:5350 (010:350).

RHET:5375 (010:375) Teaching in a Writing Center

3 s.h.

Seminar/practicum to prepare graduate students to teach in the University of Iowa Writing Center or similar settings; seminar component on writing and reading processes, tutoring strategies, English-as-a-second-language issues; practicum experience tutoring in the Writing Center. Same as CNW:5375 (08N:375).

RHET:5385 (010:385) Teaching in a Speaking Center

3 s.h.

Preparation to teach in University of Iowa Speaking Center or similar settings; seminar component on speaking and reading processes, tutoring strategies, English-as-a-second-language issues; practicum experience tutoring in speaking center.

RHET:6015 (010:243) Feminist Cultural Studies

3 s.h.

Same as ENGL:6015 (008:243), COMM:6215 (036:222), GWSS:6015 (131:243).

RHET:6071 (010:271) Studies in Sentimentalism

3 s.h.

Readings in sentimentalism as literary genre, rhetorical practice, cultural mode, and psycho-social phenomenon; focus on attendant theories of affect; integration of literature and culture with work on the politics of affect in postcolonial and transnational studies, critical race and ethnic studies, American studies, and gender and sexuality studies. Same as ENGL:6075 (008:271).

RHET:6400 (010:340) Current Issues in Rhetoric

3 s.h.

Ethical, social, or cultural issues; rhetoric's role in their contemporary significance; traditional aspects of rhetoric, their pertinence to present concerns. Same as COMM:6400 (036:317).

RHET:6965 (010:275) Topics in Second Language Acquisition: Writing

3 s.h.

Theory, pedagogy, research, and assessment in second language writing. Taught in English. Same as SLA:6965 (164:227), SPAN:6965 (035:227).

RHET:7900 (010:550) Special Project for Graduate Students

arr.

RHET:7920 (010:552) Innovative Teaching Methods

3 s.h.

Readings in history, theory, and practice of pedagogical innovations appropriate to composition instruction and other interdisciplinary teaching; project-based assignments that produce materials appropriate for classroom use.

RHET:7930 (010:930) Writing in the Disciplines

arr.

Writing instruction.

Second Language Acquisition

Director, Division of World Languages, Literatures, and Cultures

- Russell Gamin

Directors, Second Language Acquisition

- Judith E. Liskin-Gasparro (Spanish and Portuguese), Sue K. Otto (Spanish and Portuguese)

Affiliated faculty

- Stephen M. Alessi (Psychological and Quantitative Foundations), Jill N. Beckman (Linguistics), William D. Davies (Linguistics), Sarah Fagan (German), Thomas Farmer (Psychology), Elena Gavrusseva (Linguistics), Emilie Destruel Johnson (French and Italian), Chuanren Ke (Asian and Slavic Languages and Literatures), Paula Kempchinsky (Spanish and Portuguese), Judith E. Liskin-Gasparro (Spanish and Portuguese), Kristine Muñoz (Communication Studies), Yumiko Nishi (Asian and Slavic Languages and Literatures), Bruce Nottingham-Spencer (German), Sue K. Otto (Spanish and Portuguese), Lia Plakans (Teaching and Learning), Leslie Schrier (Teaching and Learning), Kathy Schuh (Psychological and Quantitative Foundations), Carol Severino (Rhetoric), Christine Shea (Spanish and Portuguese), Helen Shen (Asian and Slavic Languages and Literatures), Pamela Wesely (Teaching and Learning)

Graduate degree: Ph.D. in second language acquisition

Web site: <http://clas.uiowa.edu/dwllc/flare/second-language-acquisition-phd-program>

Second language acquisition (SLA) is a multidisciplinary field whose goal is to understand the processes that underlie non-native language learning. The Second Language Acquisition Program draws from varied academic disciplines, among them linguistics, psychology, psycholinguistics, sociology, sociolinguistics, discourse analysis, conversation analysis, and education.

Graduate Program of Study

- Doctor of Philosophy in second language acquisition

Doctor of Philosophy

The Doctor of Philosophy program in second language acquisition requires 72 s.h., including a maximum of 33 s.h. earned in work toward a master's degree. The program is interdisciplinary and focuses on languages other than English. Students interested in pursuing the Ph.D. must hold a master's degree in an appropriate field (e.g., linguistics, foreign language education, English as a second language) or have equivalent academic experience. Students begin the program in the fall.

Doctoral students may specialize in one of three areas: linguistics, language program direction, or technology. They may pursue their interdisciplinary interests in courses offered by the College of Liberal Arts and Sciences (p. 22) Departments of Asian and Slavic Languages and Literatures, Communication Sciences and Disorders, French and Italian, German, Linguistics, Rhetoric, and Spanish and Portuguese, and the College of Education

(p. 755) Departments of Psychological and Quantitative Foundations, and Teaching and Learning.

The program is divided into foundation courses (13 courses, or 39 s.h.); specialization courses (5 courses, or 15 s.h.), and dissertation work (18 s.h.). A course may be used to fulfill only one requirement.

FOUNDATION COURSES

Students earn a total of 39 s.h. in foundation courses.

All of these (9 s.h.):

SLA:6901 (164:201) Second Language Acquisition Research and Theory I	3 s.h.
SLA:6902 (164:202) Second Language Acquisition Research and Theory II	3 s.h.
SLA:6920 (164:211) Multimedia and Second Language Acquisition	3 s.h.

Two of these (6 s.h.):

SLA:5973 (164:225)/GRMN:3540 (013:259) Grammar in Second Language Teaching/Learning	3 s.h.
SLA:6950 (164:221) Topics in Second Language Acquisition: Speaking	3 s.h.
SLA:6955 (164:223) Topics in Second Language Acquisition: Listening	3 s.h.
SLA:6965 (164:227) Topics in Second Language Acquisition: Writing	3 s.h.
SLA:6970 (164:229) Cultural Curriculum	3 s.h.
EDTL:6484 (07S:184) Reading in a Second Language	3 s.h.

To complete the foundation requirement, students select one course from each of the following eight areas (total of 24 s.h.), in consultation with their advisors. With the advisor's approval, a student may use courses not listed here to fulfill the requirement.

Curriculum

EDTL:5086 (07S:186) Curriculum Foundations	2-3 s.h.
EDTL:6408 (07S:208) Designing Materials for Second Language Instruction	3 s.h.
EDTL:6497 (07S:197) Principles of Course Design for Second Language Instruction	3 s.h.
EDTL:7100 (07E:300) Design and Organization of Curriculum	3 s.h.

Quantitative Research Tools

PSQF:6220 (07P:220) Quantitative Educational Research Methodologies	3 s.h.
PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.
PSQF:6244 (07P:244) Correlation and Regression	4 s.h.
PSQF:6246 (07P:246) Design of Experiments	4 s.h.

Qualitative Research Tools

EDTL:7070 (07S:370) Introduction to Qualitative Methods in Literacy Research	3 s.h.
EDTL:7410 (07S:310) Mixed Methods Research	3 s.h.
EPLS:7373 (07B:373) Qualitative Research Design and Methods	3 s.h.

Testing, Evaluation, Measurement

EDTL:6400 (07S:200) Fundamentals of Second Language Assessment	3 s.h.
PSQF:4150 (07P:150) Introduction to Educational Measurement	3-4 s.h.
PSQF:5165 (07P:165) Introduction to Program and Project Evaluation	3 s.h.
PSQF:6255 (07P:255) Construction and Use of Evaluation Instruments	3 s.h.
PSQF:6257 (07P:257) Educational Measurement and Evaluation	3 s.h.
PSQF:6258 (07P:258) Theory and Technique in Educational Measurement	3 s.h.
PSQF:6265 (07P:265) Program Evaluation	3 s.h.

Methodology

SLA:5000 (164:200) Teaching and Learning Languages	3 s.h.
CHIN:7401 (039:202) Teaching Chinese as a Foreign Language I: Theories/Research	3 s.h.
CHIN:7402 (039:203) Teaching Chinese as a Foreign Language II	3 s.h.
CHIN:7403 (039:204) Teaching Chinese as a Foreign Language III	3 s.h.
JPNS:5401 (39J:202) Japanese as a Foreign Language: Practical Applications	3 s.h.
LING:4050 (103:145) Methods of Teaching English as a Second Language	3 s.h.

Phonetics, Phonology

LING:3005 (103:110) Articulatory and Acoustic Phonetics	3 s.h.
LING:3020 (103:112) Phonological Analysis	3 s.h.
LING:5020 (103:203) Introduction to Phonology	3 s.h.
LING:6020 (103:204) Phonological Theory	3 s.h.
LING:7020 (103:214) Advanced Phonological Theory	3 s.h.
SPAN:4100 (035:189) Introduction to Spanish Phonology	3 s.h.
SPAN:6110 (035:209) Spanish Phonology	3 s.h.

Morphology, Syntax

LING:3010 (103:111) Syntactic Analysis	3 s.h.
LING:5010 (103:201) Introduction to Syntax	3 s.h.
LING:6010 (103:202) Syntactic Theory	3 s.h.
LING:7010 (103:212) Advanced Syntactic Theory	3 s.h.
SPAN:4150 (035:186) Introduction to Spanish Syntax	3 s.h.
SPAN:6120 (035:210) Spanish Syntax	3 s.h.
SPAN:6190 (035:207) Topics in Comparative Romance Linguistics	3 s.h.

General Linguistics

SLA:4080 (164:157) Linguistic Theory and Second Language Acquisition	3 s.h.
SLA:6403 (164:228) Special Topics in Japanese Linguistics	3 s.h.
CHIN:3302 (039:144) Introduction to Chinese Linguistics	3 s.h.
CHIN:7401 (039:202) Teaching Chinese as a Foreign Language I: Theories/Research	3 s.h.

LING:3118 (103:176) Language Acquisition	1-3 s.h.
LING:5030 (103:206) First Language Acquisition	3 s.h.
LING:6080 (103:211) Generative Second Language Acquisition	3 s.h.
LING:7090 (103:312) Seminar: Problems in Linguistics	2-3 s.h.
SPAN:6150 (035:206) Topics in Spanish Language Acquisition	3 s.h.

SPECIALIZATION COURSES

Each student selects one of three specialization areas—linguistics, language program direction, or technology—and takes five courses (total of 15 s.h.) in that area.

Linguistics Specialization

The linguistics specialization requires a three-course sequence (choice of phonology or syntax) and two additional courses.

One of these three-course sequences (group 1 or group 2):

Group 1:

LING:5020 (103:203) Introduction to Phonology	3 s.h.
LING:6020 (103:204) Phonological Theory	3 s.h.
LING:7020 (103:214) Advanced Phonological Theory	3 s.h.

Group 2:

LING:5010 (103:201) Introduction to Syntax	3 s.h.
LING:6010 (103:202) Syntactic Theory	3 s.h.
LING:7010 (103:212) Advanced Syntactic Theory	3 s.h.

One of these:

LING:4080 (103:157) Linguistic Theory and Second Language Acquisition	3 s.h.
LING:6080 (103:211) Generative Second Language Acquisition	3 s.h.

An alternate course on linguistic theory and second language acquisition

One of these:

PSY:3085 (031:122) Language Development	3 s.h.
PSY:6430 (031:218) Cognitive Development	3 s.h.

An alternate course on parsing/psycholinguistic mechanisms

Language Program Direction Specialization

The language program direction specialization requires five courses chosen from the lists below. The specialization may not include courses used to satisfy the foundation requirements. Some students may include an internship in their work for the specialization.

Five of these, or four of these plus internship:

SLA:5973 (164:225) Grammar in Second Language Teaching/Learning	3 s.h.
SLA:6403 (164:228) Special Topics in Japanese Linguistics	3 s.h.
SLA:6950 (164:221) Topics in Second Language Acquisition: Speaking	3 s.h.

SLA:6955 (164:223) Topics in Second Language Acquisition: Listening	3 s.h.
SLA:6965 (164:227) Topics in Second Language Acquisition: Writing	3 s.h.
SLA:6970 (164:229) Cultural Curriculum	3 s.h.
CHIN:7403 (039:204) Teaching Chinese as a Foreign Language III	3 s.h.
EDTL:6402 (075:202) Second Language Program Management	3 s.h.
EDTL:6403 (075:203) Second Language Planning in Education	3 s.h.
EDTL:6408 (075:208) Designing Materials for Second Language Instruction	3 s.h.
EDTL:6480 (075:180) Issues in Foreign Language Education	3 s.h.
EDTL:6483 (075:183) Second Language Classroom Learning	3 s.h.
EDTL:6484 (075:184) Reading in a Second Language	3 s.h.
EDTL:6497 (075:197) Principles of Course Design for Second Language Instruction	3 s.h.
EDTL:7015 (075:415) Ph.D. Seminar in Language, Literacy, and Culture	arr.
PSQF:6205 (07P:205) Design of Instruction	3 s.h.
PSQF:6215 (07P:215) Web-Based Learning	3 s.h.

Some students may count an internship experience toward the specialization.

SLA:7000 (164:230) Internship	arr.
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Technology Specialization

The technology specialization requires three courses in psychological and quantitative foundations and two additional courses.

Psychological and quantitative foundations—one of these:

PSQF:6205 (07P:205) Design of Instruction	3 s.h.
PSQF:6275 (07P:275) Constructivism and Design of Instruction	3 s.h.

And both of these:

PSQF:6208 (07P:208) Designing Educational Multimedia	3 s.h.
PSQF:6215 (07P:215) Web-Based Learning	3 s.h.

Remaining specialization course work—total of two courses chosen from the following lists (other courses may be approved by the student's advisor):

CS:3110 (22C:104) Introduction to Informatics	3 s.h.
LING:4080 (103:157) Linguistic Theory and Second Language Acquisition	3 s.h.
PSQF:6203 (07P:203) Learning, Technology, and Effective Teaching	3 s.h.
SLIS:5020 (021:120) Computing Foundations	3 s.h.
A practicum course	3 s.h.

May include one of these (if not taken for the three-course sequence in psychological and quantitative foundations, above):

PSQF:6205 (07P:205) Design of Instruction	3 s.h.
PSQF:6275 (07P:275) Constructivism and Design of Instruction	3 s.h.

May include one of these:

SLA:7025 (164:302) Special Projects in Second Language Acquisition	3 s.h.
PSQF:6293 (07P:293) Individual Instruction in Psychological and Quantitative Foundations	3 s.h.

Before they take SLA:7025 (164:302) or PSQF:6293 (07P:293), students should complete the core design and technology courses PSQF:6205 (07P:205) Design of Instruction or PSQF:6275 (07P:275) Constructivism and Design of Instruction, PSQF:6208 (07P:208) Designing Educational Multimedia, and PSQF:6215 (07P:215) Web-Based Learning.

THESIS

All candidates must complete a thesis [SLA:7030 (164:303) Ph.D. Thesis], for which they may earn up to 18 s.h. of credit.

OPTIONAL COURSE WORK

Students may include the following optional course work in their degree programs.

SLA:7015 (164:300) Special Topics in Second Language Acquisition	arr.
SLA:7020 (164:301) Readings in Second Language Acquisition	arr.
SLA:7025 (164:302) Special Projects in Second Language Acquisition	arr.

Admission

Admission is for fall semester; students are admitted only for full-time study. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. Strong applicants hold a master's degree in a related area, have a cumulative g.p.a. of at least 3.50 in master's degree work, and speak and write English and another language at a professional level. Applicants must submit a writing sample that demonstrates their ability to synthesize and analyze information using standard academic English.

Financial Support

Teaching assistantships are available through the Foreign Language Acquisition Research and Education Program (FLARE). Assistantships usually involve teaching elementary or intermediate language courses. FLARE also offers a limited number of research assistantships. Visit the FLARE web site for details.

Courses

Upper-Level Undergraduate and Graduate

SLA:3302 (164:181) Introduction to Chinese Linguistics	3 s.h.
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Aspects of modern Chinese linguistics, such as Chinese phonology, syntax, pedagogical grammar, history of the language. Taught in English. Same as CHIN:3302 (039:144), LING:3302 (103:144).

SLA:3400 (164:160) Articulatory and Acoustic Phonetics	3 s.h.
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Production and transcription of sounds in human languages; physics of sound, computer analysis of speech sounds. Offered fall semesters. Same as LING:3005 (103:110).

SLA:3401 (164:140) Language Development 3 s.h.

Introduction to first language acquisition, with focus on infancy through five years; sound discrimination abilities, word learning, babbling and speech production, acquisition of grammar; perspectives from psychology, audiology, linguistics, speech pathology. Prerequisites: PSY:2701 (031:002). Requirements: grade of C- or higher in PSY:2401 (031:014) or PSY:2601 (031:016) and grade of C- or higher in PSY:2810 (031:010). Same as PSY:3085 (031:122).

SLA:4080 (164:157) Linguistic Theory and Second Language Acquisition 3 s.h.

Introduction of research results obtained by generative second language acquisition framework and their implications for classroom teaching methods; current views of language architecture; focus on inflectional morphology and linguistic interfaces, which have been proposed to be severe bottlenecks for acquisition; research findings on acquisition of syntax, phonology, semantics, linguistic pragmatics; pedagogical implications of these findings. Prerequisites: LING:3010 (103:111) and LING:3020 (103:112). Same as LING:4080 (103:157).

SLA:4300 (164:186) Introduction to Spanish Syntax 3 s.h.

Basic principles of generative syntax as applied to analysis of Spanish syntactic structure; extensive syntactic analysis. Prerequisites: SPAN:3100 (035:121). Same as SPAN:4150 (035:186).

SLA:4301 (164:189) Introduction to Spanish Phonology 3 s.h.

Sound patterns of Spanish; how various theoretical approaches solve basic problems in Spanish phonology; identification of linguistic universals, how they are manifested in the sound structure of Spanish. Prerequisites: SPAN:3100 (035:121) or SPAN:3110 (035:122). Same as SPAN:4100 (035:189).

SLA:4401 (164:163) Methods of Teaching English as a Second Language 3 s.h.

Observations of ESL and intensive English classes at the University; design and presentation of short lessons, text evaluation, demonstrations of innovative approaches of the last decade; materials. Offered spring semesters. Prerequisites: LING:3005 (103:110) and LING:4040 (103:141). Same as LING:4050 (103:145).

Graduate

SLA:5000 (164:200) Teaching and Learning Languages 3 s.h.

Readings in pedagogical theory and practice, second language acquisition; experience designing activities for teaching and assessment with critiques based on current theories and approaches; development of reflective practices toward one's language teaching. Same as WLLC:5000 (218:200).

SLA:5010 (164:241) Introduction to Syntax 3 s.h.

Methods and argumentation for formal analysis of sentence structure through induction from language data of central concepts and relations; hypothesis testing, empirical bases of theoretical concepts. Corequisites: LING:5000 (103:200). Same as LING:5010 (103:201).

SLA:5020 (164:203) Introduction to Phonology 3 s.h.

Analysis of sound systems, focus on early generative phonological theory; extensive practice in analysis using data from a variety of languages; linguistic argumentation. Prerequisites: LING:3005 (103:110). Same as LING:5020 (103:203).

SLA:5401 (164:245) First Language Acquisition 3 s.h.

Child language from a crosslinguistic perspective. Prerequisites: LING:3005 (103:110), and LING:4040 (103:141) or LING:5010 (103:201). Same as LING:5030 (103:206).

SLA:5441 (164:276) Japanese as a Foreign Language: Practical Applications 3 s.h.

Instructional methodology, curriculum, and material design; hands-on experience. Prerequisites: JPNS:4102 (39J:122). Same as JPNS:5401 (39J:202).

SLA:5501 (164:173) Curriculum Foundations 2-3 s.h.

Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. Same as EDTL:5086 (07S:186).

SLA:5973 (164:225) Grammar in Second Language Teaching/Learning 3 s.h.

Grammar, second language acquisition, and teaching. Taught in English, projects in varied languages. Same as GRMN:3540 (013:259).

SLA:6010 (164:242) Syntactic Theory 3 s.h.

Current syntactic theory examined through analysis of data sets, readings in recent research; emphasis on argument construction, statement of formal principles. Offered spring semesters. Prerequisites: LING:5010 (103:201). Same as LING:6010 (103:202).

SLA:6011 (164:244) Phonological Theory 3 s.h.

Post-SPE phonological theory, including autosegmental phonology, feature geometry, the syllable, optimality theory. Prerequisites: LING:5020 (103:203). Same as LING:6020 (103:204).

SLA:6300 (164:260) Foreign Language Teaching Methods 3 s.h.

Readings in pedagogical theory and practice and second language acquisition; experience designing activities for teaching and assessment, with critiques based on current theories and approaches; development of reflective practices toward one's own language teaching. Same as SPAN:6000 (035:200).

SLA:6301 (164:261) Topics in Spanish Language Acquisition 3 s.h.

Theoretical linguistic approaches to monolingual, bilingual, and second language acquisition of Spanish and Portuguese; varied topics. Requirements: at least one course in linguistics (e.g., general introduction to linguistics). Same as SPAN:6150 (035:206).

SLA:6302 (164:262) Topics in Comparative Romance Linguistics 3 s.h.

Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Recommendations: additional graduate course work in linguistics. Same as LING:6190 (103:262), SPAN:6190 (035:207), CLSA:6990 (20E:201).

SLA:6303 (164:263) Spanish Phonology 3 s.h.

Modern approaches to synchronic phonology as applied to Spanish; focus on traditional descriptive problems, recent generative analyses. Requirements: phonology or linguistics course. Same as SPAN:6110 (035:209).

SLA:6304 (164:264) Spanish Syntax 3 s.h.

Spanish syntactic constructions examined in framework of selected syntactic theory; emphasis on development of syntactic argumentation. Requirements: one course in syntax. Same as SPAN:6120 (035:210).

SLA:6403 (164:228) Special Topics in Japanese Linguistics 3 s.h.

Topics in applied linguistics and language pedagogy related to Japanese language. Same as JPNS:6403 (39J:239).

SLA:6452 (164:246) Generative Second Language Acquisition 3 s.h.

Overview of current second-language acquisition research in the generative linguistic framework; focus on characterizing second language learners' linguistic competence and how it is constrained by principles of universal grammar. Offered fall semesters. Prerequisites: LING:3010 (103:111) or LING:5010 (103:201), and LING:3020 (103:112) or LING:5020 (103:203). Same as LING:6080 (103:211).

SLA:6466 (164:240) Cognitive Development 3 s.h.

Theoretical and empirical analyses of children's cognitive development; spatial and numerical concepts, causal reasoning, categorization, metacognition, memory. Same as PSY:6430 (031:218).

SLA:6500 (164:170) Issues in Foreign Language Education 3 s.h.

Theoretical perspectives of pivotal research issues at the forefront of foreign language education; systems available to foreign language professionals for disseminating research. Same as EDTL:6480 (07S:180).

SLA:6501 (164:172) Reading in a Second Language 3 s.h.

Current theory, research, practice in second language reading field; role of textual features and the reader in reading comprehension. Same as EDTL:6484 (07S:184).

SLA:6502 (164:174) Principles of Course Design for Second Language Instruction 3 s.h.

Contemporary views of second language curriculum design; guidelines necessary for the creation of prototypical curriculum units to be transposed into classroom-ready forms; for individuals interested in foreign language materials development. Same as EDTL:6497 (07S:197).

SLA:6503 (164:270) Fundamentals of Second Language Assessment 3 s.h.

How to write language tests; discussion of fundamental issues in development of new tests or selection of existing tests. Same as EDTL:6400 (07S:200).

SLA:6504 (164:271) Second Language Program Management 3 s.h.

Preparation for supervising, administering foreign language programs at all levels; for precollegiate language teachers and graduate students. Same as EDTL:6402 (07S:202).

SLA:6505 (164:272) Designing Materials for Second Language Instruction 3 s.h.

Critical perspective on creating and using media for second language learning and teaching; research on materials design, development of media. Prerequisites: EDTL:6483 (07S:183). Same as EDTL:6408 (07S:208).

SLA:6506 (164:171) Second Language Classroom Learning 3 s.h.

Synthesis of empirical findings on children's and adults' learning of a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as ASIA:6483 (039:177), EDTL:6483 (07S:183).

SLA:6901 (164:201) Second Language Acquisition Research and Theory I 3 s.h.

Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as FREN:6901 (009:237), ASIA:6901 (039:200), SPAN:6901 (035:201), JPNS:6901 (39J:201).

SLA:6902 (164:202) Second Language Acquisition Research and Theory II 3 s.h.

Continuation of SLA:6901 (164:201). Prerequisites: SLA:6901 (164:201). Same as ASIA:6903 (039:201), SPAN:6902 (035:202).

SLA:6920 (164:211) Multimedia and Second Language Acquisition 3 s.h.

Foreign language multimedia in context of current second language acquisition theories and research; readings on interactivity, interface design, feedback, learner control; acquisition of vocabulary, grammar, and culture. Requirements: foreign language teaching methodology course. Same as FREN:6920 (009:238), GRMN:6920 (013:253), SPAN:6920 (035:212).

SLA:6950 (164:221) Topics in Second Language Acquisition: Speaking 3 s.h.

Theory, pedagogy, research, and assessment in second language speaking. Same as FREN:6950 (009:236), SPAN:6950 (035:228).

SLA:6955 (164:223) Topics in Second Language Acquisition: Listening 3 s.h.

Theory, pedagogy, research, and assessment in second language listening. Same as ASIA:6955 (039:223).

SLA:6965 (164:227) Topics in Second Language Acquisition: Writing 3 s.h.

Theory, pedagogy, research, and assessment in second language writing. Taught in English. Same as RHET:6965 (010:275), SPAN:6965 (035:227).

SLA:6970 (164:229) Cultural Curriculum 3 s.h.

Culture's role in foreign/second language teaching; definition, pedagogy, assessment, and materials that allow culture to be taught and learned. Same as EDTL:6409 (07S:209).

SLA:6975 (164:226) Reading in Non-Roman Scripts 3 s.h.

Theory and practice of reading in languages that use non-Roman alphabets, syllabary, logographic systems; reading in first and second language contexts; instructional and literacy development issues. Prerequisites: EDTL:4171 (07E:171) or EDTL:6484 (07S:184). Same as EDTL:6407 (07S:207).

SLA:7000 (164:230) Internship arr.

SLA:7010 (164:212) Practicum in CALL Software Development 1-4 s.h.

Supervised experience in an applied setting involving development of computer-assisted language learning (CALL) software. Prerequisites: SLA:6920 (164:211). Requirements: faculty sponsor.

SLA:7015 (164:300) Special Topics in Second Language Acquisition arr.

SLA:7020 (164:301) Readings in Second Language Acquisition arr.

SLA:7025 (164:302) Special Projects in Second Language Acquisition arr.

SLA:7030 (164:303) Ph.D. Thesis arr.

SLA:7401 (164:247) Advanced Syntactic Theory 2-3 s.h.

Recent developments in syntax; comparison of theories, argumentation, and uses of data. Prerequisites: LING:6010 (103:202). Same as LING:7010 (103:212).

SLA:7402 (164:248) Advanced Phonological Theory 2-3 s.h.

Current issues. Prerequisites: LING:6020 (103:204). Same as LING:7020 (103:214).

SLA:7404 (164:342) Seminar: Problems in Linguistics 2-3 s.h.

Intensive study of theoretical and practical problems. Same as LING:7090 (103:312).

SLA:7405 (164:275) Teaching Chinese as a Foreign Language V 3 s.h.

Seminar on research design; for M.A. students planning to write a thesis or project, or graduate students seeking knowledge in designing qualitative or quantitative studies. Prerequisites: CHIN:7401 (039:202) and PSQF:4143 (07P:143). Same as CHIN:7405 (039:209).

SLA:7406 (164:281) Teaching Chinese as a Foreign Language I: Theories/Research 3 s.h.

Research, theory on acquisition of Chinese as a non-native language. Same as CHIN:7401 (039:202).

SLA:7408 (164:282) Teaching Chinese as a Foreign Language II 3 s.h.

Multiple levels of major Chinese textbooks, curricular organizational schemes, language programs, communicative language instruction; development of supplementary materials for a University of Iowa Chinese course. Same as CHIN:7402 (039:203).

SLA:7804 (164:274) Teaching Chinese as a Foreign Language IV 3 s.h.

Overview of goals, concepts, principles, research, and issues in assessment and testing of Chinese as a foreign language. Same as CHIN:7404 (039:208).

Social Work

Director

- Edward J. Saunders

Professor

- Carol Coohy

Associate professors

- Mercedes Bern-Klug, Amy C. Butler, Carolyn Hartley, Julia Kleinschmit, Miriam Landsman, Susan Murty, Lynette Renner, Sara Sanders, Edward J. Saunders, Jeanne Saunders

Assistant professors

- Stephen Cummings, Yvonne Farley, Lily French, Megan Gilster, Man Guo, Motier Haskins, M. Billie Marchik, Robert Vander Beek

Adjunct associate professors

- Lisa D'Aunno, Brad Richardson

Adjunct assistant professors

- Larry Allen, Mike Bandstra, Margaret Cretzmeyer, Sandra McGee, Beth Skinner, Stephen Trefz

Adjunct instructors

- Ed Barnes, Margaret Bessman-Quintero, Susan Bixenman, Ryan Bobst, Lance Clemens, Rick Connor, Raygena Curry, Suzanne Dell, Emily Donovan, Erin Feldman, Sr. Shirley Fineran, Romaine Foege, Judy Foote, Joel Fry, Brenda Geisinger, Thomas Gilseman, Greg Gross, Kim Hanrahan, Edwin Haycraft, Barbara Hirsch-Giller, Kate Kemp, Sid Lutz, Lynn Meincke, Bonnie Mikelson, Ron Mirr, Pam Moore, Mary Newcomb, Greg Nooney, Angela Ohrt, Alison Oliver, Sarah Oliver, Jennifer Lock Omann, Elizabeth Rembold, Kathleen Ruyle, Mari Samuelson, Kathleen Shey, Diane Sonnevill, Scott Stange, Eileen Swoboda, Ellen Szabo, Megan Thibodeau, Michael Thompson, Diane Tonkyn, Molly Twohig, Sue Witte, Joel Wulf, Joanne Young

Professors emeriti

- Lorraine Dorfman, Patricia L. Kelley, Thomas H. Walz

Associate professors emeriti

- Robert Jackson, Judith Rinehart, William M. Theisen

Assistant professor emeritus

- B. Eleanor Anstey

Undergraduate major: social work (B.A.)

Undergraduate minor: social work

Graduate degrees: M.S.W.; Ph.D. in social work

Web site: <http://clas.uiowa.edu/socialwork/>

The School of Social Work's mission is to develop, disseminate, and integrate excellent and compelling research-based knowledge, practice, and policy, particularly that related to children, families, and older adults. The school operates from strengths-based perspectives and systems perspectives. It educates its graduates to be culturally competent scholars and practitioners who are committed to social justice and social work values and ethics, and who are prepared to serve in and have a positive impact on a broad range of

family-centered and community-based practice settings throughout the State of Iowa and beyond.

The school provides a program of professional training accredited by the Council on Social Work Education at the baccalaureate and master's degree levels, aimed at developing effective intervention in multiple systems and using professional social work values and ethics. It also offers a Ph.D. program, which prepares students to conduct research that contributes to the knowledge base of social work, to be leaders in setting policy and practice, and to teach in colleges and universities.

In addition to offering undergraduate and graduate programs of study in social work, the school administers the Aging Studies Program, which offers a certificate for undergraduate and graduate students and a minor for undergraduates. The school also administers the undergraduate Certificate in Critical Cultural Competence. See Aging Studies (p. 33) and Critical Cultural Competence (p. 221) in the Catalog.

Undergraduate Programs of Study

- Major in social work (Bachelor of Arts)
- Minor in social work

The undergraduate program in social work has been accredited continuously by the Council on Social Work Education (CSWE) since 1974 and is designed to be consistent with the council's 2008 Educational Policy Statement competencies and practice behaviors. The program's goals are to:

- prepare students for culturally competent generalist social work practice with individuals, families, small groups, organizations, and communities;
- provide students with a base for continuing graduate education in social work and for lifelong learning; and
- prepare students for active engagement with issues of social justice, oppression, and social welfare in local, state, regional, national, and global goals.

The program draws on a liberal arts perspective; social and behavioral science theory; social research; social policy development, analysis, and implementation; culturally competent intervention and prevention approaches in working with individuals, families, small groups, organizations, and communities; social integration; multiple systems assessment and evaluation; and knowledge pertaining to diversity.

Consistent with CSWE standards, the program views dimensions of diversity as intersections of multiple factors, including age, class, color, culture, disability, ethnicity, gender, gender-identity and expression, immigration status, political ideology, race, religion, sex, and sexual orientation. Students learn that, as a consequence of difference, a person's life experiences may include oppression, poverty, marginalization, and alienation as well as privilege, power, and acclaim.

Knowledge and practice in social work values and ethics is also an integral part of students' education. Knowledge and skill related to the evaluation of practice are integrated throughout the curriculum, beginning in SSW:2222 (042:022) Introduction to Social Work, continuing through practice and research courses, and culminating in the field experience and field seminar.

ADMISSION TO THE MAJOR

The School of Social Work endeavors to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives.

A limited number of students are admitted to the major each year. The application deadline is March 1. Admission to the undergraduate program in social work requires:

- completion of SSW:2222 (042:022) Introduction to Social Work with a grade of C or higher during the sophomore year;
- a cumulative g.p.a. of at least 2.50 (exceptions may be made for persons who do not meet the grade-point average requirement if they are strong candidates on the basis of other criteria); and
- completion of application forms and statement.

Students should complete SSW:2222 (042:022) Introduction to Social Work and apply to the major during their sophomore year. Students who apply during their junior year and are admitted must expect to complete an additional summer session, or more, in order to fulfill the requirements of the major.

Meeting the admission requirements above does not guarantee admission. Admission often is limited by available instructional resources and opportunities for field placement. The school does not grant academic credit for life experience or previous work experience.

For more information about admission policies, contact the undergraduate director or admissions director at the School of Social Work.

SOCIAL WORK INTEREST

Students who are interested in applying to the social work major may declare a social work interest at any time after they enroll at the University and before they earn more than 72 s.h. of credit, and preferably while they still will have time to enter and complete the major in a total of four years of study. Students may not declare a social work interest after they have earned 72 s.h., even if they already have declared another major.

Declaration of a social work interest qualifies students with at least sophomore standing to be advised by social work faculty and to participate in the Social Work Student Association and other School of Social Work activities, but it does not allow them to register for courses required specifically for the major.

Students may continue their social work interest standing until they are admitted to the major or until they have earned more than 72 s.h. of credit.

SOCIAL WORK COURSES IN DES MOINES

In addition to its on-campus undergraduate program in Iowa City, the School of Social Work offers social work courses for the Bachelor of Arts through its program in Des Moines. Students in the Des Moines program take courses in sequence, completing the social work courses required for the degree in two years. Courses are offered in a classroom setting. Students may complete other requirements for the Bachelor of Arts in online and/or classroom course work. The Des Moines program is approved by the Council on Social Work Education. For more information about the social work program in Des

Moines, contact the University of Iowa School of Social Work admissions director.

Bachelor of Arts

The Bachelor of Arts with a major in social work requires a minimum of 120 s.h., including at least 64-69 s.h. of work for the major (a minimum of 36-39 s.h. in social work courses, 16-18 s.h. in cognate areas, and 12 s.h. in social work electives or in a concentration area). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Students must complete SSW:2222 (042:022) Introduction to Social Work (4 s.h.) to be admitted to the major and before enrolling in the remaining social work courses required for the major.

Many students use the major's required course BIOL:1140 (002:021) Human Biology as partial fulfillment of the General Education Program's Natural Sciences requirement.

The major in social work requires the following course work.

SOCIAL WORK

All of these:

SSW:2222 (042:022) Introduction to Social Work	4 s.h.
SSW:3840 (042:140) Human Behavior in the Social Environment	4 s.h.
SSW:3841 (042:141) Fundamentals of Social Work Practice	3 s.h.
SSW:3842 (042:142) Interpersonal Skills Laboratory	2 s.h.
SSW:3844 (042:144) Introduction to Social Work Research	4 s.h.
SSW:3845 (042:171) Social Work Processes	4 s.h.
SSW:3847 (042:147) Discrimination, Oppression, and Diversity	3 s.h.
SSW:4189 (042:189) Field Experience Seminar	1 s.h.
SSW:4193 (042:193) Field Experience	8-11 s.h.
SSW:4843 (042:143) Social Welfare Policy and Practice	3 s.h.

COGNATE AREAS

Natural and social sciences—all of these:

BIOL:1140 (002:021) Human Biology	4 s.h.
POLI:1100 (030:001) Introduction to American Politics	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.
SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.

Social science or quantitative studies—one of these:

ANTH:1101 (113:003) Cultural Anthropology	3 s.h.
ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.
ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.

STAT:1010 (22S:002) Statistics and Society	3 s.h.
STAT:1020 (22S:025) Elementary Statistics and Inference	3 s.h.

CONCENTRATION AREA

Students complete a minimum of 12 s.h. of elective courses in social work or in one of the concentration areas listed below. Students who wish to complete a concentration area not listed below must present a written request and rationale to the faculty advisor and undergraduate coordinator. Courses used to fulfill other requirements for the major or for the General Education Program do not count toward the 12 s.h. required for the concentration area.

- African American studies
- Aging studies
- American studies
- Anthropology
- Business
- Child life and therapeutic recreation
- Communication studies
- Critical cultural competence
- Economics
- Education
- English
- Gender, women's, and sexuality studies
- Health promotion
- History
- Journalism and mass communication
- Political science
- Psychology
- Religious studies
- Sociology
- Spanish
- Sport studies

Recommended Course Sequence

The school recommends that students complete required course work in the following sequence. Most social work courses are offered only once each year.

FIRST AND SECOND YEARS

SSW:2222 (042:022) Introduction to Social Work	4 s.h.
BIOL:1140 (002:021) Human Biology	4 s.h.
POLI:1100 (030:001) Introduction to American Politics	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.
SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
One social science or quantitative elective course	3-4 s.h.

THIRD YEAR

SSW:3840 (042:140) Human Behavior in the Social Environment	4 s.h.
SSW:3844 (042:144) Introduction to Social Work Research	4 s.h.
SSW:3845 (042:171) Social Work Processes	4 s.h.
SSW:3847 (042:147) Discrimination, Oppression, and Diversity	3 s.h.

FOURTH YEAR

SSW:3841 (042:141) Fundamentals of Social Work Practice	3 s.h.
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SSW:3842 (042:142) Interpersonal Skills Laboratory	2 s.h.
SSW:4189 (042:189) Field Experience Seminar	1 s.h.
SSW:4193 (042:193) Field Experience	8-11 s.h.
SSW:4843 (042:143) Social Welfare Policy and Practice	3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Admission to the major in social work is selective. The four-year graduation plan applies only to students who are admitted by the beginning of their fifth semester.

Before the fifth semester begins: four courses in the major (may include concentration area courses) and admission to the major

Before the seventh semester begins: six more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: four or five more courses in the major and finalized field placement

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in social work have the opportunity to graduate with honors in the major. Honors students do in-depth study in areas that interest them. They must maintain a cumulative University of Iowa g.p.a. of at least 3.33 to participate in the program. Consult the School of Social Work for more information about graduating with honors in the major.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in social work requires a minimum of 15 s.h. in social work courses, including 12 s.h. in courses numbered 3000 or above taken at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. The minor must include SSW:2222 (042:022) Introduction to Social Work (or for transfer students, an equivalent course from another institution). Contact the School of Social Work undergraduate program director or program administrator for more information.

Certificate in Aging Studies

The School of Social Work administers the Aging Studies Program, which offers a certificate for undergraduate and graduate students and a minor for undergraduates; see Aging Studies (p. 33) in the Catalog.

Certificate in Critical Cultural Competence

The School of Social Work administers the undergraduate certificate program in critical cultural competence; see Critical Cultural Competence (p. 221) in the Catalog.

Graduate Programs of Study

- Master of Social Work (thesis or nonthesis)
- Doctor of Philosophy in social work

The Master of Social Work program has been accredited by the Council on Social Work Education continuously since 1951.

LICENSURE FOR WORK IN IOWA

Licensure is mandatory for master's-level social workers in Iowa. For more information, see Iowa Board of Social Work on the Iowa Department of Public Health web site.

SCHOOL SOCIAL WORK ENDORSEMENT

The school cooperates with the College of Education and the State Department of Education to provide curricula that meet requirements for school social work endorsement in Iowa.

Master of Social Work

The Master of Social Work requires 60 s.h. of graduate credit; the requirement is 48 s.h. for students who hold an undergraduate degree in social work from a program accredited by the Council on Social Work Education. The degree is offered with or without thesis. An optional specialization in end-of-life care is available.

The goals of the M.S.W. program are to:

- prepare students to shape the profession's future by providing education in family-based, community-based, and culturally competent practice approaches using the person-in-environment framework; and
- prepare competent professionals for autonomous practice and leadership within the professional community; autonomous practice and leadership include advanced interventions at multiple system levels, supervision, program development, program administration, training, evaluation of practice, dissemination of new models of practice, and policy development.

The school offers the M.S.W. program on the University's Iowa City campus and at three off-campus sites: Des Moines and Sioux City, Iowa, and the Quad Cities area of Iowa and Illinois (see "M.S.W. Off Campus" below). Each site provides the required structured sequence of courses and includes opportunities for students to individualize their plans of study. All sites give students access to the resources of an RU/VH Research University.

Requirements for the M.S.W. include 27 s.h. in foundation-level courses and 33 s.h. in advanced courses. All students must earn a minimum of 36 s.h. after admission to the M.S.W. program. Students may count a maximum of 9-12 s.h. of credit from previous graduate work toward the M.S.W.

All M.S.W. students follow a structured sequence of courses. They must obtain permission to revise their plan, and they must complete the degree within a maximum of four years. All students must maintain a cumulative g.p.a.

of at least 3.00 and must be promoted and each semester in compliance with the school's student advancement policy.

The full-time M.S.W. program must be completed in five semesters, beginning in fall and including summer session. Full-time students complete the degree in the spring semester of their second year. Students whose degree requirement is 48 s.h. may enroll full-time or part-time their first semester, following the sequenced plan.

Full-time study and a four-year part-time program are available in Iowa City and Des Moines. A three-year sequence of courses is available at all sites, although the Sioux City and Quad Cities sites admit new entering classes only on a three-year cycle.

Following is an outline of the full-time 60 s.h. program. For information about the three-year and four-year part-time sequences, contact the School of Social Work.

FIRST-YEAR: FOUNDATION

Fall Semester

SSW:3840 (042:140) Human Behavior in the Social Environment	3 s.h.
SSW:3847 (042:147) Discrimination, Oppression, and Diversity	3 s.h.
SSW:6146 (042:146) Computer Laboratory	1 s.h.
SSW:6148 (042:148) Research Practice I	3 s.h.
SSW:6150 (042:150) Social Work Practice with Individuals, Families, and Groups	3 s.h.
SSW:6151 (042:151) Social Work Practice Skills Laboratory	2 s.h.

Spring Semester

SSW:4843 (042:143) Social Welfare Policy and Practice	3 s.h.
SSW:6145 (042:145) Organization and Community Practice	3 s.h.
SSW:6290 (042:290) Foundation Practicum in Social Work	3 s.h.
SSW:6291 (042:291) Foundation Practicum Seminar	1 s.h.
SSW:7270 (042:270) Research Practice II	3 s.h.

Summer Session

Electives (including preplacement field practice courses)	9 s.h.
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SECOND-YEAR: CONCENTRATION

Fall Semester

Elective	3 s.h.
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One of these:

SSW:7250 (042:250) Family-Centered Theory and Practice I	3 s.h.
SSW:7260 (042:260) Integrated Social Work Theory and Practice I	3 s.h.

One of these:

SSW:7292 (042:292) Advanced Practicum in Family-Centered Practice I and II	5-6 s.h.
SSW:7295 (042:295) Advanced Practicum in Integrated Practice	5-6 s.h.

One of these:

SSW:7293 (042:293) Advanced Practicum Seminar in Family-Centered Practice I	1 s.h.
SSW:7297 (042:297) Advanced Practicum Seminar in Integrated Practice I	1 s.h.

Spring Semester

One of these:

SSW:7251 (042:251) Family-Centered Theory and Practice II	3 s.h.
SSW:7261 (042:261) Integrated Social Work Theory and Practice II	3 s.h.

One of these:

SSW:7252 (042:252) Advanced Social Policy for Family Practice	3 s.h.
SSW:7262 (042:262) Advanced Social Policy for Integrated Practice	3 s.h.

One of these:

SSW:7292 (042:292) Advanced Practicum in Family-Centered Practice I and II	5-6 s.h.
SSW:7295 (042:295) Advanced Practicum in Integrated Practice	5-6 s.h.

One of these:

SSW:7294 (042:294) Advanced Practicum Seminar in Family-Centered Practice II	1 s.h.
SSW:7298 (042:298) Advanced Practicum Seminar in Integrated Practice II	1 s.h.

Concentrations

In the advanced year of the master's program, students choose one of two concentrations: family-centered practice or integrated practice. These advanced specialized curricula build on the school's liberal arts perspective and on the professional foundation. Both are based on a comprehensive eco-systemic theoretical perspective, and both apply the principles that are part of the school's mission statement, with a focus on culturally competent family-centered and community-based approaches.

FAMILY-CENTERED PRACTICE

The family-centered practice concentration teaches knowledge and skills necessary for advanced social work practice with individuals and families. These include clinical practice methods that mobilize and develop clients' coping skills, empowering them to manage difficult situations, and culturally sensitive methods for collaborating with clients, their families, and other professionals in planning interventions. Students also learn about advocating for clients, facilitating client self-advocacy, coordinating services to meet multiple needs, and influencing social policy on behalf of clients.

The concentration prepares students to work with individuals and families at appropriate levels of intensity, mobilize existing strengths, and enhance coping skills. Using principles of family-centered practice, students learn to take community and larger systems into account while working in partnership with individuals and families in all aspects of assessment and intervention planning. The concentration emphasizes sensitivity to a variety of family forms and to cultural diversity within family forms. "Family" is broadly defined to include step families, single-parent

families, same-sex-couple families, grandparent-as-parent families, adult parent-adult child families, and traditional forms of families.

INTEGRATED PRACTICE

The integrated practice concentration teaches methods of advanced practice that empower organizational and community change at multiple system levels. Students learn skills for assessment, planning, and direct intervention in larger systems such as neighborhoods, social support networks, and service delivery systems, and for policy making. They develop skills for a broad range of interventions, including direct practice, case management, community education, community development and practice, management and administration, organizational and interorganizational planning and program development, team building, organization and program evaluation, and social policy advocacy. They also learn culturally sensitive methods to collaborate with families and communities; identify strengths, assets, and challenges; and develop services and programs that will meet clients' needs.

Building on strengths and assets of organizations and communities, students learn how to mobilize community members in advocacy and change efforts—skills useful for case managers, service coordinators, supervisors, program planners and developers, and administrators. Students also learn how to apply advanced skills to advocacy, community assessment, planning and mobilizing resources, and influencing social policy.

The concentration prepares students for practice in varied settings, including hospitals and community health programs, schools, mental health centers, neighborhood and family resource centers, community- and family-based community service agencies, correctional facilities, and programs that serve the elderly, both in the community and in care facilities. In many of these settings, social workers work as interdisciplinary team members and team leaders within organizations. They also collaborate with community organizations, community residents, and service providers. Many social workers are involved in staff supervision, program development, and agency administration. Content areas include grant writing; intervention in multiple systems, including team and network building; policy practice; and design of evaluation methods for client assessment and program evaluation.

Admission

The school seeks to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives. Previous experience in human services and cross-cultural experiences is desirable. The school does not grant academic credit for life experience or previous work experience.

Admission to the M.S.W. program requires a bachelor's degree from an accredited college or university, with a reasonable distribution of courses in the liberal arts and sciences (the humanities and the social, behavioral, and biological sciences). Applicants should have an undergraduate g.p.a. of 3.00 or higher, or a g.p.a. of 3.00 or higher on 12 s.h. of letter-graded graduate course work; consult the University's Office of Admissions for help in calculating grade-point average. Competence with word processing and spreadsheet application on personal computers is required.

Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applicants must submit three letters of recommendation, including one regarding academic abilities and one from the applicant's most recent employer (if the employment was social work-related); and a personal statement addressing criteria specified by the School of Social Work.

Applications are accepted beginning September 1 and must be completed by February 1 to be considered for the next academic year.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

For a complete statement of graduate admission policies, contact the School of Social Work.

Financial Support

Students seeking financial assistance should apply for aid through The University of Iowa Office of Student Financial Aid. Students may apply for a limited number of research and teaching assistantships available from the School of Social Work. Application materials for research or teaching assistantships are available from the school each spring, or as positions become available. Aid received through the Office of Student Financial Aid does not preclude students from consideration for aid through the School of Social Work.

M.S.W. Off Campus

The School of Social Work delivers the M.S.W. curriculum to three off-campus sites: Des Moines and Sioux City, Iowa, and the Quad Cities area of Iowa and Illinois. Each site is administered by the School of Social Work in cooperation with the Division of Continuing Education. Social work faculty members teach required courses at each center and are available for student advising. The off-campus programs have been evaluated by the Council on Social Work Education and The University of Iowa Graduate Council as providing a program comparable to that available on the Iowa City campus.

Courses at each off-campus site are taught in classrooms by tenure-track, clinical, visiting, and adjunct faculty members. Instructional connections between sites are maintained through varied technologies, including computer-based instruction.

For program entry and application dates, contact the School of Social Work.

Des Moines Center

The John and Mary Pappajohn Education Center is located in Des Moines, in central Iowa. It offers courses sequenced to accommodate both part-time and full-time study. Students may complete the entire degree program at the Des Moines center, although they may travel to Iowa City for selected elective courses offered during the summer.

Quad Cities Center

Students in the Quad Cities part-time program can complete their degree entirely off-campus with the exception of some electives, which they can take during summer sessions in Iowa City or at other area colleges and universities. The School offers this part-time program to a

cohort admitted once every three years. In addition to the part-time cohort students, there are some full- or part-time students from Iowa City in practicum in the Quad Cities. The Quad Cities program is located in the Davenport/Bettendorf area on Iowa's eastern border.

Sioux City Center

The Sioux City part-time program is nearly identical to the Quad Cities part-time program. Most courses are offered in classroom space at Briar Cliff University in Sioux City.

Joint M.S.W./Ph.D. in Social Work

The school offers a joint Master of Social Work/Doctor of Philosophy in social work for students who have completed course work in research and statistics and have postbaccalaureate experience related to social work practice. The joint program permits students to apply a limited amount of credit toward both graduate degrees, reducing the time required to graduate. Individuals interested in the joint program must apply to the M.S.W. program and the Ph.D. program; applications are reviewed by the admissions panels of both programs. For more information, contact the School of Social Work.

Joint M.S.W./Degrees in Other Disciplines

The School of Social Work collaborates with the College of Law to offer the joint Juris Doctor/Master of Social Work. It also collaborates with the School of Urban and Regional Planning to offer the joint Master of Social Work/Master of Arts or Master of Science in urban and regional planning. Each program permits students to apply up to 12 s.h. of graduate credit toward both degrees, reducing the time required to graduate. Applicants must apply to each program separately and be admitted to each one before they may be admitted to the joint degree program. For information about the law and planning programs, see Juris Doctor (p. 1005) (College of Law) and Urban and Regional Planning (p. 998) (Graduate College) in the Catalog.

Similar arrangements may be made with other departments. Academic units in which social work students have pursued joint degrees include the Tippie College of Business, the College of Education, the Department of American Studies, the Department of Religious Studies, and the School of Journalism and Mass Communication. Social work students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

M.S.W. Professional Association

Graduates of accredited M.S.W. programs may be eligible for associate membership in the American Association for Marriage and Family Therapy (AAMFT) upon fulfilling certain curriculum requirements at the graduate level. Courses are not automatically accepted; graduates need to demonstrate that specific courses meet the AAMFT's requirements, usually by sending course outlines.

Doctor of Philosophy

The Doctor of Philosophy program in social work requires a minimum of 86 s.h. of graduate credit. The program prepares students to conduct research that contributes to the knowledge base of social work, to become leaders in

the profession, and to teach social work in postsecondary educational institutions.

Doctoral students develop close working relationships with faculty members who have achieved national recognition in areas such as child welfare, diversity and cultural competence, gerontology, social policy, and mental health.

The Ph.D. offers students a coherent program of study with opportunities to pursue their own scholarly interests. Each student's program of study must be approved by his or her advisor.

Students complete required course work and research and teaching practicums; pass a comprehensive exam; and write a dissertation and defend it in an oral exam. Their work includes courses in one of three outside disciplines: sociology, psychology, or public health. This course work helps to prepare them for the comprehensive examination and dissertation defense.

Students who enter the program with an M.S.W. are granted credit for 30 s.h. and must complete an additional 56 s.h. for the degree. Individuals with master's degrees in related disciplines (e.g., psychology, sociology) may choose to earn a Ph.D. in social work without first earning the M.S.W. Credit from a related master's degree may be applied to the Ph.D., as determined case-by-case by the School of Social Work.

The Ph.D. in social work requires the following course work.

FOUNDATION COURSES

Doctoral students without the M.S.W. must take the following four foundation courses during their first year of study. Students may waive one or more of these courses if they can show that they have completed comparable courses and can pass an applicable exam.

SSW:3840 (042:140) Human Behavior in the Social Environment	3-4 s.h.
SSW:3847 (042:147) Discrimination, Oppression, and Diversity	3 s.h.
SSW:4843 (042:143) Social Welfare Policy and Practice	3 s.h.
SSW:6148 (042:148) Research Practice I	3 s.h.

CORE COURSES

All Ph.D. students must complete the following core courses.

SSW:7800 (042:300) Social Work Proseminar	1 s.h.
SSW:7801 (042:301) Knowledge Building in Social Work Practice	3 s.h.
SSW:7803 (042:303) Social Work Research Practicum	4 s.h.
SSW:7804 (042:304) Thesis Seminar	3 s.h.
SSW:7806 (042:306) Social Work Teaching Practicum	2 s.h.
SSW:7807 (042:307) Teaching Seminar	1 s.h.
SSW:7815 (042:315) Developing Knowledge in Human Service Organizations	3 s.h.

RESEARCH METHODS, STATISTICS, DATA ANALYSIS

Students earn 9 s.h. in research methods, statistics, and data analysis course work.

OUTSIDE DISCIPLINE REQUIREMENT

Students earn 12 s.h. in one outside discipline (psychology, sociology, or public health), as follows.

One methods course	3 s.h.
One theory course	3 s.h.
Two electives	6 s.h.

ADDITIONAL ELECTIVES

Students earn 6 s.h. in elective course work (in addition to electives taken for the outside discipline requirement).

Admission

Students are admitted to the Ph.D. program only for full-time study. Admission requires a master's degree in social work from a program accredited by the Council on Social Work Education (CSWE) or a master's degree in a related field. Prospective students also may apply to the M.S.W./Ph.D. program.

The school makes special efforts to recruit students from underrepresented minorities, especially Iowa residents. The program accepts up to five students each year.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants must have taken the Graduate Record Exam (GRE) General Test and should have their scores sent to The University of Iowa. A score of at least 575 on both the verbal and quantitative sections, or a composite score of 1150, is preferred for individuals who took the old GRE. A score of at least 158 on the verbal section and at least 147 on the quantitative section, or a composite score of at least 305, is preferred for those who took the revised GRE. The School of Social Work has not established a minimum analytic writing score.

Applicants also must submit a completed Graduate College application form; undergraduate transcript (an undergraduate g.p.a. of at least 3.00 and an introductory statistics course are required); graduate transcript; a personal statement of professional goals, including area of interest and reason for pursuing the Ph.D. (two to three pages); a résumé; a sample of scholarly writing (scholarly publication or research or theoretical paper); and three letters of recommendation (two must be academic references).

Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applicants must submit the application form, fee, and other materials to the University's Office of Admissions. An application packet and list of guidelines are available from the admissions office and on the School of Social Work web site. The application is due February 1 for the following academic year.

Financial Support

Doctoral students are typically awarded two or three years of financial support from the School of Social Work, including research or teaching assistantships and fellowships. Students whose first language is not English must take the English Speaking Proficiency Assessment (ESPA) test in order to be considered for teaching assistantships. Assistants who hold appointments of one-

quarter-time or more are assessed Iowa resident tuition, for which they receive a scholarship, and their computer fees and health insurance premiums are waived for each semester they hold an appointment during the academic year. For more information, see Cost of Attendance on the Office of Student Financial Aid web site.

Certificate in Aging Studies

The School of Social Work administers the Aging Studies Program, which offers a certificate for undergraduate and graduate students and a minor for undergraduates; see Aging Studies (p. 33) in the Catalog.

Projects, Seminars

Students may become involved in special projects such as the National Resource Center for Family-Centered Practice and the School of Social Work's programs in gerontology and in end-of-life care.

The school also offers students the opportunity to participate in travel/study seminars. Urban, rural, national, and international seminars are available.

Continuing Education

Nondegree students may enroll in selected courses and workshops offered on campus and online through the Division of Continuing Education and in off-campus programs offered by the School of Social Work. Students who complete continuing education work and later enroll in a degree program may be able to apply a limited amount of their continuing education work toward their degree requirements; applicable credit is determined by the School of Social Work. See Course Types on the Division of Continuing Education web site.

Courses

Lower-Level Undergraduate

SSW:1000 (042:029) First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

SSW:1800 (042:085) Basic Aspects of Aging 3 s.h.

Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. GE: Social Sciences. Same as LEIS:1800 (169:085), ASP:1800 (153:085), NURS:1800 (096:085), CSD:1800 (003:085).

SSW:2042 (042:042) Intercultural Communication 3 s.h.

Culture defined as a system of taken-for-granted assumptions about the world that influence how people think and act; cultural differences that produce challenges and opportunities for understanding and communication; those differences from several theoretical perspectives; opportunities to examine culture and cultural differences in practical, experience-driven ways. Prerequisites: COMM:1112 (036:012), COMM:1170 (036:070), COMM:1301 (036:001), or COMM:1305 (036:005), COMM:1117 (036:017) or COMM:1130 (036:030), and COMM:1168 (036:068) or COMM:1174 (036:074). Requirements: g.p.a. of at least 2.30 and completion of four of five Foundations of Communication courses. Same as IS:2042 (187:042), COMM:2042 (036:042).

SSW:2222 (042:022) Introduction to Social Work 4 s.h.

Social welfare as a social institution; settings, methodologies of social work, practice; profession of social work; historical development of American social welfare, social work; a minimum of 45 hours volunteer work. Requirements: sophomore or higher standing. Same as SOC:2222 (034:022).

Upper-Level Undergraduate and Graduate

SSW:3135 (042:135) Global Aging 3 s.h.

Demographic factors that contribute to the world wide phenomena of population aging in context of WHO Active Aging and the United Nation's Principles for Older Persons frameworks. Same as ASP:3135 (153:135), GHS:3050 (152:153).

SSW:3187 (042:187) Continuing Education: Individual Study arr.

Project related to student interest carried out under direction of faculty member. Requirements: individual study contract.

SSW:3191 (042:191) Individual Study arr.

Project related to student interest carried out under direction of faculty member.

SSW:3500 (042:157) Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financial aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as ENTR:3595 (06T:144), MUSM:3500 (024:147), NURS:3595 (096:168), MGMT:3500 (06J:147), RELS:3700 (032:127).

SSW:3501 (042:195) Introduction to Nursing Homes 3 s.h.

Overview of nursing home roles in context of long-term care system, characteristics of nursing home residents. Same as ASP:3501 (153:195).

SSW:3585 (042:285) Travel/Study Seminar arr.

Opportunity for cross-cultural learning through U.S. or international travel; focus on social welfare issues. Prerequisites: SSW:4843 (042:143).

SSW:3600 (042:158) Nonprofit Organizational Effectiveness II 3 s.h.

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as MUSM:3600 (024:148), MGMT:3600 (06J:148), NURS:3600 (096:169), RELS:3701 (032:128).

SSW:3712 (042:112) Human Sexuality, Diversity, and Society 1-3 s.h.

Physiological, psychological aspects; parameters defined by students, instructor. Same as NURS:3712 (096:112).

SSW:3729 (042:129) Substance Use and Abuse 3 s.h.

Chemical dependency for helping professions; etiological, physiological, psychological, legal, sociological aspects; treatment methods. Requirements: junior or higher standing.

SSW:3753 (042:153) Programs and Services for Aging Adults 3 s.h.

Major gerontological programs and services, practitioners' need for basic aging-practice competence; aging network; income, employment, health maintenance programs; continuum of care (preventive and well-elderly services, in-home services, community-based services, institutional care); assessment; major elder health issues, informal care; end-of-life care. Same as ASP:3753 (153:153).

SSW:3785 (042:185) Social Policy and the Elderly 3 s.h.

Public social policies, their affect on well-being of elderly, including women and minorities; U.S. and other nations' policies. Prerequisites: SSW:4843 (042:143). Requirements: an introductory course on aging, and junior or higher standing. Same as ASP:3785 (153:185).

SSW:3786 (042:186) Death/Dying: Issues Across the Life Span 3 s.h.

Introduction to death and dying; historical, cultural, societal, personal perspectives. Same as ASP:3786 (153:186).

SSW:3796 (042:196) Family Violence 2-3 s.h.

Child abuse and neglect, domestic violence, elder abuse; causes, policy aspects, identification, reporting, treatment, prevention.

SSW:3797 (042:197) Child Welfare Policy and Practice 3 s.h.

Public and private child welfare practice and organizations in the United States; historical and legal aspects, co-occurring issues, foster care, adoption, family preservation.

SSW:3799 (042:199) Selected Aspects of Social Work and Social Welfare arr.

Human behavior, practice, social welfare policy.

SSW:3840 (042:140) Human Behavior in the Social Environment 3-4 s.h.

Behavior and development in context of social, ecological systems and human diversity; overview of biopsychosocial dimensions, individual behavior, and development throughout lifespan; contexts of diverse family, group, community, organization, and cultural systems.

SSW:3841 (042:141) Fundamentals of Social Work Practice 3 s.h.

Professional practice: functions, roles, skills, conceptual frameworks, values, ethics; focus on integrated approach to practice, including assessment, intervention, evaluation of interventions, termination with individuals, families, groups; emphasis on empirically based practice. Corequisites: SSW:3840 (042:140), if not taken as a prerequisite. Requirements: admission to social work B.A. program.

SSW:3842 (042:142) Interpersonal Skills Laboratory 2 s.h.

Practice of interpersonal skills required in the helping relationship. Corequisites: SSW:3841 (042:141), if not taken as a prerequisite. Requirements: admission to social work B.A. program.

SSW:3844 (042:144) Introduction to Social Work Research 4 s.h.

Scientific approach to knowledge building, with emphasis on critical use of research; quantitative and qualitative methods, evaluation of practice, computerized data analysis, ethics and diversity in social work research. Requirements: admission to social work B.A. program.

SSW:3845 (042:171) Social Work Processes 4 s.h.

Context of practice examined to understand structural factors that affect clients and communities; culturally competent practice using empowerment perspective. Corequisites: SSW:3840 (042:140), if not taken as a prerequisite. Requirements: admission to social work B.A. program.

SSW:3847 (042:147) Discrimination, Oppression, and Diversity 3 s.h.

Theoretical and historical perspectives on racism, sexism, other forms of discrimination; applications to social work, culturally competent practice, change strategies. Requirements: admission to social work B.A. or M.S.W. program.

SSW:3904 (042:204) Human Services Administration 2 s.h.

Effects of organizational structures/processes on individual performance; models of management, communication patterns, leadership styles; skill in technical writing, decision making, personnel and financial management, applied professional ethics. Requirements: completion of foundation courses.

SSW:4100 (042:180) Social Work in the Criminal Justice System 3 s.h.

How social work practice intersects with different aspects of the criminal justice system; focus on integrating social work values into criminal justice field; social work's responsibility to address social justice problems (e.g., mental illness, racial disparity, gender, human rights) within criminal justice system; critical examination of past and present practices in criminal justice and implications for social work practice and policy when working with individuals in criminal justice system.

SSW:4130 (042:130) Family Development Specialist Model 3 s.h.

Use of family development specialist model of family-centered practice to facilitate improved family functioning, economic independence; relationship building, systems theory, family-centered case management, conflict management, empowerment strategies. Requirements: completion of family development specialist certification course.

SSW:4155 (042:155) Treatment of Substance Use and Co-Occurring Disorders 3 s.h.

Treatment of individuals presenting substance related issues (abuse, dependency, cooccurring disorders); etiological, physiological, psychological, legal, and sociological aspects; evaluation of current research and direct application of contemporary treatment modalities to client situations encountered as helping professionals. Recommendations: introductory course in substance abuse.

SSW:4188 (042:188) Continuing Education: Honors arr.

Supervised individual research. Requirements: honors standing.

SSW:4189 (042:189) Field Experience Seminar 1 s.h.

Opportunity for students to recount their experiences from generalist practice in agencies; application of knowledge, skills, and values of culturally competent social work. Corequisites: SSW:4193 (042:193). Requirements: completion of course work in the major.

SSW:4190 (042:190) Aging Studies Internship 3 s.h.

Opportunities for students in various disciplines to relate their areas of study to older adults and aging; interdisciplinary relationships, approaches to meeting needs of older adults. Same as ASP:4190 (153:190).

SSW:4192 (042:192) Honors in Social Work arr.

Supervised individual research. Requirements: honors standing.

SSW:4193 (042:193) Field Experience arr.

Supervised experience in selected social welfare organizations; application of knowledge and skill common to generalist practice in an agency setting. Corequisites: SSW:4189 (042:189). Requirements: completion of course work in the major and social work senior standing.

SSW:4216 (042:216) Group Facilitation in Human Sexuality 0-3 s.h.

Principles of group dynamics, group process; leadership skills for small, task-oriented discussion groups on human sexuality. Prerequisites: SSW:3712 (042:112). Same as NURS:4216 (096:216).

SSW:4843 (042:143) Social Welfare Policy and Practice 3 s.h.

Basic social welfare policies and programs; economic, social, ideological, and political conditions that have influenced formation and implementation of social policy, current structure of major social welfare policies.

Graduate

SSW:5194 (042:194) Social Work Practice in Health Care Settings 2 s.h.

Introduction to organization, provision of social work services in health care settings; practice issues such as models of intervention, ethical questions, impact of cultural diversity on health care. Prerequisites: SSW:3841 (042:141) or SSW:6150 (042:150).

SSW:5200 (042:200) Grief Work with Individuals and Families 2-3 s.h.

Complexity of grief and its multifaceted impact on family systems; utilizing grief theories, including Worden's Tasks of Mourning, ambiguous loss theory, several family systems models; examination of multi-generational dynamics that affect how we learn to grieve, how we experience grief, and how we live after a loss; acknowledged and unacknowledged grief and loss; generational family dynamics; difficulties and strengths passed from one generation to the next; assessing grief at individual, family, group, and community levels; how loss can affect personal well-being and professional practice, particularly when working with an interdisciplinary team. Requirements: social work graduate standing.

SSW:5219 (042:219) Aging and the Family 2-3 s.h.

Research related to aging and the family; intergenerational relations, marital status in later life, diversity of older families, caregiving, elder abuse, policy issues. Same as ASP:5219 (153:219).

SSW:5240 (042:240) Trauma Informed Family Practice 3 s.h.

Theory, knowledge, and skills informing evidence-based assessment and intervention for traumatized children and adolescents in child welfare system, including those exposed to abuse, neglect, witnessing interpersonal crime (e.g., domestic violence, community violence); family events within their ecological context, various family forms, cultural patterns; controversial issues in child welfare, conclusions based on scholarly research, presentation of conclusions in professional oral and written form.

SSW:5254 (042:254) Introductory Seminar: End-Of-Life Services in Rural Communities 2-3 s.h.

Basic principles of hospice and palliative care, rural service delivery, community assessment.

SSW:6145 (042:145) Organization and Community Practice 3 s.h.

Models that underlie theories of organization, community practice; principles of macro social work and skill development in relationship building, needs assessment, decision making, planning, implementing, ethics, program and self-evaluation. Requirements: admission to M.S.W. program.

SSW:6146 (042:146) Computer Laboratory 1 s.h.

Use of microcomputers in social work practice; user skill, software for a variety of applications in social service settings. Requirements: admission to M.S.W. program.

- SSW:6148 (042:148) Research Practice I** 3 s.h.
 Knowledge and skills for evaluating practice and carrying out social work research; formulation of research questions; research design and methodology; sampling techniques; protection of human subjects; descriptive statistics; computerized data analysis. Requirements: admission to M.S.W. program.
- SSW:6150 (042:150) Social Work Practice with Individuals, Families, and Groups** 3 s.h.
 Models and underlying theories of empirically based direct social work practice; emphasis on an ecosystem strengths perspective; phases of helping relationship, strengths-based assessment, change process in interpersonal helping relationships. Prerequisites: SSW:3840 (042:140). Requirements: admission to M.S.W. program; concurrent enrollment in SSW:6151 (042:151), SSW:6290 (042:290), and SSW:6291 (042:291) for students who have completed 60 s.h.
- SSW:6151 (042:151) Social Work Practice Skills Laboratory** 2 s.h.
 Interpersonal skills practice in the helping relationship; small-group format. Corequisites: SSW:6150 (042:150), SSW:6290 (042:290), and SSW:6291 (042:291), if not taken as prerequisites. Requirements: admission to M.S.W. program.
- SSW:6220 (042:220) Family Law** 3 s.h.
 Legal systems, rights, processes related to families; marriage, divorce, custody, protective services, reproductive rights, adoption, commitment, delinquency, education, poverty, discrimination; roles of lawyers, social workers in legal system. Prerequisites: SSW:4843 (042:143).
- SSW:6224 (042:224) Spirituality and Ethics in Social Work** 2-3 s.h.
 Knowledge, values, and skills that provide a framework for spiritually sensitive social work practice; preparation for responding competently and ethically to diverse spiritual perspectives, for recognizing and reflecting on one's own spiritual beliefs, and for identifying appropriate ways to apply personal beliefs to practice with varied populations while safeguarding client autonomy and self-determination.
- SSW:6228 (042:228) Theories of Personality and Psychopathology** 2 s.h.
 Theories and their relevance to social work practice with diverse populations. Prerequisites: SSW:3840 (042:140). Requirements: social work graduate standing.
- SSW:6229 (042:229) Working with Groups** 2 s.h.
 Theory and practice of group work, group process, leadership styles and skills; fundamental theory, skills necessary to form and facilitate a small group. Requirements: completion of foundation courses.
- SSW:6232 (042:232) Therapy with Couples** 2 s.h.
 Married and other couples as social systems; theories of functional, dysfunctional systems; techniques of intervention. Requirements: completion of foundation courses.
- SSW:6233 (042:233) School Social Work Practice** 2 s.h.
 School as a social institution; activities of school social worker; theoretical, practice issues; current issues in field.
- SSW:6234 (042:234) Social Work Practice and Use of the Diagnostic and Statistical Manual of Mental Disorders** 3 s.h.
 Major categories of psychopathology, DSM-IV system of classification; individual behavior and presentation of symptoms considered through DSM-IV multiaxial approach to diagnosis; effects of culture, developmental stage, and gender on presentation of mental disorders.
- SSW:6236 (042:236) Interventions with Individuals** 2 s.h.
 Comparison of two or more intervention theories and approaches used in social work practice with individuals; attention to diverse populations and across life span. Requirements: completion of foundation courses.
- SSW:6237 (042:237) Social Work Practice with Children, Youth, and Families** 2 s.h.
 Preparation for practice in child welfare, family service agencies; family life cycle, child development, child maltreatment, problems of adolescence, social services for families and children, legal issues. Requirements: completion of foundation courses.
- SSW:6238 (042:238) Introduction to Play Therapy** 2 s.h.
 Major theories and techniques of play therapy, relevance to social work practice. Prerequisites: SSW:6150 (042:150).
- SSW:6247 (042:247) Nonprofit Organizational Effectiveness I** 3 s.h.
 Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as SLIS:6430 (021:263), MGMT:9150 (06J:247), LAW:8751 (091:320), HMP:6360 (174:247), URP:6278 (102:278), MUSM:6010 (024:247), SPST:6010 (028:257), RELS:6070 (032:227).
- SSW:6248 (042:248) Nonprofit Organizational Effectiveness II** 3 s.h.
 Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Requirements: for LAW:8752 (091:322) — LAW:8751 (091:320); for HMP:6365 (174:248) — HMP:6360 (174:247) or MGMT:9150 (06J:247) or MUSM:6010 (024:247). Same as MGMT:9160 (06J:248), LAW:8752 (091:322), SLIS:6435 (021:265), HMP:6365 (174:248), URP:6279 (102:279), MUSM:6020 (024:248), SPST:6020 (028:258), RELS:6075 (032:228).
- SSW:6281 (042:281) Social Work Practice: Selected Aspects** arr.
 Topics not covered in another course; diversity, social justice and ethics issues related to a social work practice area.
- SSW:6282 (042:282) Grant Writing** 1-2 s.h.
 Same as URP:6282 (102:282).

- SSW:6290 (042:290) Foundation Practicum in Social Work** 3 s.h.
Generalist practice experience with individuals, families, small groups, organizations, communities; communication skills, change process, professional values and ethics applied at multiple system levels; students evaluate their own practice using a learning contract in an agency setting. Corequisites: SSW:3840 (042:140), SSW:3847 (042:147), SSW:4843 (042:143), SSW:6145 (042:145), SSW:6146 (042:146), SSW:6150 (042:150), SSW:6151 (042:151), and SSW:6291 (042:291); if not taken as prerequisites. Requirements: admission to M.S.W. program.
- SSW:6291 (042:291) Foundation Practicum Seminar** 1 s.h.
Integration of academic, experiential learning; self-assessment, peer feedback to promote model of professional accountability. Corequisites: SSW:3840 (042:140), SSW:3847 (042:147), SSW:4843 (042:143), SSW:6145 (042:145), SSW:6146 (042:146), SSW:6150 (042:150), SSW:6151 (042:151), and SSW:6290 (042:290); if not taken as prerequisites. Requirements: admission to M.S.W. program.
- SSW:7250 (042:250) Family-Centered Theory and Practice I** 3 s.h.
Theoretical bases for family-centered practice; comparison and analysis; skill development in analyzing problem situations, implementing change strategies. Requirements: completion of M.S.W. foundation courses.
- SSW:7251 (042:251) Family-Centered Theory and Practice II** 3 s.h.
Techniques for assessment, intervention in family-centered practice; evaluation of practice; theoretical and clinical bases for intervention. Prerequisites: SSW:7250 (042:250).
- SSW:7252 (042:252) Advanced Social Policy for Family Practice** 3 s.h.
Systematic basis for examining social, economic, and political factors that influence formation of social policies; social policy implementation, impact of social policies on vulnerable individuals and families. Requirements: completion of M.S.W. foundation courses.
- SSW:7255 (042:255) Integrative Seminar in End-of-Life Care** 1 s.h.
Integration of students' knowledge, skills, and values for practice in end-of-life care and bereavement; application to case studies and advanced practicum setting. Corequisites: SSW:7292 (042:292) or SSW:7295 (042:295). Requirements: admission to end-of-life care area.
- SSW:7260 (042:260) Integrated Social Work Theory and Practice I** 3 s.h.
Theories, skill development, evaluation, ethical issues in integrated social work practice; intermediate group work for culturally competent intervention; small task groups. Requirements: completion of foundation courses.
- SSW:7261 (042:261) Integrated Social Work Theory and Practice II** 3 s.h.
Continuation of SSW:7260 (042:260); theories, skills evaluation, ethical issues; advanced group work for culturally competent intervention; case management, program development, funding evaluation, large task groups. Prerequisites: SSW:7260 (042:260).
- SSW:7262 (042:262) Advanced Social Policy for Integrated Practice** 3 s.h.
Systematic basis for critical examination of social, economic, and political factors that influence formation of social policies; social policy implementation, impact of social policies on vulnerable populations, service providers, communities. Requirements: completion of M.S.W. foundation courses.
- SSW:7268 (042:268) Continuing Education: Individual Study** arr.
Project related to student interest; directed by faculty member. Requirements: completion of course contract.
- SSW:7269 (042:269) Continuing Education: Thesis** arr.
Thesis research project.
- SSW:7270 (042:270) Research Practice II** 2-3 s.h.
Research project relevant to social work practice that builds on knowledge and skills developed in SSW:6148 (042:148); data analysis, report of results; ethical principles applied to research. Prerequisites: SSW:6148 (042:148). Requirements: admission to M.S.W. program.
- SSW:7271 (042:271) Individual Study** arr.
Project related to student interest; directed by faculty member.
- SSW:7272 (042:272) Thesis** arr.
- SSW:7292 (042:292) Advanced Practicum in Family-Centered Practice I and II** arr.
Family-centered practice theory and skills implemented in interventions with individuals, families; two semester field course. Corequisites: SSW:7250 (042:250), SSW:7251 (042:251), SSW:7252 (042:252), and SSW:7270 (042:270), if not taken as prerequisites. Requirements: completion of M.S.W. foundation courses, and concurrent enrollment in SSW:7293 (042:293) or SSW:7294 (042:294).
- SSW:7293 (042:293) Advanced Practicum Seminar in Family-Centered Practice I** 1 s.h.
Two-semester field course; family-centered practice theory and skills implemented in interventions with individuals, families. Corequisites: SSW:7292 (042:292). Requirements: completion of M.S.W. foundation courses.
- SSW:7294 (042:294) Advanced Practicum Seminar in Family-Centered Practice II** 1 s.h.
Continuation of SSW:7293 (042:293). Prerequisites: SSW:7293 (042:293). Corequisites: SSW:7292 (042:292).
- SSW:7295 (042:295) Advanced Practicum in Integrated Practice** arr.

Integrated social work theories and interventions implemented in work with individuals, families, organizations, formal and informal networks; two semester field course. Corequisites: SSW:7260 (042:260), SSW:7261 (042:261), SSW:7262 (042:262), and SSW:7270 (042:270); if not taken as prerequisites. Requirements: completion of M.S.W. foundation courses; for fall semester — concurrent enrollment in SSW:7297 (042:297) or SSW:7298 (042:298).

SSW:7296 (042:296) Advanced Practicum in School Social Work arr.

Field course; social work theories and interventions implemented in schools. Corequisites: SSW:7250 (042:250) or SSW:7260 (042:260), SSW:7251 (042:251) or SSW:7261 (042:261), and SSW:7252 (042:252) or SSW:7262 (042:262); if not taken as prerequisites. Requirements: completion of M.S.W. foundation courses.

SSW:7297 (042:297) Advanced Practicum Seminar in Integrated Practice I 1 s.h.

Two-semester course; social work knowledge, skills, values, and professional identity integrated in context of advanced practice and direct multisystemic interventions. Corequisites: SSW:7295 (042:295) or SSW:7296 (042:296).

SSW:7298 (042:298) Advanced Practicum Seminar in Integrated Practice II 1 s.h.

Continuation of SSW:7297 (042:297). Prerequisites: SSW:7297 (042:297). Corequisites: SSW:7295 (042:295) or SSW:7296 (042:296).

SSW:7800 (042:300) Social Work Proseminar 1 s.h.

Faculty research related to families, children, and elderly theory, research designs, methodologies, findings, dissemination. Requirements: admission to Ph.D. program.

SSW:7801 (042:301) Knowledge Building in Social Work Practice 3 s.h.

Epistemology of social work practice theories, importance for knowledge building; practice theories of personal and interpersonal change, family life cycle development, empowerment. Requirements: admission to Ph.D. program.

SSW:7802 (042:302) Social Policy and Poverty in the U.S. 3 s.h.

Causes of poverty in the U.S., public policies for low-income families; arguments and evidence offered for and against a particular explanation for poverty in the U.S. or approach to anti-poverty policy; how authors construct their arguments, underlying theory, evidence the authors bring to bear, ways they explore consequences of policy proposals; role of social science theory in advancing knowledge in social policy and research interests. Recommendations: admission to a doctoral program.

SSW:7803 (042:303) Social Work Research Practicum 1-4 s.h.

Joint research with faculty; development of research design, choice or construction of measurement tools, selection of sample, collection and analysis of data, writing of a research report. Requirements: admission to Ph.D. program.

SSW:7804 (042:304) Thesis Seminar 2-3 s.h.

Intensive faculty supervision and peer consultation for preparing thesis proposals; topics include literature synthesis, theory, critical and analytic thinking skills, logical argument, research design, and expectations and standards for scholarly discourse.

SSW:7806 (042:306) Social Work Teaching Practicum 2 s.h.

Development of knowledge, values; skills essential for effective, culturally competent social work educators; applied teaching experience and seminar. Corequisites: SSW:7807 (042:307). Requirements: admission to Ph.D. program.

SSW:7807 (042:307) Teaching Seminar 1 s.h.

Supportive environment to discuss teaching and development; topics may include how to engage and motivate students, assess student learning, diversity in the classroom, use of technology to enhance learning, student challenges.

SSW:7815 (042:315) Developing Knowledge in Human Service Organizations 3 s.h.

Evaluation of organization theories and application of theories to developing knowledge within and about human services organizations; critical examination of a range of theories and their application to problems of conducting organizational research, from Max Weber's bureaucracy to contemporary learning organization popularized by Peter Senge; organizational culture and climate, organizational stigma, interorganizational networks; highly interactive with student-lead sessions and discussions of critical concepts and readings. Requirements: admission to social work doctoral program.

SSW:7830 (042:330) Ph.D. Dissertation arr.

Sociology

Chair

- Karen V. Heimer

Professors

- Celesta Albonetti (Sociology/Law), Karen V. Heimer, Kevin Leicht, Michael Lovaglia

Associate professors

- Alison Bianchi, Jennifer Glanville, Steve Hitlin, Mary Noonan, Michael Sauder

Assistant professors

- Mark Berg, Sarah Bruch, Sarah Harkness, Freda Lynn, Ion Bogdan Vasi, Marina Zaloznaya

Lecturer

- Donna Lancianese

Professor emeritus

- Jae-On Kim

Associate professor emeritus

- Stephen G. Wieting

Undergraduate major: sociology (B.A., B.S.)

Undergraduate minor: sociology

Graduate degrees: M.A. in sociology; Ph.D. in sociology

Web site: <http://clas.uiowa.edu/sociology/>

The Department of Sociology offers an undergraduate major and minor as well as graduate degree programs. In addition, it offers courses that undergraduate students in all majors may use to fulfill General Education Program (p. 323) requirements and a First-Year Seminar designed for entering undergraduate students. The department also partners with the Departments of Economics, Philosophy, and Political Science to offer the undergraduate major in ethics and public policy, an interdisciplinary program administered by the Department of Philosophy; see Ethics and Public Policy (p. 297) in the Catalog.

Undergraduate Programs of Study

- Major in sociology (Bachelor of Arts, Bachelor of Science)
- Minor in sociology

A bachelor's degree with a major in sociology provides a liberal arts and sciences education. Although it does not prepare students for a specific career, it provides background for employment in fields such as human services, criminal justice, corrections, sales, public relations, advertising, personnel, applied social research, community organization, and teaching social science in secondary schools. It also provides a foundation for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and similar areas. Finally, the major prepares students to work toward advanced degrees in sociology, which qualify them for college or university teaching and work in academic, private, and governmental research.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts with a major in sociology requires a minimum of 120 s.h., including at least 33 s.h. of work for the major. The Bachelor of Science with a major in sociology requires a minimum of 120 s.h., including at least 45 s.h. of work for the major, with a minimum of 30 s.h. in sociology. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323). Transfer students must earn at least 12 s.h. in sociology course work at The University of Iowa; transfer courses must be approved by a sociology advisor.

The major offers an optional track for both B.A. and B.S. students with an interest in crime and related issues; see "Criminology Track" below.

Requirements for the major are similar for the Bachelor of Arts and the Bachelor of Science, except B.A. students take 3-4 s.h. of introductory math or statistics and three theory and methods courses, while B.S. students take 8 s.h. of introductory calculus and five theory and methods courses. Remaining requirements (electives, the capstone course, and the graduation portfolio) are identical for B.A. and B.S. students.

In addition to specific courses required for the degree, students are advised to take 6 s.h. of course work in at least one of these departments: anthropology, economics, geographical and sustainability sciences, political science, or psychology.

The following sociology courses do not count toward the major: SOC:1000 (034:029) First-Year Seminar, SOC:4930 (034:197) Teaching Internship, and SOC:4990 (034:198) Directed Individual Study.

Several courses required for the major have specific prerequisites. In planning to complete the major, students must be careful to take courses in the proper sequence. The introductory sociology course and math or statistics (B.A.) or calculus (B.S.) should be taken early. They lay the foundation for all other work in the major and are prerequisites for the required theory and methods courses.

The major in sociology requires the following work.

INTRODUCTORY SOCIOLOGY (B.A. AND B.S.)

All B.A. and B.S. students take this:

SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
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INTRODUCTORY MATH OR STATISTICS (B.A.)

B.A. students complete one of these:

MATH:1020 (22M:009) Elementary Functions (or a higher-level math course)	4 s.h.
STAT:1010 (22S:002) Statistics and Society	3 s.h.
STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.

INTRODUCTORY CALCULUS (B.S.)

B.S. students complete one of these sequences:

MATH:1550 (22M:031) & MATH:1560 (22M:032) Engineering Mathematics I: Single Variable Calculus - Engineering Mathematics II: Multivariable Calculus	8 s.h.
MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.

THEORY AND METHODS (B.A.)

The following three theory and methods courses are required for the B.A. and should be completed as soon as possible.

SOC:2130 (034:009) Sociological Theory	3 s.h.
SOC:2160 (034:010) Quantitative Data Analysis	3 s.h.
SOC:2170 (034:011) Research Methods	3 s.h.

THEORY AND METHODS (B.S.)

The following five theory and methods courses are required for the B.S. and should be completed as soon as possible.

All of these:

SOC:2130 (034:009) Sociological Theory	3 s.h.
SOC:2160 (034:010) Quantitative Data Analysis	3 s.h.
SOC:2170 (034:011) Research Methods	3 s.h.
STAT:3120 (22S:120) Probability and Statistics	4 s.h.

One of these:

PHIL:2603 (026:103) Introduction to Symbolic Logic	3 s.h.
PHIL:3604 (026:104) Introduction to Philosophy of Science	3 s.h.

ELECTIVES (B.A. AND B.S.)

B.A. and B.S. students complete 15 s.h. of elective course work in sociology (prefix SOC). Two of the required electives must be taken after the student completes SOC:2130 (034:009) Sociological Theory, SOC:2160 (034:010) Quantitative Data Analysis, and SOC:2170 (034:011) Research Methods. These two electives must be chosen from sociology courses numbered 3000-4899, SOC:4920 (034:196) Field Experience, and SOC:4998 (034:199) Honors Research. With permission, students also may use graduate courses in sociology (numbered 5000 or above) to satisfy the electives requirement.

The following courses do not count toward the major and may not be used as electives.

SOC:1000 (034:029) First-Year Seminar
SOC:4930 (034:197) Teaching Internship
SOC:4990 (034:198) Directed Individual Study

CAPSTONE COURSE (B.A. AND B.S.)

All students complete the capstone course, which illustrates their accomplishments; it is usually taken during the student's last semester of course work for the major and includes assembling a portfolio. Before they enroll in the capstone course, students must complete SOC:2130 (034:009) Sociological Theory, SOC:2160 (034:010) Quantitative Data Analysis, and SOC:2170 (034:011)

Research Methods and must have a g.p.a. of at least 2.00 in work for the major.

SOC:4910 (034:195) Capstone Course in Sociology	3 s.h.
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GRADUATION PORTFOLIO (B.A. AND B.S.)

During their last semester, all students enroll in the following course, in which they submit the portfolio they assembled in the capstone course.

SOC:4909 (034:194) Graduation Portfolio	0 s.h.
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Criminology Track

The criminology track requires a minimum of 15 s.h. of credit, including 12 s.h. of course work taken at The University of Iowa. It is open to sociology majors who are interested in understanding the nature of crime and who want to pursue careers in criminological research, policing, probation, parole, or the law. The track teaches students about various data sources used to study the causes of crime, the dominant sociological explanations for crime and crime control, and how law as an institution affects and is affected by other institutions. It includes courses on topics such as the criminal legal system, gender and violence, and global criminology.

Criminology track students must satisfy all requirements for the sociology major. They may count courses taken for the track as sociology electives for the major. Although SOC:4400 (034:148) Internship in Criminal Justice and Corrections is not required for the track, students are encouraged to complete it; they may count a maximum of one registration in SOC:4400 (034:148) toward track requirements.

The criminology track requires the following course work.

Introductory course—one of these:

SOC:1410 (034:040) Introduction to Criminology	3 s.h.
SOC:1420 (034:042) Law and Society	3 s.h.
SOC:2430 (034:080) Comparative Criminal Justice Systems	3 s.h.

Track electives—12 s.h. from these:

SOC:2325 (034:025) Women, Crime, and Justice	3 s.h.
SOC:3415 (034:045) Global Criminology	3 s.h.
SOC:3420 (034:141) Juvenile Delinquency	3 s.h.
SOC:3425 (034:146) Deviance and Control	3 s.h.
SOC:3450 (034:186) Criminal Legal System	3 s.h.
SOC:4400 (034:148) Internship in Criminal Justice and Corrections	1-5 s.h.
SOC:4420 (034:149) Sociology of Criminal Punishment	3 s.h.
SOC:4430 (034:142) Interpersonal Violence in Society	3 s.h.
SOC:4440 (034:144) Sociology of White-Collar Crime	3 s.h.
SOC:4450 (034:184) Juvenile Justice: A Sociological Perspective	3 s.h.
SOC:4460 (034:182) Sociology of Law	3 s.h.
SOC:4461 (034:143) Gender and Violence	3 s.h.

B.A. or B.S. with Teacher Licensure

Sociology majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Sequencing of course work is important in meeting the four-year plan.

Bachelor of Arts

Before the fifth semester begins: SOC:1010 (034:001) Introduction to Sociology Principles or equivalent; one sociology elective

Before the seventh semester begins: the introductory math or statistics course, two of the three theory and methods courses, one more sociology elective, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: the remaining theory and methods course and one more sociology elective

During the eighth semester: enrollment in all remaining course work in the major, including the capstone course and the last two sociology electives; all remaining General Education courses; and a sufficient number of semester hours to graduate

Bachelor of Science

Before the fifth semester begins: SOC:1010 (034:001) Introduction to Sociology Principles or equivalent, SOC:2130 (034:009) Sociological Theory, and one sociology elective

Before the seventh semester begins: SOC:2160 (034:010) Quantitative Data Analysis, SOC:2170 (034:011) Research Methods, calculus I-II, one more sociology elective, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: STAT:3120 (225:120) Probability and Statistics and one more sociology elective

During the eighth semester: enrollment in all remaining course work in the major, including the capstone course and the last two sociology electives; all remaining General Education courses; and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in sociology have the opportunity to graduate with honors in the major. Departmental honors

students must maintain a g.p.a. of at least 3.33 in all University of Iowa courses and in all sociology courses. In order to graduate with honors in sociology, they must complete the following course work.

SOC:4997 (034:100) Honors Seminar (taken spring of junior year)	2 s.h.
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At least one sociology course numbered 3000 or above, with honors designation, including graduate courses (honors designation requires instructor's consent)

SOC:4998 (034:199) Honors Research (honors thesis)	arr.
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The honors thesis is prepared under faculty supervision. It gives students the opportunity to conduct sociological research in close consultation with a faculty member of the student's choice.

Learn more about honors in the major at Departmental Honors and Honors Course Forms on the University of Iowa Honors Program web site.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in sociology requires a minimum of 15 s.h. in sociology courses, including 12 s.h. in courses taken at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. The minor must include SOC:2130 (034:009) Sociological Theory.

A minor in sociology is a good complement to a number of majors, particularly other social sciences, business, elementary education, or nursing.

National Honor Society

The department sponsors a chapter of Alpha Kappa Delta International Sociology Honor Society. Students who have a cumulative and sociology g.p.a. of at least 3.00 and have attained junior or higher standing are considered for membership. Consult the Alpha Kappa Delta faculty advisor for details.

Graduate Programs of Study

- Master of Arts in sociology (with or without thesis)
- Doctor of Philosophy in sociology

Graduate study in sociology focuses on the Doctor of Philosophy. Students are awarded the M.A. as they fulfill requirements for the Ph.D.

The Doctor of Philosophy emphasizes research and aims primarily to prepare sociologists for academic positions in colleges and universities or for research positions in academic, private, and government institutions. Opportunities for research using survey, experimental, and observational methods are readily available in the department.

Master of Arts

The Master of Arts program in sociology requires 30 s.h. of graduate credit with thesis or research paper and 38 s.h. of graduate credit without. The program without thesis is intended for students seeking a terminal degree and for whom a wider range of course content in sociology is appropriate.

All M.A. students must complete the following courses with grades of B-minus or higher.

SOC:5110 (034:201) History of Sociological Theory	3 s.h.
SOC:5160 (034:215) Sampling, Measurement, and Observation Techniques	3 s.h.
SOC:6170 (034:214) Introduction to Sociological Data Analysis	3 s.h.
SOC:6180 (034:216) Linear Models in Sociological Research	3 s.h.

Doctor of Philosophy

The Doctor of Philosophy program in sociology requires a minimum of 72 s.h. of graduate credit. Most courses for the Ph.D. are taken in the student's two areas of interest, but all doctoral students must complete the following courses.

SOC:6170 (034:214) Introduction to Sociological Data Analysis (required for the M.A.)	3 s.h.
SOC:6180 (034:216) Linear Models in Sociological Research (required for the M.A.)	3 s.h.
Two elective courses in methods/statistics numbered 5000 or above	
One advanced theory course such as SOC:6110 (034:202)	

Students also must pass two area examinations, write and defend a dissertation prospectus, and write and successfully defend a dissertation.

Doctoral students take two area exams—one from list A, the other from list B. List A has five standing committees: crime, law, and deviance; family; political sociology; social psychology; and stratification. For the list B exam, a student may propose any area that is not covered under List A and for which there is adequate faculty support.

For a detailed statement of graduate study regulations, contact the Department of Sociology. Prospective doctoral students should examine this document carefully.

Joint Ph.D./J.D.

The Department of Sociology and the College of Law offer the joint Juris Doctor/Doctor of Philosophy. The program is highly individualized, allowing students to explore varied aspects of the relationship between law and society. Joint Ph.D./J.D. students may count up to 12 s.h. of graduate credit toward both degrees, with approval from the Department of Sociology and the College of Law.

Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the joint degree program. For information about the J.D., see the College of Law (p. 1005) section of the Catalog.

Teaching Assistantship Training

All new graduate students are expected to attend a three-day orientation for teaching assistants before classes begin. In addition, SOC:7010 (034:382) Teaching Sociology is required for students who wish to teach their own courses.

Admission

Admission to graduate study in sociology usually requires an undergraduate g.p.a. of at least 3.25 and a score of 1100 or higher (quantitative and verbal) on the Graduate Record Examination (GRE) General Test. Students whose first language is not English should submit scores on the Test of English as a Foreign Language (TOEFL).

Applicants must meet the admission requirements of the Graduate College; see Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. Applicants also must complete the sociology department application and use the department's personal reference forms to obtain three letters of recommendation; forms may be printed from the Department of Sociology web page.

All application materials for fall admission must be received by January 1. The deadline for applying for departmental financial support is January 1. Evaluation of applications begins in early January.

Admission decisions are based on consideration of prior academic performance, personal reference letters, scores on the GRE General Test, and the applicant's statement of reasons for pursuing advanced work in sociology at The University of Iowa. The department has no specific undergraduate course requirements for admission, but a background in the social sciences with some mathematical training is useful. A foreign language is not required for admission, and there is no foreign language requirement for a graduate degree in sociology. To inquire about admission, consult the chair of the admissions committee, Department of Sociology.

Financial Support

The Department of Sociology offers teaching assistantships and research assistantships for graduate students. Students who receive one-half-time teaching or research assistantships work 20 hours each week for faculty members on either teaching or research assignments. Out-of-state students who hold assistantships are assessed tuition at the resident rate. Graduate students also may be eligible for fellowships offered by the Graduate College.

Research Centers and Facilities

Center for Asian and Pacific Studies

The Center for Asian and Pacific Studies provides excellent opportunities for studying Asia from a social science perspective. It supports related Asia studies and offers a monthly seminar that features lively discussions by scholars from many different disciplines.

Center for Criminology and Sociolegal Studies

The Center for Criminology and Sociolegal Studies is an interdisciplinary research and teaching program for

the study of crime, law, deviance, social control, and mental health. It sponsors a colloquium series in crime, law, and social control, in which affiliates, graduate students, and outside speakers present their ongoing research, and a working-paper series in which members disseminate research papers to the academic community. The center also provides research support and a research infrastructure for faculty and graduate students and offers graduate research assistantships for interested students. Internship in Criminal Justice and Corrections [SOC:4400 (034:148)] is administered through the center.

Center for the Study of Group Processes

The Center for the Study of Group Processes has an 18-room small-group laboratory with eight computer-controlled subject rooms that provide audiovisual and psychophysiological recording capabilities, two large-group rooms with an adjoining observation room, an audiovisual control room, a sociophysiological instrumentation lab, a virtual social environment lab, and other flexible research office spaces.

Institute for Inequality Studies

The Institute for Inequality Studies (IIS) promotes research on the causes and consequences of social inequality's many forms—class, gender, race, ethnicity, age, sexual orientation, religion, and disability. The institute's mission is to stimulate interdisciplinary exchange; encourage scholarly engagement in research through seminars highlighting current policy-relevant research and methodology; train the next generation of demography and inequality scholars; provide technical and administrative support to researchers working with survey and population data; and facilitate development of collaborative proposals for external funding. IIS also promotes the visibility of social inequality scholarship by sponsoring symposia on inequality research issues that attract community interest. The institute is part of the Iowa Social Science Research Center.

Courses

Sociology courses are grouped by topical areas. Each of the lists below includes all levels of courses offered in that topical area. Course levels are indicated by course numbers: lower level undergraduate (courses numbered 1000-2999); upper-level undergraduate and graduate (3000-4999); and graduate (courses numbered 5000 or above).

Introductory and General Sociology

The following courses are open only to undergraduates; none of them have prerequisites.

- SOC:1000 (034:029) First-Year Seminar
- SOC:1010 (034:001) Introduction to Sociology Principles
- SOC:1020 (034:002) Social Problems
- SOC:1310 (034:018) Gender and Society
- SOC:2810 (034:066) Social Inequality
- SOC:3210 (034:020) Principles of Social Psychology
- SOC:3850 (034:158) Economy and Society

Prerequisites for courses that have them are stated in the course descriptions below.

SOC:1000 (034:029) First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

SOC:1010 (034:001) Introduction to Sociology Principles 3-4 s.h.
How individuals are organized into social groups, ranging from intimate groups to bureaucracies, and how these influence individual behavior; nature and interrelationships of basic social institutions, such as family, education, religion, economy. GE: Social Sciences.

SOC:1020 (034:002) Social Problems 3-4 s.h.
Emergence and distribution of selected social problems; alternative solutions; may include population, inequality, female-male relationships, racism, crime. GE: Social Sciences.

SOC:2130 (034:009) Sociological Theory 3 s.h.
Theoretical perspectives in sociology; construction, evaluation of sociological explanations. Prerequisites: SOC:1010 (034:001).

SOC:2160 (034:010) Quantitative Data Analysis 3 s.h.
Applied statistics for sociology majors: frequency distributions, graphic presentation, measures of central tendency, measures of variability, elementary probability, populations and samples, sampling distributions, estimation and confidence intervals, hypothesis testing, chi-square test, regression and correlation, analysis of variance; computer software used in data analysis; emphasis on appropriate use and interpretation of statistics in the study of sociological topics. Prerequisites: SOC:1010 (034:001). Requirements: sociology major; and MATH:1020 (22M:009) or STAT:1010 (22S:002) or a higher-level math or statistics course.

SOC:2170 (034:011) Research Methods 3 s.h.
Basic scientific concepts; emphasis on theoretical thinking, statement of researchable propositions, logic and meaning of proof operant in the research process; general issues in designing social research, including problems of sampling and measurement, analysis, presenting research data, interpreting research findings. Prerequisites: SOC:1010 (034:001). Requirements: sociology major; and MATH:1020 (22M:009) or STAT:1010 (22S:002) or a higher-level math or statistics course.

SOC:3200 (034:116) International Perspectives: Xicotepec 1-3 s.h.
Interdisciplinary service-learning course; Mexican culture and history through community-based service project, assigned readings, and discussion; includes a required spring break trip to Mexico. Same as CLAS:3200 (610:126).

SOC:4900 (034:190) Selected Topics in Sociology 3 s.h.
Topics vary.

- SOC:4909 (034:194) Graduation Portfolio** 0 s.h.
Submission of final graduation portfolio first assembled in capstone course required for sociology major. Corequisites: SOC:4910 (034:195).
- SOC:4910 (034:195) Capstone Course in Sociology** 3 s.h.
Senior project illustrating student's accomplishments during his or her undergraduate career; prepared in collaboration with sociology faculty member or other experts in the student's area of sociological interest; record for student's own reflection, information for potential employers and graduate programs. Requirements: 2.00 major g.p.a.
- SOC:4920 (034:196) Field Experience** arr.
Student volunteer work for a social services, government, or other organization with goal of helping people. Requirements: sociology major.
- SOC:4930 (034:197) Teaching Internship** 3 s.h.
Experience providing supervised support for instructors teaching basic courses in sociology. Requirements: appointment as sociology undergraduate teaching aide.
- SOC:4990 (034:198) Directed Individual Study** arr.
- SOC:4997 (034:100) Honors Seminar** 1-2 s.h.
Topic development for senior honors projects. Offered spring semesters. Requirements: sociology honors standing.
- SOC:4998 (034:199) Honors Research** arr.
Research projects under faculty supervision.
- Theory and Methods**
- SOC:5000 (034:200) Scholarly Professionalism and Integrity** 2 s.h.
General introduction to department and discipline for entering graduate students; departmental and graduate college requirements, program and career planning, interaction with faculty members, consideration of student interests and concerns. Two semesters beginning in fall. Requirements: sociology graduate standing.
- SOC:5110 (034:201) History of Sociological Theory** 3 s.h.
Ideas of major 19th- and 20th-century social thinkers (e.g., Marx, Weber, Durkheim, Simmel, Mead).
- SOC:5160 (034:215) Sampling, Measurement, and Observation Techniques** 3 s.h.
Research designs; sampling designs and techniques; questionnaire construction, interviewing techniques; participant and nonparticipant observation; coding and preparation of data for analysis; measurement techniques, reliability, and validity. Requirements: SOC:6170 (034:214) or graduate standing.
- SOC:6110 (034:202) Theory Construction and Analysis** 3 s.h.
Contemporary theoretical issues and nature of theory, theory's place in research, strategies of theory construction. Requirements: sociology graduate standing.
- SOC:6140 (034:203) Seminar: Selected Topics in Sociological Theory** 3 s.h.
- SOC:6170 (034:214) Introduction to Sociological Data Analysis** 3 s.h.
Statistical measures for descriptive methods and association; logic of statistical inference, hypothesis testing; background essential to understanding linear models, models for categorical data analysis. Requirements: introductory statistics.
- SOC:6175 (034:213) Qualitative Methods** 3 s.h.
Logic of qualitative research; basic skills necessary for a qualitative research project. Requirements: sociology graduate standing.
- SOC:6180 (034:216) Linear Models in Sociological Research** 3 s.h.
Statistical techniques associated with general linear model; emphasis on multiple regression, its generalizations; corresponding computer programs. Requirements: SOC:6170 (034:214) or graduate standing.
- SOC:7170 (034:218) Advanced Statistical Modeling of Data** 3 s.h.
Models for analysis of categorical data, including loglinear, logit, related discrete data models. Requirements: advanced graduate standing.
- SOC:7180 (034:219) Structural Equation Modeling** 3 s.h.
Overview of structural equation models (SEMs), also known as LISREL models, covariance structure models; specific types of SEMs, such as simultaneous equations and confirmatory factor analysis; intermediate topics.
- Social Psychology**
- SOC:3210 (034:020) Principles of Social Psychology** 3-4 s.h.
Introduction to theory and research in small groups; interpersonal and intergroup processes. GE: Social Sciences.
- SOC:3220 (034:128) Sociology of Mental Illness** 3 s.h.
The socially constructed nature of mental illness; theoretical perspectives and research on social antecedents and social consequences of mental health. Prerequisites: SOC:1010 (034:001) or SOC:1020 (034:002) or SOC:3210 (034:020).
- SOC:3225 (034:122) Paranormal Society** 3 s.h.
Sociological perspectives to investigate paranormal beliefs; popular support of paranormal claims despite being rejected by the scientific community; examination of paranormal claims, validity and voracity of popular explanations through the application of scientific process; social psychological theories to understand and decipher society's historical and growing fascination with paranormal beliefs.

- SOC:4210 (034:125) Small Group Analysis** 3 s.h.
Internal processes governing small groups (e.g., friendship cliques, families, the president's cabinet, committees); how small groups relate to the larger social environment; groups' impact on their members. Prerequisites: SOC:1010 (034:001) or SOC:1020 (034:002).
- SOC:4225 (034:123) The Social Psychology of Leadership** 3 s.h.
Techniques, proven by research, that enhance students' ability to know, work with, and lead people; recent research in social psychology, how it applies to practical leadership problems.
- SOC:4230 (034:124) Sociology of Self-Improvement** 3 s.h.
Goal of individual self-improvement as a basic cultural component of society in the United States; where it shaped development of political, business, and educational and religious institutions; selected readings from self-improvement literature and lectures on research showing which self-improvement techniques can be effective and how much individual self-improvement is possible. Prerequisites: SOC:1010 (034:001) or SOC:3210 (034:020).
- SOC:6210 (034:220) Contemporary Approaches to Social Psychology** 3 s.h.
Review and critical analysis of current theoretical approaches and systems of social psychological analysis. Recommendations: sociology graduate standing.
- SOC:6220 (034:221) Seminar: Selected Topics in Social Psychology** 3 s.h.
Selected theoretical and methodological issues.
- Deviance, Delinquency, Crime, Law**
- SOC:1410 (034:040) Introduction to Criminology** 3 s.h.
Nature and causes of crime; the criminal justice process, correctional treatment, crime prevention. GE: Social Sciences.
- SOC:1420 (034:042) Law and Society** 3 s.h.
Exploration of how society shapes the law and how law shapes the society; definitions and conceptualizations of law; social origins of law; roots of compliance with or deviance from law; legal consciousness and uses of law in everyday life; effect of law on social inequality and distribution of power; law as a venue and a tool for social change.
- SOC:2325 (034:025) Women, Crime, and Justice** 3 s.h.
Overview of women's experiences with crime and criminal justice system, with reference to experiences of men for purposes of comparison; role of race, ethnicity, and poverty in women's experiences; causes of crime, inequalities in police-citizen interactions, imprisonment, and other aspects of criminal justice system experience. Same as GWSS:2325 (131:025).
- SOC:2430 (034:080) Comparative Criminal Justice Systems** 3 s.h.
Criminal justice systems around the world; similarities and differences in how justice is defined and operationalized in contemporary legal traditions in terms of police, courts, and corrections examined in light of cultural norms and values; emphasis on link between societal characteristics and legal traditions; differences in defendant rights guaranteed under various legal traditions.
- SOC:3415 (034:045) Global Criminology** 3 s.h.
Crime and the control of crime at the transnational and sub-national levels of analysis; focus on non-U.S. societies; consequences of economic, political, and cultural globalization.
- SOC:3420 (034:141) Juvenile Delinquency** 3 s.h.
Delinquency as an individual and social problem; theories of the causes of juvenile delinquency; law enforcement and the juvenile court; methods of correction and prevention.
- SOC:3425 (034:146) Deviance and Control** 3 s.h.
Norm violation or deviant behavior; behaviors that, while deviant, do not violate legal norms, and ways of controlling these behaviors that do not involve the criminal justice system; ways of explaining deviance, consequences of deviant behavior for the deviant actor.
- SOC:3450 (034:186) Criminal Legal System** 3 s.h.
Discretionary decision making in U.S. criminal courts from arrest through sentencing; legal and sociolegal issues relevant to each stage of felony adjudication; sociological and social-psychological theories of decision making in adjudication, empirical research testing these theories.
- SOC:4400 (034:148) Internship in Criminal Justice and Corrections** 1-5 s.h.
Supervised field work in a criminal justice or correctional agency. Prerequisites: SOC:1410 (034:040) or SOC:3420 (034:141) or SOC:3450 (034:186) or SOC:4420 (034:149) or SOC:4430 (034:142) or SOC:4450 (034:184) or SOC:4460 (034:182). Requirements: sociology major, junior standing, and consent of director of the Center for Criminology and Socio-Legal Studies.
- SOC:4420 (034:149) Sociology of Criminal Punishment** 3 s.h.
Sociological theories and research on criminal punishment; classical and contemporary theories; research on imprisonment and capital punishment.
- SOC:4430 (034:142) Interpersonal Violence in Society** 3 s.h.
Extent and nature of interpersonal violence in societies, in general and for specific population subgroups; theoretical explanations for the phenomenon; alternative ways of defining and responding to violence across various social contexts; application of scientific method; relevant literatures from multiple disciplines including sociology, anthropology, criminology, psychology, and behavioral economics; types of violence defined as illegal and those which are deviant but not illegal. Prerequisites: SOC:1410 (034:040). Recommendations: SOC:2170 (034:011) strongly recommended before enrollment in SOC:1410 (034:040).
- SOC:4440 (034:144) Sociology of White-Collar Crime** 3 s.h.

Critical perspectives on causes and consequences of white-collar crime; definitions and types; criminological, social-psychological, and rational-choice theories; political and economic causes of white-collar crime under capitalism and socialism; rates and patterns of white-collar criminality across different social groups (defined by racial, ethnic, class, and gender attributes); control, prevention, and criminal justice response.

SOC:4450 (034:184) Juvenile Justice: A Sociolegal Perspective 3 s.h.

Examination of social, historical, and legal foundations of juvenile justice system in the United States; adjudication processes in juvenile justice, transfer of juveniles to criminal court, contemporary juvenile court, community-based corrections programs, legalities of juvenile system; current and future directions in juvenile justice.

SOC:4460 (034:182) Sociology of Law 3 s.h.

Conceptual, historical, and theoretical issues of law and operation of the criminal justice system; theory and research on law and the criminal justice system.

SOC:4461 (034:143) Gender and Violence 3 s.h.

Extent and nature of gendered violence, interpretation of patterns using feminist theory and perspectives on masculinities and heterosexism; examination of interpersonal violence, including criminal violence committed by women and men, violence against women and men (victimization), spousal/intimate partner abuse, youth gangs, bullying in schools, sexual violence, femicide, and genocide. Same as GWSS:4461 (131:161).

SOC:6410 (034:240) Seminar: Criminological Theories 3 s.h.

Theories of crime causation and their relationships to the cultures in which they have functioned.

SOC:6420 (034:245) Seminar: Selected Topics in Deviance and Control 3 s.h.

Critical analysis of current research; emphasis on theoretical contributions and methodological foundations.

SOC:7410 (034:242) Communities and Crime 3 s.h.

Distribution of crime as rooted in community-level conditions such as concentrated affluence or poverty, racial residential segregation, unemployment, family disruption, and immigration. Requirements: sociology graduate standing.

SOC:7460 (034:282) Sociology of Law Seminar 3 s.h.

Relationship between law and society explored through writings and research of classical and contemporary sociologists and legal scholars. Requirements: sociology graduate standing.

Family, Lifestyle, Children, Aging

SOC:1310 (034:018) Gender and Society 3-4 s.h.

Role and status of women in society; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes in social life cycle of women, implications for social institutions and processes; focus on contemporary United States. GE: Values, Society, and Diversity. Same as GWSS:1310 (131:018).

SOC:2510 (034:050) Sociology of Health 3 s.h.

Theoretical perspectives and research on social precursors and consequences of physical and mental health ailments; focus on contemporary U.S. with crosscultural comparisons; stereotypes and diagnosis, gender and racial/ethnic differences, health inequalities related to socioeconomic status.

SOC:2750 (034:075) Fertility and Reproduction 3 s.h.

Exploration of when, why, how, and with whom Americans bear children, comparison to other developed and developing countries in the world; infertility and its treatments; ethics of surrogacy; voluntary childlessness; rapid rise of nonmarital childbearing in the U.S. and other countries; politics of childbirth; declining populations; rapid aging of rich where women have basically stopped having children. Same as GWSS:2750 (131:075).

SOC:3710 (034:061) The American Family 3 s.h.

Structure and process; change over the life cycle; interrelations with other institutions; historical changes; variations by social class and ethnic group. Prerequisites: SOC:1010 (034:001). GE: Values, Society, and Diversity.

Social Institutions, Social Change

SOC:2222 (034:022) Introduction to Social Work 4 s.h.

Social welfare as a social institution; settings, methodologies of social work, practice; profession of social work; historical development of American social welfare, social work; a minimum of 45 hours volunteer work. Requirements: sophomore or higher standing. Same as SSW:2222 (042:022).

SOC:3525 (034:153) Public Opinion 3 s.h.

Role in making public policy; formation, change of political attitudes and opinions; political ideology; measurement of public opinion; how opinion polls are conducted; experience with interviewing and conducting public opinion research. Same as POLI:3204 (030:171).

SOC:4540 (034:126) Social Movements in the U.S. 3 s.h.

Social unrest; crowd behavior; social movements treated as a form of social change. Prerequisites: SOC:1010 (034:001) or SOC:1020 (034:002).

SOC:5130 (034:133) Sociology of Education 3 s.h.

Effects of school and school organization on educational outcomes; course-taking patterns and tracking, desegregation, differences in school sector; focus on entire span of student's academic career; examination of school and organizational effects at the primary, secondary, and postsecondary levels of education. Same as EPLS:5130 (07B:130).

SOC:5680 (034:280) Sociology of Higher Education 3 s.h.

Sociological approach to study of higher education; issues of inequality and stratification in higher education; focus on relationship between higher education and larger economic and demographic processes; college access, college destinations, attainment, and returns to a college degree. Same as EPLS:5142 (07B:142).

SOC:5810 (034:310) Education and Social Change 2-3 s.h.

Role of educational institutions, in connection with political and economic structures, in the process of social change; illumination of theories of social change through case studies of educational systems in both less-developed and industrialized nations. Same as EPLS:5210 (07B:210).

SOC:6610 (034:285) Complex Organizations 3 s.h.

Social Class, Inequality, Race, Organizations, Politics

SOC:1810 (034:036) Poverty, Inequality, and Public Policy 3 s.h.

Introduction to public policymaking; historical context of current public policy responses to poverty and inequality in the United States; measurement of poverty and inequality; various experiences of poverty and inequality; efficacy of policies addressing contemporary poverty and inequality.

SOC:2064 (034:064) Racial Inequity and the Experiences of African American Families in the U.S. 3 s.h.

Racial inequality and experiences of African American families in the U.S. during 20th and 21st centuries; historical context for contemporary research on African American family; relative impact of structural and cultural factors on various aspects of African American family life, declining marriage rates, family formation patterns; intersections of race and class in family life; research methods used to examine dynamics of African American family life, including quantitative analysis, structured qualitative interviews, and ethnography. Same as AFAM:2064 (129:064).

SOC:2810 (034:066) Social Inequality 3 s.h.

Major theoretical perspectives for understanding inequality in economics, power, prestige; the magnitude of social inequality in the United States; sex and race inequality; trends in and causes of social mobility; selected consequences of social inequality. GE: Values, Society, and Diversity.

SOC:3520 (034:150) Political Sociology 3 s.h.

Sociological analysis of political behavior and belief, group conflict and political process, group consensus, political institutions, power and policy-making systems; relationship of the political system to the social system. Prerequisites: SOC:1010 (034:001).

SOC:3610 (034:164) Organizations and Modern Society 3 s.h.

Approaches to the sociological study of economic and noneconomic organizations; the role of power and authority within the organization, and between the organization and its environment. Prerequisites: SOC:1010 (034:001) or SOC:3210 (034:020).

SOC:3650 (034:178) Education and Schooling: Sociological Approaches 3 s.h.

Overview of sociology of education; historical and current sociological perspectives on education; race, class, and gender inequality in schooling; higher education; contemporary debates in education (e.g., affirmative action, school choice). Prerequisites: SOC:1010 (034:001) or SOC:1020 (034:002).

SOC:3830 (034:155) Race and Ethnicity 3 s.h.

Multidisciplinary study of intergroup relations, with emphasis on historical, sociological, and social psychological issues in the study of American minority groups. GE: Values, Society, and Diversity.

SOC:3840 (034:175) Community and Urban Sociology 3 s.h.

Impact of urbanization on social life, social networks; how social forces shape patterns of urban growth; racial segregation, gentrification; consequences of the growth of suburbs; urban crises, including concentrated poverty and crime. Prerequisites: SOC:1010 (034:001) or SOC:1020 (034:002).

SOC:3850 (034:158) Economy and Society 3 s.h.

Economic debates that faced advanced market economies in the 20th century with extensions to the developing world; development and maintenance of investment elites and labor markets, development and extension of state activity.

SOC:3880 (034:170) Social Networks 3 s.h.

Introduction to the basic properties of network structure (e.g., density, mutuality, cliques); substantive insights regarding the role and consequences of networks in social life; the role of networks in job searching/hiring processes; how innovations diffuse through networks; and relationships as social resources. Prerequisites: SOC:1010 (034:001) or SOC:1020 (034:002).

SOC:4820 (034:135) Sociology of Sexuality 3 s.h.

Sociological perspectives on sexuality, including theoretical and conceptual developments, empirical regularities, and social implications; sexual expression in the United States. Prerequisites: SOC:1010 (034:001) or SOC:1020 (034:002). Same as GWSS:4820 (131:136).

SOC:5165 (034:265) Race, Class, and Gender Inequalities in Education 3 s.h.

Role of ascribed characteristics (e.g., race, class, gender) on educational opportunities and outcomes; achievement gaps, school desegregation, social and cultural capital, peer influence, family attributes, neighborhood influence, influence of significant others, course-taking patterns, and educational destinations. Same as EPLS:5131 (07B:131).

SOC:6310 (034:256) Gender Stratification Seminar 3 s.h.

Occupational gender segregation; gender gap in pay; role of family caregiving in women's lower pay; evaluation of caregiving work; comparable work.

SOC:6810 (034:253) Social Stratification 3 s.h.

Classical and contemporary theories; current research on the causes and magnitude of inequality in economics, power, and prestige; social mobility; critical issues in stratification.

SOC:6850 (034:257) Seminar: Sociology of Labor Markets 3 s.h.

Sociological and economic theories and research concerning area/regional/local labor markets, industrial sectors and the dual labor market, occupational/internal labor markets; other structural explanations of inequality.

SOC:7620 (034:259) Social Network Analysis 3 s.h.

Relational, data-oriented approach to representing linkages or relationships among social units, and to examine the relevance of these social structures in social processes. Requirements: basic multiple regression.

SOC:7820 (034:254) Seminar: Selected Topics in Social Stratification 3 s.h.

Requirements: social science graduate standing.

SOC:7860 (034:258) Seminar: Economy and Society 3 s.h.

Relationships between social classes and nation-states in capitalist societies; historical experience of the United States; comparative perspective, especially regarding Western Europe.

Teaching

SOC:7010 (034:382) Teaching Sociology 2-3 s.h.

Supervised preparation for teaching sociology courses; literature on teaching; course objectives, alternative teaching techniques; preparation of course syllabus, lectures, discussions, exams. Requirements: advanced sociology graduate standing.

Independent Reading and Research

SOC:6080 (034:385) Master's Thesis arr.

SOC:7030 (034:383) Readings and Research Tutorial arr.

SOC:7090 (034:386) Ph.D. Dissertation arr.

Spanish and Portuguese

Director, Division of World Languages, Literatures, and Cultures

- Russell Ganim

Chair, Department of Spanish and Portuguese

- Mercedes Niño-Murcia

Professors

- Maria José Barbosa, Thomas E. Lewis, Mercedes Niño-Murcia, Adriana Méndez Rodenas

Associate professors

- Maria A. Duarte, Denise K. Filios, Claire Fox (English/Spanish and Portuguese), Brian Gollnick, Paula M. Kempchinsky, Judith E. Liskin-Gasparro, Luis Martin-Estudillo, Ana Merino, Kathleen Newman (Spanish and Portuguese/Cinematic Arts), Diana Vélez

Assistant professors

- Roberto Ampuero, Amber Brian, Roxanna Curto (French and Italian/Spanish and Portuguese), Junyoung V. Kim, Horacio Castellanos Moya, Ana Rodríguez, Christine Shea

Lecturers

- Gay Allan, Ana Fernández, Deanna Johnson, Pilar Marcé, Julia Oliver Rajan, Daniele Sabine Somek, Ruth Westfall

Adjunct associate professor

- Sue E. Otto

Associate professor emeritus

- Philip W. Klein

Undergraduate majors: Spanish (B.A.); Portuguese (B.A.)

Undergraduate minors: Spanish; Portuguese

Graduate degrees: M.A. in Spanish; M.F.A. in Spanish creative writing; Ph.D. in Spanish

Web site: <http://clas.uiowa.edu/dwllc/spanish-portuguese>

The Department of Spanish and Portuguese offers undergraduate majors and minors, graduate degree programs, and course work for students in other disciplines. The department provides a wide selection of courses in Spanish and Portuguese, languages that are spoken in many cultures around the world and are important in the study of literature, art, film, and many other areas. Spanish and Portuguese language courses are open to any student who has satisfied the course prerequisites.

In addition to language courses, the department offers general interest courses on literature, film, and culture that are taught in English. It also participates in several study abroad programs.

Undergraduate students in all majors may satisfy the World Languages requirement of the General Education Program (p. 323) with courses in Spanish or Portuguese; see "Language for General Education" below. The department also offers other courses that are approved for General Education and are taught in English and a First-Year Seminar designed for entering undergraduates.

The Department of Spanish and Portuguese is one of the academic units in the Division of World Languages, Literatures, and Cultures (p. 235).

Undergraduate Programs of Study

- Major in Spanish (Bachelor of Arts)
- Major in Portuguese (Bachelor of Arts)
- Minor in Spanish
- Minor in Portuguese

Elementary and intermediate courses in Spanish language interrelate five performance goals—listening, reading, speaking, writing, and cultural knowledge—in a staged progression whose overall goal is to develop proficiency. The curriculum emphasizes acquisition of Spanish language skills in communicative contexts, enrichment of vocabulary through an introduction to Hispanic culture, and development of grammatical accuracy in speaking and writing.

The beginning course in Portuguese is for students without previous study or experience with the language. There also is a special Portuguese course for students who already know Spanish. Portuguese classes provide a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking, comprehending, reading, and writing Brazilian Portuguese. They incorporate cultural material in the form of videos and music.

Bachelor of Arts: Spanish

The Bachelor of Arts with a major in Spanish requires a minimum of 120 s.h., including 36 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The major is built on course work in Spanish peninsular and Spanish American literature, Hispanic cultures, Hispanic linguistics, and advanced language skills. The goal of the major is twofold: to study content areas related to the Spanish language, such as literature, culture, and linguistics; and to develop proficiency in the Spanish language in all four skills—speaking, listening, reading, and writing.

Students who major in Spanish may go on to graduate study in areas such as Spanish and Spanish American literature, Hispanic linguistics, or comparative literature. They also may combine their Spanish studies with other areas to prepare for career opportunities in international business, government, travel, journalism, or communication, where knowledge of another language and other cultures is essential.

Course work for the major includes a core, which consists of one course from each of the four principal academic areas of the department (see "Required Core" below), and eight electives, which may focus on one or more of the four principal areas or may include a broad range of courses (see "Electives" below).

All courses taken for the Spanish major must be numbered SPAN:2000 (035:103) or above. A minimum of one and a maximum of four courses for the major must be numbered 2000-2999. At least three courses for the major must be

numbered 4000-4999. Students may count a maximum of 6 s.h. earned in courses offered by other University of Iowa departments toward the Spanish major; see "Electives" below for guidelines. A maximum of 15 s.h. of approved transfer credit may be counted toward the major.

Advanced undergraduates preparing to earn a B.A. with honors may enroll in graduate courses with the permission of their advisor and the department chair. Ordinarily, permission is granted only to students who have completed a minimum of 30 s.h. of work for the major and whose g.p.a. in the major is 3.75 or higher.

The major in Spanish requires the following course work.

Required Core

One course in Hispanic linguistics chosen from these:

SPAN:3100 (035:121) Introduction to Hispanic Linguistics	3 s.h.
SPAN:3110 (035:122) Spanish Sound Structure	3 s.h.
SPAN:3120 (035:123) Foundations in Sociolinguistics	3 s.h.
SPAN:3130 (035:124) Introduction to Bilingualism	3 s.h.
SPAN:3150 (035:126) Spanish Applied Linguistics	3 s.h.
SPAN:3170 (035:128) Introduction to Spanish Language Acquisition	3 s.h.
SPAN:4100 (035:189) Introduction to Spanish Phonology	3 s.h.
SPAN:4120 (035:187) Spanish Word Formation	3 s.h.
SPAN:4140 (035:188) History of the Spanish Language	3 s.h.
SPAN:4150 (035:186) Introduction to Spanish Syntax	3 s.h.
SPAN:4170 (035:184) Linguistic Aspects of Second Language Acquisition	3 s.h.
SPAN:4190 (035:185) Topics in Hispanic Linguistics	3 s.h.

One course in Spanish peninsular literature chosen from these:

SPAN:2400 (035:110) Readings in Spanish Literature	3 s.h.
SPAN:3700 (035:160) The Cid in History and Legend	3 s.h.
SPAN:3750 (035:151) Literature in the Time of Cervantes	3 s.h.
SPAN:3790 (035:155) Hispanic Institute: Literature	3 s.h.
SPAN:3810 (035:152) Romanticism and Revolution in Spain	3 s.h.
SPAN:3820 (035:161) Modern and Contemporary Spanish Literature	3 s.h.
SPAN:3830 (035:156) Spanish Literature of the Transition	3 s.h.
SPAN:3840 (035:157) Contemporary Spanish Short Story	3 s.h.
SPAN:4620 (035:180) Spanish Golden Age Fiction	3 s.h.
SPAN:4630 (035:182) Society and Poetry: Spanish Lyric	3 s.h.
SPAN:4650 (035:183) Don Quijote	3 s.h.

SPAN:4690 (035:181) Topics in Spanish Literature	3 s.h.
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One course in Spanish American literature chosen from these:

SPAN:2500 (035:111) Readings in Spanish American Literature	3 s.h.
SPAN:3300 (035:131) Contemporary Spanish American Fiction	3 s.h.
SPAN:3310 (035:134) Spanish American Short Story	3 s.h.
SPAN:3320 (035:132) Spanish American Poetry	3 s.h.
SPAN:3350 (035:140) Contemporary Spanish American Literature	3 s.h.
SPAN:3360 (035:144) Latin American Women Writers	3 s.h.
SPAN:3370 (035:147) Topics in Literatures and Cultures	3 s.h.
SPAN:4310 (035:175) Cultural Identity in Caribbean Literature	3 s.h.
SPAN:4330 (035:173) Colonial Spanish American Literature	3 s.h.
SPAN:4350 (035:171) Twentieth-Century Spanish American Theater and Performance	3 s.h.
SPAN:4370 (035:177) Literature and Mass Culture in Latin America	3 s.h.
SPAN:4380 (035:193) Narratives of Underdevelopment	3 s.h.
SPAN:4390 (035:178) Topics in Spanish American Literature	3 s.h.

One course in culture (peninsular or Spanish American) chosen from these:

SPAN:2200 (035:114) Introduction to Spanish American Cultures	3 s.h.
SPAN:2800 (035:113) Screening Latin America	3 s.h.
SPAN:2900 (035:107) Music of the Hispanic World	3 s.h.
SPAN:3200 (035:130) Cultures of Spanish America	3 s.h.
SPAN:3220 (035:149) Visual Culture: Colonial Spanish America	3 s.h.
SPAN:3230 (035:138) Modern Mexico	3 s.h.
SPAN:3290 (035:148) Topics in Cinema and Society	3 s.h.
SPAN:3400 (035:137) Chicano Literature and Culture	3 s.h.
SPAN:3500 (035:164) Topics in Culture of the Hispanic World	3 s.h.
SPAN:3520 (035:145) Introduction to Film Studies	3 s.h.
SPAN:3600 (035:150) Cultures of Spain	3 s.h.
SPAN:3610 (035:154) Hispanic Institute: Culture	3 s.h.
SPAN:3620 (035:153) Madrid	3 s.h.
SPAN:4820 (035:174) Latino/a Popular Culture	3 s.h.
SPAN:4850 (035:172) Topics in Cultural Studies	3 s.h.
SPAN:4860 (035:170) The Spanish Civil War	3 s.h.
SPAN:4870 (035:179) Islamic Cultural Presence in Spain	3 s.h.
SPAN:4920 (035:192) Topics in Film Studies	3 s.h.

Electives

Eight elective courses in Spanish numbered SPAN:2000 (035:103) and above 24 s.h.

Students choose elective course work according to the following guidelines.

The eight electives may include course work in Spanish language skills as well as more advanced language courses that focus on specialized language functions and purposes. They also may include a maximum of 6 s.h. earned in Portuguese courses numbered PORT:3020 (038:101) Accelerated Intermediate Portuguese or above or in related courses at the appropriate level offered by other University of Iowa departments and programs, such as history, anthropology, comparative literature, international studies, or linguistics. Related courses must be approved by the director of undergraduate studies; for a list of approved related courses, contact the Department of Spanish and Portuguese.

The following Spanish and Portuguese courses do not count toward the major and may not be used as elective credit: SPAN:3095 (035:116) Spanish Composition and Grammar, SPAN:4095 (035:165) Advanced Spanish Grammar, and PORT:3010 (038:100) Accelerated Elementary Portuguese. A maximum of 3 s.h. earned in PORT:3020 (038:101) Accelerated Intermediate Portuguese may be counted toward the major.

Bachelor of Arts: Portuguese

The Bachelor of Arts with a major in Portuguese requires a minimum of 120 s.h., including at least 30 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Portuguese is spoken in Portugal, Brazil, Angola, Mozambique, Cape Verde, and Guine-Bissau. There are more speakers of Portuguese in South America than there are of Spanish. Knowledge of Portuguese and of Luso-Brazilian culture is extremely helpful for students interested in career opportunities in international business, government, or related fields.

All courses for the major in Portuguese must be numbered PORT:3100 (038:103) or above. Students must complete the courses listed under "Prerequisites" below, or their equivalents, before they may begin fulfilling requirements for the major.

The major in Portuguese requires the following courses or their equivalents. Courses listed under "Prerequisites" do not count toward the 30 s.h. of work for the major.

Prerequisites to Course Work for the Major

PORT:3010 (038:100) Accelerated Elementary Portuguese 5 s.h.

PORT:3020 (038:101) Accelerated Intermediate Portuguese 5 s.h.

Required Courses

PORT:3100 (038:103) Composition and Conversation 3 s.h.

PORT:3350 (038:105) Brazilian Literature Before 1900 3 s.h.

PORT:3400 (038:106) Brazilian Literature After 1900 3 s.h.

PORT:3500 (038:107) Introduction to Portuguese Literature 3 s.h.

PORT:4100 (038:120) Topics in Luso-Brazilian Culture 3 s.h.

Electives

Portuguese courses numbered above PORT:3050 (038:102) 15 s.h.

A maximum of 6 s.h. may be taken in approved courses in related areas (e.g., art, anthropology, comparative literature, geography, history, Latin American studies, linguistics, sociology, Spanish).

B.A. with Teacher Licensure

Spanish majors interested in earning licensure to teach at the elementary and/or secondary level must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students who plan to use a major in Portuguese or their work toward a minor in Spanish or in Portuguese as academic background for earning teacher licensure should contact the Office of Education Services about requirements.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A.: Spanish

Before the third semester begins: Intermediate Spanish I (or equivalent second-year, first-semester competence in Spanish)

Before the fifth semester begins: two courses in Spanish beyond Intermediate Spanish II (or equivalent second-year, second-semester competence)

Before the seventh semester begins: four more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A.: Portuguese

Before the third semester begins: competence in first-year Portuguese

Before the fifth semester begins: competence in intermediate Portuguese

Before the seventh semester begins: three or four additional courses for the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: seven courses in the major

During the eighth semester: enrollment in remaining major course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in Spanish or in Portuguese have the opportunity to graduate with honors in their major. Students must have a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.50 in their major in order to enter the departmental honors program.

To graduate with honors in the Spanish major, students must request honors designation for one course they take for the major (3 s.h.), in consultation with the department honors advisor. They also must register for 3 s.h. in SPAN:4998 (035:198) Honors: Research and Thesis. To complete SPAN:4998 (035:198) successfully, students must submit an honors thesis they have written in Spanish and must present it orally to a faculty committee in a meeting conducted in Spanish.

To graduate with honors in the Portuguese major, students must earn 3 s.h. in PORT:4999 (038:198) Honors Research and Thesis plus 3 s.h. in a course chosen in consultation with the department honors advisor. Both courses (6 s.h.) count toward the total 30 s.h. required for the major in Portuguese. Students also must write an honors thesis and present it orally to a committee of three faculty members.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor: Spanish

The minor in Spanish requires a minimum of 18 s.h. in Spanish courses, including at least 15 s.h. in University of Iowa Spanish courses numbered 2000 or above; UI study abroad programs may count toward the minor. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

The minor must include a minimum of 3 s.h. earned in course work on Spanish or Spanish American literature or culture, or Hispanic linguistics. One University of Iowa Spanish course taught in English may be counted toward the minor (see list below); remaining courses for the minor must be taught in Spanish, including study abroad courses. Students may not count SPAN:3095 (035:116) Spanish Composition and Grammar or SPAN:4095 (035:165) Advanced Spanish Grammar toward the Spanish minor.

The following Spanish courses are taught in English. Students may count a maximum of one of them toward the minor in Spanish.

SPAN:2050 (035:108) Spanish in the U.S.	3 s.h.
SPAN:2700 (035:070) Introduction to Latin American Studies	3 s.h.

SPAN:3270 (035:146) Pan-Caribbean Literary Currents	3 s.h.
SPAN:3420 (035:143) Cuban American Literature and Culture	3 s.h.
SPAN:3440 (035:135) Topics in Latino/a Literature and Culture	3 s.h.
SPAN:4800 (035:190) Chicano Cinema	3 s.h.
SPAN:4810 (035:191) Topics in Latin American Cinema	3 s.h.
SPAN:4900 (035:176) Latin American Studies Seminar	3 s.h.

Minor: Portuguese

The minor in Portuguese requires a minimum of 15 s.h. in Portuguese courses, including 12 s.h. in University of Iowa courses numbered PORT:3100 (038:103) Composition and Conversation or above; credit earned in a University of Iowa study abroad program also may be counted toward the minor. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

Language for General Education

The Department of Spanish and Portuguese offers course sequences that students in all majors may use to satisfy the World Languages requirement of the College of Liberal Arts and Sciences General Education Program (p. 323).

Students who have previous course work or other experience with Spanish should take the online World Languages Placement Test, which helps determine the level at which a student should begin Spanish language study at The University of Iowa. Students should take the test before they register for their first University of Iowa Spanish course. Students with experience in Portuguese may receive individual evaluations from the department.

Spanish

The following course sequences in Spanish satisfy the General Education Program's World Languages requirement. For students without previous knowledge of Spanish, the department recommends the following sequence.

SPAN:1001 (035:001) Elementary Spanish I	5 s.h.
SPAN:1002 (035:002) Elementary Spanish II	5 s.h.
SPAN:1501 (035:011) Intermediate Spanish I	5 s.h.
SPAN:1502 (035:012) Intermediate Spanish II	5 s.h.

Those with previous knowledge of Spanish may be able to fulfill the World Languages requirement with the following sequence.

SPAN:1003 (035:005) Elementary Spanish Review	5 s.h.
SPAN:1501 (035:011) Intermediate Spanish I	5 s.h.
SPAN:1502 (035:012) Intermediate Spanish II	5 s.h.

Students should consult a departmental advisor to determine which sequence is best for them.

Portuguese

Only one course sequence in Portuguese fulfills the General Education Program's World Languages requirement. It consists of two intensive courses that combine two semesters into one, so that the sequence

is completed in a total of two semesters rather than four. Both courses are open to entering first-year students.

PORT:3010 (038:100) Accelerated Elementary Portuguese 5 s.h.

PORT:3020 (038:101) Accelerated Intermediate Portuguese 5 s.h.

Related Certificates

International Business

The College of Liberal Arts and Sciences and the Tippie College of Business offer the Certificate in International Business. The program entails study of international business and economics; international relations and institutions; a language; and the art, literature, culture, and/or politics of a geographic area. For detailed information about the certificate see International Business (p. 420) in the Catalog.

Latin American Studies

The department plays an important role in the Latin American Studies Program, which focuses on the history, politics, social organization, economy, art, music, religion, and literature of Latin America. See Latin American Studies (p. 459) in the Catalog for detailed information about the program's undergraduate certificate and minor.

Study Abroad

Spanish

The department participates in study abroad programs in Spain and Latin America; most of these programs offer both summer and semester or yearlong programs. The programs in Spain include the Board of Regents Hispanic Institute program in Valladolid (summer only); USAC (University Studies Abroad Consortium) programs in Alicante, Bilbao, Madrid, and San Sebastián; and CIEE programs in Alcalá de Henares, Alicante, Barcelona, Madrid, Palma de Mallorca, and Seville.

The programs in Latin America include USAC programs in Chile (Santiago) and Costa Rica (Heredia, Puntarenas, and San Ramón); CIEE programs in Argentina (Buenos Aires), Chile (Santiago and Valparaíso), Dominican Republic (Santiago), Mexico (Guanajuato), and Peru (Lima). They also include the CIC Latin America Health, Nutrition, and Environmental Issues Program in Santiago, Dominican Republic. For information about other foreign study programs in Spanish, contact International Programs Study Abroad.

Participation in a number of different programs allows the department to offer study abroad opportunities that take into account a variety of student interests and needs. Credit earned in these or other study abroad programs may be applied toward the requirements for the Spanish major or minor. The amount of credit that may be accepted varies according to the program.

Interested students should contact the department's study abroad advisor. Credit earned in study abroad programs other than those listed above counts as transfer credit and is subject to the 15 s.h. maximum allowed for the major and the 3 s.h. maximum allowed for the minor.

Portuguese

The department offers a seven-week program in Salvador, Bahia, Brazil that includes courses in Portuguese language,

culture, and literature. Contact International Programs Study Abroad for details.

Graduate Programs of Study

- Master of Arts in Spanish
- Master of Fine Arts in Spanish creative writing
- Doctor of Philosophy in Spanish

Master of Arts

The Master of Arts program in Spanish requires 30 s.h. of graduate credit. Students choose one of two emphases: literature, which provides training in literary analysis and broad knowledge of representative works in principal areas of Hispanic literature; or linguistics, which provides training in linguistic analysis and argumentation and broad knowledge of the principal subfields of Hispanic linguistics. Applicants to the M.A. program should have completed the equivalent of the undergraduate Spanish major with a g.p.a. of at least 3.00 in course work for the major.

A maximum of 9 s.h. of graduate credit in approved courses may be transferred from other institutions toward the 30 s.h. required for the M.A.

The M.A. requires the following 10 courses.

Literature Emphasis Courses

One of these:

SPAN:6000 (035:200) Foreign Language Teaching Methods 3 s.h.

WLLC:5000 (218:200) Teaching and Learning Languages 3 s.h.

All of these:

One course in Spanish linguistics numbered SPAN:4860 (035:170) or above 3 s.h.

Two courses in Spanish (peninsular) literature numbered SPAN:4860 (035:170) or above 6 s.h.

Two courses in Spanish American literature numbered SPAN:4860 (035:170) or above 6 s.h.

One course in literary theory 3 s.h.

Three electives 9 s.h.

At least eight of the ten literature emphasis courses must be taken in Department of Spanish and Portuguese courses numbered 5000 or above. The remaining two may be taken either in the Department of Spanish and Portuguese courses numbered 4000 or above or in courses offered by related departments, subject to approval by the director of graduate studies.

Linguistics Emphasis Courses

One of these:

SPAN:6000 (035:200) Foreign Language Teaching Methods 3 s.h.

WLLC:5000 (218:200) Teaching and Learning Languages 3 s.h.

All of these:

One course in Spanish or Spanish American literature numbered SPAN:4860 (035:170) or above 3 s.h.

Two courses in syntax 6 s.h.

Two courses in phonetics/phonology 6 s.h.

One course in history of the Spanish language or language variation	3 s.h.
One course in applied linguistics or language acquisition	3 s.h.
Two electives	6 s.h.

At least six of the ten linguistics emphasis courses must be taken in Department of Spanish and Portuguese courses numbered 5000 or above. The remaining four may be taken in Department of Spanish and Portuguese courses numbered 4000 or above or in Department of Linguistics courses.

Language Tool Requirement

M.A. students must complete the equivalent of one year of college-level study of any approved second foreign language; Portuguese is highly recommended. They may satisfy this requirement either by examination or through courses taken at The University of Iowa or another accredited university; such course work does not count toward the 30 s.h. required for the M.A.

Examinations

The M.A. comprehensive examination includes written and oral components. The written portion consists of a two-hour examination in each of three areas; an oral examination follows, usually lasting 90 minutes. The examining committee is composed of four departmental faculty members.

Students in the literature emphasis may choose to be examined in three literature areas or in two literature areas and one linguistics area. At least one literature area must be in Spanish literature and at least one must be in Spanish American literature. If three literature areas are chosen, at least one must represent literature written before 1700 (peninsular or Spanish American).

Students in the linguistics emphasis may choose to be examined in three linguistics areas or in two linguistics areas and one literature area. At least one of the linguistics areas must be in syntax or phonology. For students in both emphases, the third examination area may be a film area.

For reading lists, contact the Department of Spanish and Portuguese.

Master of Fine Arts

The Master of Fine Arts in Spanish creative writing requires 48 s.h. of graduate credit earned over four semesters in residence at The University of Iowa. Students complete courses in writing, including several workshops, and other relevant course work. They also are required to participate in several outreach workshops in the community and to do a final public reading in the spring semester of their second year. Work toward the degree culminates in a creative thesis.

The M.F.A. requires the following 16 courses.

All of these:

SPAN:6210 (035:310) Introductory Workshop: Short Story	3 s.h.
SPAN:6220 (035:318) Introductory Workshop: Writing Poetry	3 s.h.
SPAN:6240 (035:313) Advanced Narrative Workshop	3 s.h.

SPAN:6250 (035:314) Advanced Poetry Workshop	3 s.h.
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SPAN:6299 (035:399) Thesis: Creative Writing	3 s.h.
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Three workshop courses chosen from these:

SPAN:6230 (035:312) Graphic Novel/Comic Script Workshop	3 s.h.
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SPAN:6235 (035:317) Film Script/Theater Workshop	3 s.h.
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SPAN:6260 (035:311) Detective Narrative Workshop	3 s.h.
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SPAN:6270 (035:316) Children, Youth Literature	3 s.h.
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SPAN:6280 (035:315) Nonfiction Workshop	3 s.h.
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All of these:

Four graduate-level courses offered by the Department of Spanish and Portuguese

Four additional courses offered by the Department of Spanish and Portuguese or by related units

Related units include the University of Iowa Center for the Book, the Creative Writing Program (Iowa Writer's Workshop), the Comparative Literature Program, and the International Writing Program.

Thesis

The thesis is a manuscript of substantial length, which students submit during their last semester. The thesis committee is composed of at least three members: two faculty members in the Spanish creative writing program and a third Department of Spanish and Portuguese faculty member who is not part of the creative writing program, or a faculty member from one of the related units.

Doctor of Philosophy

The Doctor of Philosophy program in Spanish requires a total of at least 72 s.h. of graduate credit. Ph.D. students choose from two programs; one is dedicated to Hispanic literatures, the other to Hispanic linguistics. The literature program trains students in textual analysis and literary history, criticism, and theory. The linguistics program provides training in linguistic analysis and theory.

The literature program requires a minimum of 66 s.h. of course work (22 courses), of which 30 s.h. may have been earned for an M.A. in Spanish at The University of Iowa or at another institution, as approved by the director of graduate studies.

The linguistics program requires a minimum of 57 s.h. of course work (19 courses), of which 30 s.h. may have been earned for an M.A. in Spanish at The University of Iowa or at another institution, as approved by the director of graduate studies.

Both programs also require 6 s.h. earned in SPAN:6999 (035:299) Thesis, to complete the 72 s.h. required for the Ph.D.

Course requirements for each program are as follows.

Literature Track: Courses

Students must complete at least 36 s.h. (12 courses) beyond the master's degree (or 22 courses beyond the bachelor's degree). The following courses are required;

courses taken for the M.A. may be used to meet part of this requirement.

SPAN:6999 (035:299) Thesis	3-15 s.h.
Two courses in literary theory	6 s.h.
Three courses in Spanish literature, at least one of which must be pre-1700 literature	9 s.h.
Three courses in Spanish American literature	9 s.h.
One course in cinema	3 s.h.
Two 7000-level seminars in literary studies	6 s.h.
One literature course in another Romance language (see "Language and Literature Tool Requirements")	3 s.h.

Each student's plan of study is tailored to his or her area of emphasis and must be approved by the student's advisory committee. Ph.D. course work in Spanish (taken after the M.A.) must be numbered 6000 or above, except the Romance literature course taken for the language tool requirement.

Literature Track: Language and Literature Tool Requirements

Before the comprehensive examination, students must complete the equivalent of three years of college-level study in another Romance language and become well acquainted with its literature in limited areas of specialization; the study of Luso-Brazilian literature is highly recommended. This requirement may be satisfied only through course work at The University of Iowa or another accredited university.

Students also must complete the equivalent of one year of college-level study of another approved foreign language. Students who do not fulfill the Romance language requirement with Portuguese must use it to satisfy this requirement. Students who will write dissertations on topics in Spanish or Portuguese literature before 1700 are strongly encouraged to select Latin, Arabic, or an Amerindian language to satisfy this requirement; students should consult specialists in their field to determine which language is most appropriate. Students may take more than two languages, earning more than the 72 s.h. required for the degree, if their literary course work permits.

Students may satisfy the language tool requirement by examination or by course work at The University of Iowa or at another accredited university; language tool course work does not count toward the 72 s.h. required for the degree. Courses taken to fulfill the language tool requirements may be taken pass/nonpass. If the language tool requirements are satisfied by examination, the exam results must be documented in the student's file. Courses taken to fulfill the second Romance literature requirement must be taken for grades and may be counted toward the degree.

Linguistics Track: Courses

Students must earn at least 27 s.h. (9 courses) beyond the master's degree (or 19 courses beyond the bachelor's degree). The following courses are required; courses taken for the M.A. may be used to meet part of this requirement.

SPAN:6110 (035:209) Spanish Phonology	3 s.h.
SPAN:6120 (035:210) Spanish Syntax	3 s.h.
SPAN:6150 (035:206) Topics in Spanish Language Acquisition	3 s.h.

SPAN:6190 (035:207) Topics in Comparative Romance Linguistics	3 s.h.
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SPAN:6999 (035:299) Thesis	13-15 s.h.
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LING:3005 (103:110) Articulatory and Acoustic Phonetics	3 s.h.
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LING:5010 (103:201) Introduction to Syntax	3 s.h.
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LING:5020 (103:203) Introduction to Phonology	3 s.h.
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LING:6010 (103:202) Syntactic Theory	3 s.h.
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One additional course in the dissertation research area	3 s.h.
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One course in historical linguistics, sociolinguistics/language variation, or language acquisition/psycholinguistics	3 s.h.
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One Hispanic linguistics seminar numbered 7000 or above	3 s.h.
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The additional course in the dissertation research area (phonology, syntax, language acquisition, language variation) must be offered by the Department of Spanish and Portuguese or the Department of Linguistics.

Each student's plan of study is tailored to his or her area of emphasis and must be approved by the student's advisory committee. Ph.D. course work in Spanish (taken after the M.A.) must be numbered 6000 or above, except for some courses offered by the Department of Linguistics and the required third-year-level course in Portuguese (see "Linguistics Track: Language Tool and Additional Requirements" below).

Linguistics Track: Language Tool and Additional Requirements

Students in the linguistics track must complete the equivalent of three years of college-level study of Portuguese, and the equivalent of one year of college-level study of each of two other languages. For students specializing in historical linguistics, one of those two languages must be Latin.

Students may satisfy the language tool requirement by examination or by course work at The University of Iowa or at another accredited university. Courses taken to fulfill the language tool requirements may be taken pass/nonpass. If the language tool requirements are satisfied by examination, the exam results must be documented in the student's file. The language tool course work does not count toward the 57 s.h. of prethesis course work required for the degree, except the third-year-level course work in Portuguese, which may be counted with the faculty advisor's approval if the student took it for a grade.

Students in the linguistics track also must write two extended research papers and give two colloquium presentations based on these papers. The first paper must be in an area distinct from the intended dissertation research; it must be approved by the student's advisory committee by the end of fall semester of the second year of Ph.D. course work in order for the student to continue in the program. The second paper must be in the dissertation research area, must be of publishable quality, and must be approved by the student's advisory committee no later than the beginning of the semester in which the student takes the comprehensive exam.

Comprehensive Examination

The purpose of the Ph.D. comprehensive examination is to determine whether the student has gained sufficient

breadth and depth of research knowledge in Hispanic literatures or linguistics to enter the profession as a teacher-scholar. The examining committee is composed of five departmental faculty members or four departmental faculty members and a fifth faculty member from a related department.

Literature Track

The literature track's comprehensive exam has written and oral components.

The written component includes four elements: two broad areas, one specialized area, and one article. Each element is supervised by a different committee member.

The two broad areas comprise lists of approximately 40 readings, with each list covering an established historical period that is tied to the student's Ph.D. course work (one Peninsular, the other Spanish American). The lists must be approved by the supervisor before distribution to the rest of the committee. Each area is evaluated with a three-hour written exam, which is discussed during the student's oral exam.

The specialized area's reading list includes 25-40 secondary works that define the area and are related to the dissertation. The area is examined via a 15-20 page position paper, which is a critical synthesis of the secondary readings and normally becomes part of the dissertation introduction. The list and the paper must be written in consultation with a faculty supervisor and must be approved by the supervisor at least one month before the oral exam.

The article is a 20-25 page research essay, usually a revised version of a paper written for one of the two required seminars numbered 7000 or above. The article should be written in consultation with the professor who taught the seminar and with a faculty supervisor; if the professor who taught the course also supervises the area, the student must consult with at least one more professor. The article must be approved by the supervisor at least one month before the oral exam.

The oral exam lasts two hours, with approximately half devoted to the two broad areas and half to the article and the position paper.

Linguistics Track

The comprehensive exam for the linguistics track includes written and oral components. The written component comprises two weekend take-home exams consisting of linguistic analysis in two subdisciplines distinct from the subdiscipline of the intended dissertation research. The two-hour oral exam consists of one hour devoted to discussion of the second research paper and the other hour devoted to follow-up questions on the written exams.

Dissertation

After the Ph.D. comprehensive examination is completed, the candidate submits a dissertation prospectus for the dissertation committee's approval. The dissertation committee is composed of five faculty members; at least four committee members must be from the Department of Spanish and Portuguese.

All doctoral dissertations must be submitted to the Graduate College in electronic format.

The dissertation, complete and in final form, must be submitted in the required electronic format at the

Graduate College office by the first-deposit deadline date of the session in which the degree is to be conferred. The final deposit of the approved dissertation in electronic format must be deposited at the office by the appropriate deadline in the student's graduation semester.

Students must adhere to the Graduate College regulations regarding preparation of the dissertation copy; consult the Graduate College. For information on the dissertation and final examinations, see the Manual of Rules and Regulations of the Graduate College.

Graduate Study Loads

Maximum course registration for all graduate students is 15 s.h. of graduate-level course work in fall or spring semesters and 12 s.h. of graduate-level work in summer sessions. Students with one-quarter-time and one-third-time teaching assistantships are permitted to register for the maximum study loads. Students who hold one-half-time assistantships are permitted to register for a maximum of 12 s.h. in fall and spring semesters and 6 s.h. in summer sessions. Students must have approval from the Graduate College to register for additional semester hours.

The minimum course registration is 2 s.h. for all graduate students. Doctoral students who have passed the comprehensive examinations typically register for 2 s.h. of thesis work to satisfy the minimum registration requirement. Students who fail to register for 36 months must apply for readmission to the Graduate College.

Financial Support

Teaching and research assistantships are available to qualified graduate students. Usually, two years of support are available for completion of the M.A. and four years beyond the receipt of the M.A. for the Ph.D. Applications for financial support should be made directly to the Department of Spanish and Portuguese.

Facilities

The Language Media Center (LMC) provides students and faculty with a broad range of services and facilities that include a state-of-the-art audio language laboratory, individual audio recording carrels, video viewing rooms for small groups, video viewing stations for individuals, and networked microcomputer and interactive multimedia workstations. The LMC maintains a number of instructional technology classrooms that have special video, audio, and computer equipment for in-class presentations. The center's extensive collection of international media resources on audio tape, videotape, computer diskette, videodisc, and CD-ROM serves learners at many levels and in many disciplines.

Courses

Spanish and Portuguese language courses are open to all students who have satisfied the specified course prerequisites.

Basic Spanish, Lower-Level Undergraduate

Students must have permission from the chair of the Department of Spanish and Portuguese to take an elementary course for credit after having completed a

higher-level course for which the elementary course or its equivalent is a prerequisite.

SPAN:1000 (035:029) First-Year Seminar 1-2 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Requirements: first- or second-semester standing.

SPAN:1001 (035:001) Elementary Spanish I 5 s.h.

Emphasis on oral and written skills. Taught in Spanish. Recommendations: no previous study of Spanish. GE: World Languages First Level Proficiency.

SPAN:1002 (035:002) Elementary Spanish II 5 s.h.

Continuation of SPAN:1001 (035:001); emphasis on oral and written skills. Taught in Spanish. Prerequisites: SPAN:1001 (035:001). GE: World Languages Second Level Proficiency.

SPAN:1003 (035:005) Elementary Spanish Review 5 s.h.

Intensive treatment of material presented in SPAN:1001 (035:001) and SPAN:1002 (035:002). Taught in Spanish. Requirements: two years of secondary school Spanish. GE: World Languages Second Level Proficiency.

SPAN:1400 (035:014) Spanish for Healthcare Providers 3 s.h.

Intermediate Spanish with emphasis on oral communication for health care providers. Requirements: SPAN:1001 (035:001).

SPAN:1501 (035:011) Intermediate Spanish I 5 s.h.

Communication in speaking and writing; cultural topics. Taught in Spanish. Prerequisites: SPAN:1002 (035:002) or SPAN:1003 (035:005). GE: World Languages Second Level Proficiency.

SPAN:1502 (035:012) Intermediate Spanish II 5 s.h.

Continuation of SPAN:1501 (035:011). Prerequisites: SPAN:1501 (035:011). GE: World Languages Fourth Level Proficiency.

SPAN:1503 (035:013) Accelerated Intermediate Spanish 6 s.h.

Course sequence SPAN:1501 (035:011) and SPAN:1502 (035:012) in one semester. Prerequisites: SPAN:1002 (035:002) or SPAN:1003 (035:005). GE: World Languages Fourth Level Proficiency.

SPAN:1600 (035:030) Exploring Latino Culture: Music, Food, and Salsa 1 s.h.

Exploration of rich diversity of Latino culture in Iowa; may attend cultural celebrations, visit Latino resources on campus, meet Latino student leaders and faculty from the Spanish department, learn about study abroad and careers involving Spanish language skills.

SPAN:1610 (035:035) Hispanic Cultural Activities Attendance 1 s.h.

Attendance at Spanish literary readings, scholarly presentations, and Hispanic cultural events on the University of Iowa campus and in Iowa City; features visiting, local, and University of Iowa writers, filmmakers, artists, and scholars.

SPAN:1700 (035:060) Latino/a Literature in the U.S. 3 s.h.

Introduction to growing cultural production of varied Latino communities (e.g., Chicano, Puerto Rican American/Nuyorican, Cuban American) that have a strong presence in the United States; recent cultural production from borderland transcultural spaces with physical, cultural, economic, political, and mythical elements; visions of the United States from contemporary Latin American writers who recently have become U.S. residents. Taught in English. GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity.

SPAN:1800 (035:020) Contemporary Spanish American Narrative 3 s.h.

Themes and narrative techniques in major texts, 1960-present; overview of cultural, sociopolitical aspects. Taught in English, readings in English. Prerequisites: ENGL:1200 (08G:001). GE: Literary, Visual, and Performing Arts.

SPAN:1900 (035:090) Diversity and Cultures in Spain 3 s.h.

Introduction to diversity of cultures within Spain; political, social, and economic background, cultural movements. Taught in English. GE: Values, Society, and Diversity.

SPAN:2700 (035:070) Introduction to Latin American Studies 3 s.h.

Cultures of Latin American countries with emphasis on cultural history and cultural production; interdisciplinary survey. Same as PORT:2700 (038:070), LAS:2700 (130:070), IS:2700 (187:070).

Spanish Level 1, Lower-Level Undergraduate

Students should take these courses at the start of the Spanish major.

SPAN:2000 (035:103) Spanish Language Skills: Writing 3 s.h.

Bridge from second-year Spanish to more advanced courses in Spanish language, linguistics, and literature; emphasis on skill development in writing, critical reading in Spanish, and oral communication. Taught in Spanish. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2010 (035:106) Spanish Language Skills: Speaking 3 s.h.

Development of conversational proficiency and cultural competence through action learning; strategic role playing and creative language use based on everyday situations in Hispanic cultures; composition skills and grammar review. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2020 (035:104) Hispanic Institute: Language 3 s.h.

Grammar essentials, written exercises, short compositions, conversational activities. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2030 (035:109) Study of Language: Myths and Concepts 3 s.h.

How linguists look at language; basic concepts of linguistics and grammar. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2040 (035:102) Spanish for Heritage Speakers 3 s.h.

Development of reading and writing skills for bilingual students who have acquired listening and speaking skills in Spanish; review of grammar and registers of use.

SPAN:2050 (035:108) Spanish in the U.S. 3 s.h.

Issues related to Spanish in the United States; aspects of linguistics and sociolinguistics inherent to the existence and proliferation of Spanish in the United States. Taught in English.

SPAN:2060 (035:101) Spanish Pronunciation 3 s.h.

Pronunciation as a key element of communication in a second language; self evaluation of pronunciation in Spanish; how sounds differ between English and Spanish; analysis of pronunciation; production exercises. Prerequisites: SPAN:2040 (035:102).

SPAN:2200 (035:114) Introduction to Spanish American Cultures 3 s.h.

Introduction to study of cultural history of Spanish America; topics range from precolombian times to present; for students who are just starting work on the Spanish major or minor. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2300 (035:112) Introduction to Reading Literature 3 s.h.

Close readings of literary texts from Spain and Spanish America; basic concepts of genre (narrative, poetry, theater, essay); writing about literature. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2400 (035:110) Readings in Spanish Literature 3 s.h.

Tools for improving reading skills; basic concepts for textual understanding; historical overview of literary works, with focus on literature of Spain. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2500 (035:111) Readings in Spanish American Literature 3 s.h.

Tools for improving reading skills; basic concepts for textual understanding; historical overview of literary works, with focus on Spanish American literature. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2800 (035:113) Screening Latin America 3 s.h.

Latin American film; histories of the four major national film industries; aesthetic and political debates surrounding the New Latin American Cinema movement of the 1960s and 1970s. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2900 (035:107) Music of the Hispanic World 3 s.h.

Introduction to music of Spain and Latin America, including the United States; listening skills, music appreciation, continuing development of Spanish language skills. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).

SPAN:2910 (035:105) Hispanic Institute: Study/Life in Spain 1 s.h.

Spanish Level 2, Upper-Level Undergraduate and Graduate

Students should have at least one Level 1 course before starting these courses. Some courses have additional prerequisites.

Language Skills

SPAN:3000 (035:139) Writing Skills for Heritage Speakers 3 s.h.

Development of writing skills in Spanish, focus on expository writing for academic purposes. Requirements: at least two courses taught in Spanish at the 2000 level or above.

SPAN:3010 (035:141) Advanced Spanish Speaking and Writing 3 s.h.

Development of oral proficiency; secondary emphasis on continuing development of writing skills; cultural knowledge of several Spanish-speaking countries. Requirements: two courses taught in Spanish at the 2000 level or above.

SPAN:3020 (035:119) Journalistic Writing in Spanish 3 s.h.

Spanish writing skills; introduction to style and practice of journalistic reporting and writing. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3030 (035:117) Translation Workshop: English to Spanish 3 s.h.

Introduction to translation theory and effective translation processes; examination of potential translation problems in specific areas of English to Spanish translation; primary focus on nonfiction. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3040 (035:118) Business Spanish 3 s.h.

Clear, concise business writing; emphasis on linguistic and cultural proficiency. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3050 (035:129) Translation Workshop: Spanish to English 3 s.h.

Spanish to English literary translation; meaning, form and equivalence, authenticity; questions of untranslatability. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3060 (035:120) Introductory Workshop on Creative Writing in Spanish 3 s.h.

Development of writing skills in Spanish through creative writing. Taught in Spanish. Prerequisites: SPAN:2000 (035:103).

SPAN:3080 (035:168) Advanced Business Spanish 3 s.h.

Tools for effective business communication, building on concepts learned in SPAN:3040 (035:118); linguistic, sociolinguistic, practical skills for effective oral and written communication developed through discussion of business case studies, presentations, meetings; selected Spanish and Latin American companies examined through varied media, including news and Internet; role of transaction intermediaries in international trade. Prerequisites: SPAN:3040 (035:118).

SPAN:3095 (035:116) Spanish Composition and Grammar 3 s.h.

Development of three types of compositions; selected readings and comprehension activities; vocabulary expansion; grammar review with exercises. Requirements: good proficiency in written and oral Spanish based on several university-level Spanish courses and study abroad experience in a Hispanic country.

Hispanic Linguistics**SPAN:3100 (035:121) Introduction to Hispanic Linguistics** 3 s.h.

Basic tools of linguistic analysis as applied to analysis of Spanish language; systematic study of sound patterns, sentence construction, word formation; meanings, language acquisition. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3110 (035:122) Spanish Sound Structure 3 s.h.

Articulation of Spanish sounds—description and practice; how Spanish sounds are organized into classes, relations among the different classes, how they are implemented in context, patterns they exhibit. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3120 (035:123) Foundations in Sociolinguistics 3 s.h.

Dialects, speech communities, variation, choosing a code, solidarity and politeness, language and gender, language planning. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3130 (035:124) Introduction to Bilingualism 3 s.h.

Psycholinguistic and sociolinguistic aspects of bilingualism; language usage, maintenance, attitudes, shift, transfer, loss; code-switching. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3150 (035:126) Spanish Applied Linguistics 3 s.h.

Concepts of linguistic analysis applied to Spanish; focus on problematic areas of Spanish grammar, lexicon, semantics; introduction to cross-cultural pragmatics; connections between language learning and technology and assessment; ideal for future teachers of Spanish. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3170 (035:128) Introduction to Spanish Language Acquisition 3 s.h.

Basic principles of language acquisition theory applied to learning Spanish as a first or second language. Requirements: at least one course taught in Spanish at the 2000 level or above. Recommendations: completion of SPAN:3100 (035:121).

Spanish American Literature and Culture**SPAN:3200 (035:130) Cultures of Spanish America** 3 s.h.

Pre-Columbian, colonial, modern periods; socioeconomic structure, form of government, culture. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3220 (035:149) Visual Culture: Colonial Spanish America 3 s.h.

Intersection between written word and visual culture in colonial Spanish America; imperialism, native culture, violence and race in codices, paintings, maps and illustrations. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3230 (035:138) Modern Mexico 3 s.h.

Twentieth-century Mexican cultural history, including nationalism, gender relations, indigenous cultures, border issues, and popular culture; materials range from journalistic and literary writing to film, music, images, and television. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3270 (035:146) Pan-Caribbean Literary Currents 3 s.h.

Twentieth-century fiction, film, and cultural practices in the Hispanic, Francophone, and Anglophone Caribbean; cultural essays to complement literary readings; pan-Caribbean cultural practices—music and carnival celebrations. Taught in English. Requirements: for CL:3262 (218:162) —junior or senior standing; for SPAN:3270 (035:146) — two literature courses. Same as CL:3262 (218:162).

SPAN:3290 (035:148) Topics in Cinema and Society 3 s.h.

Concept of national cultures examined through film history in one Latin American nation. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3300 (035:131) Contemporary Spanish American Fiction 3 s.h.

Major 20th-century short-story writers and novelists (Borges, Cortázar, Fuentes, García-Márquez, Rulfo, etc.) through representative works. Requirements: at least one course taught in Spanish at the 2000 level or above.

- SPAN:3310 (035:134) Spanish American Short Story** 3 s.h.
Works by 19th- and 20th-century Spanish American writers; emphasis on reading strategies and historical, cultural, literary backgrounds. Requirements: at least one course taught in Spanish at the 2000 level or above.
- SPAN:3320 (035:132) Spanish American Poetry** 3 s.h.
Poetry as a literary genre, short history of its development, early forms in Spanish America, poets from Modernism to present; readings from writers including Rubén Darío, Pablo Neruda, César Vallejo, Octavio Paz, J.L. Borges. Requirements: at least one course taught in Spanish at the 2000 level or above.
- SPAN:3350 (035:140) Contemporary Spanish American Literature** 3 s.h.
Comprehensive view of 20th-century literature from Spanish-speaking countries in the Americas, including narrative and poetry; examination of issues related to texts and contexts through written and oral analysis. Requirements: at least one course taught in Spanish at the 2000 level or above.
- SPAN:3360 (035:144) Latin American Women Writers** 3 s.h.
Focus on 20th century; how Latin American women subjects view themselves through literature; textual practice specific to women; psychoanalytic approaches, contemporary feminist criticism. Requirements: at least one course taught in Spanish at the 2000 level or above. Same as GWSS:3360 (131:162).
- SPAN:3370 (035:147) Topics in Literatures and Cultures** 3 s.h.
Literature and culture of specific regions, countries, or cities of Latin America. Requirements: at least one course taught in Spanish at the 2000 level or above.
- SPAN:3400 (035:137) Chicano Literature and Culture** 3 s.h.
Recent fiction and poetry by Chicano and Chicana writers; readings in Spanish and English. Taught in Spanish. Requirements: at least one course taught in Spanish at the 2000-level or above.
- SPAN:3420 (035:143) Cuban American Literature and Culture** 3 s.h.
Experiences of Cuban exiles in the United States; emergence of a literature and culture based on sense of dispossession, marginality, and memory of island past. Taught in English. Prerequisites: ENGL:1200 (08G:001). GE: Values, Society, and Diversity. Same as CL:3396 (218:196).
- SPAN:3440 (035:135) Topics in Latino/a Literature and Culture** 3 s.h.
Examination of special topics in interdisciplinary field of Latina/o studies. Taught in English. Requirements: one course taught in Spanish at the 2000 level or above.
- Spanish Literature and Culture**
- SPAN:3500 (035:164) Topics in Culture of the Hispanic World** 3 s.h.
Specific topics; culture of different parts of Spanish-speaking world, or cross-regional or cross-national cultural phenomenon. Requirements: at least one course taught in Spanish at the 2000 level or above.
- SPAN:3520 (035:145) Introduction to Film Studies** 3 s.h.
Introduction to film analysis and theory; focus on Latin American and Spanish cinemas in context of international film history. Requirements: at least one course taught in Spanish at the 2000 level or above.
- SPAN:3600 (035:150) Cultures of Spain** 3 s.h.
Political, religious, social, economic background; important cultural, literary movements. Requirements: at least one course taught in Spanish at the 2000 level or above.
- SPAN:3610 (035:154) Hispanic Institute: Culture** 3 s.h.
Overview of geography, history (political, economic, social), architecture, painting, music of Spain; readings, slides, video and audio cassettes, visits to local sites of cultural significance. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013).
- SPAN:3620 (035:153) Madrid** 3 s.h.
Contemporary Madrid as one of the premier capital cities of the European Union; history and present day reality of the city; examination of paintings, descriptions, movies, fashion, and customs from several historical periods. Requirements: at least one course taught in Spanish at the 2000 level or above.
- SPAN:3630 (035:167) Spanish Youth Culture** 3 s.h.
Literary texts, films, and music produced by young people in Spain from 1939 to present; gender issues and relationships between market, popular culture, and high culture. Requirements: one course taught in Spanish at the 2000 level or above.
- SPAN:3690 (035:163) Iowa Global Internship in Madrid** 3 s.h.
Intensive language and eight-week internship in Madrid through the Tippie College of Business Madrid Internship Program; writing an extensive report in Spanish. Requirements: at least two courses taught in Spanish at the 2000 level or above.
- SPAN:3700 (035:160) The Cid in History and Legend** 3 s.h.
Rodrigo Diaz de Vivar, el Cid, in history and legend; changing perceptions of the Cid from the 13th century to the present. Requirements: one literature course taught in Spanish at the 2000 level or above.
- SPAN:3750 (035:151) Literature in the Time of Cervantes** 3 s.h.
Introduction to literary questions of 15th to 17th centuries in Spain; understanding of literary Spanish and cultural issues of the period—end of the feudal mind, beginning of individualism, poetry, emergence of theater, crisis of empire. Requirements: at least one course taught in Spanish at the 2000 level or above.
- SPAN:3790 (035:155) Hispanic Institute: Literature** 3 s.h.

Introduction to poetry, narrative, and theater in Spanish literature; textual commentary and critical interpretations of major representative works of selected historical periods. Prerequisites: SPAN:1502 (035:012) or SPAN:1503 (035:013). Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3810 (035:152) Romanticism and Revolution in Spain 3 s.h.

Spanish Romanticism as the cultural expression of social revolution in first half of 19th-century Spain. Taught in Spanish. Requirements: At least one course taught in Spanish at the 2000-level or above.

SPAN:3820 (035:161) Modern and Contemporary Spanish Literature 3 s.h.

Works of the last 30 years of the 19th century, up to the outbreak of the Spanish Civil War; Realism, Naturalism, generation of 1898, generation of 1913, generation of 1927. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3830 (035:156) Spanish Literature of the Transition 3 s.h.

Literary production of the transition in post-Franco Spain; works by Carmen Martin Gaité, Luis García Montero, Pedro Almodóvar, others. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:3840 (035:157) Contemporary Spanish Short Story 3 s.h.

Contemporary short stories from 20th- and 21st-century Spain; emphasis on reading strategies and interpretation skills; focus on historical and social contexts. Requirements: at least one course taught in Spanish at the 2000 level or above.

SPAN:4095 (035:165) Advanced Spanish Grammar 3 s.h.

Deep and broad high-level grammar review featuring textbook analysis and examples, instructor's commentary, and relevant written exercises on problematic areas of vocabulary and grammar in written international standard Spanish. Requirements: high communicative proficiency in written and oral Spanish based on extensive experience in classroom and the real world (e.g., completion of major in Spanish, and study or residence abroad in Hispanic countries or equivalent).

SPAN:4940 (035:169) Journalistic Narrative 3 s.h.

In-depth interpretative journalistic writing on a range of topics and forms, including profiles, social and political issues and controversy, cultural affairs, education. Prerequisites: SPAN:3020 (035:119).

Spanish Level 3, Upper-Level Undergraduate and Graduate

Undergraduates should take the following courses during their last semesters of enrollment. These courses are also open to M.A. students. All of these courses require a research paper. Prerequisites vary.

SPAN:4100 (035:189) Introduction to Spanish Phonology 3 s.h.

Sound patterns of Spanish; how various theoretical approaches solve basic problems in Spanish phonology; identification of linguistic universals, how they are manifested in the sound structure of Spanish. Prerequisites: SPAN:3100 (035:121) or SPAN:3110 (035:122). Same as SLA:4301 (164:189).

SPAN:4120 (035:187) Spanish Word Formation 3 s.h.

Basic principles of morphology (derivational and inflectional) applied to analysis of Spanish complex word formation; extensive practice in morphological analysis. Prerequisites: SPAN:3100 (035:121).

SPAN:4140 (035:188) History of the Spanish Language 3 s.h.

Development of phonetic, morphological, syntactical properties of the Spanish language from its Latin roots; emphasis on internal history and process of expansion from a minor dialect (Castilian) to a significant world language. Prerequisites: SPAN:3100 (035:121).

SPAN:4150 (035:186) Introduction to Spanish Syntax 3 s.h.

Basic principles of generative syntax as applied to analysis of Spanish syntactic structure; extensive syntactic analysis. Prerequisites: SPAN:3100 (035:121). Same as SLA:4300 (164:186).

SPAN:4170 (035:184) Linguistic Aspects of Second Language Acquisition 3 s.h.

Theoretical linguistic approaches to acquisition of Spanish as a second language. Prerequisites: SPAN:3100 (035:121).

SPAN:4190 (035:185) Topics in Hispanic Linguistics 3 s.h.

Prerequisites: SPAN:3100 (035:121) or SPAN:3120 (035:123) or SPAN:3130 (035:124).

SPAN:4310 (035:175) Cultural Identity in Caribbean Literature 3 s.h.

Main currents in Caribbean literature; primary focus on Hispanic Caribbean; may include *americanismo literario*, *poesía negra*, testimonial narrative; Caribbean cultural context in music, humor, Afro-Caribbean rituals. Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4330 (035:173) Colonial Spanish American Literature 3 s.h.

Readings from the formative period of Spanish American culture; may include discovery and conquest, ethnicity and gender, dissent and popular resistance. Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4350 (035:171) Twentieth-Century Spanish American Theater and Performance 3 s.h.

Introduction to 20th-century Spanish American theater; study of five major playwrights; readings of plays with analysis of performances. Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4370 (035:177) Literature and Mass Culture in Latin America 3 s.h.

Examination of literature in relation to other media in Latin America in the 20th century; close readings of novels, short stories, and essays analyzed in combination with film clips, photographs, music, and blogs. Requirements: two literature courses taught in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4380 (035:193) Narratives of Underdevelopment 3 s.h.

Works of Spanish American narrative and essay that illuminate questions of geo-political inequality and national consolidation; readings examined in relationship to Latin American social theory in a historical context. Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4390 (035:178) Topics in Spanish American Literature 3 s.h.

Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4620 (035:180) Spanish Golden Age Fiction 3 s.h.

Literature and society in first centuries of Spanish Modernity, Renaissance and Baroque periods, love and the self, alienation, utopias, the body and morals, cultural dimensions of genres. Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4630 (035:182) Society and Poetry: Spanish Lyric 3 s.h.

Twentieth-century Spanish lyric poetry in its sociocultural context. Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4650 (035:183) Don Quijote 3 s.h.

Exploration of Cervantes' *Don Quijote*; sociohistorical context, questions of human existence, literary tradition, metafiction, influence of *Don Quijote* on novelists and filmmakers, critical reception of the text. Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4690 (035:181) Topics in Spanish Literature 3 s.h.

Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4800 (035:190) Chicano Cinema 3 s.h.

History of Chicano independent and industry film and television production since the Chicano political and cultural movement began in the 1960s. Taught in English. Requirements: one Spanish literature or culture course numbered SPAN:3200 (035:130) or above, or one film studies course numbered CL:2100 (218:100) or above. Same as CINE:4690 (048:190).

SPAN:4810 (035:191) Topics in Latin American Cinema 3 s.h.

Taught in English. Requirements: one Spanish literature or culture course numbered above SPAN:3200 (035:130) or one film studies course. Same as CINE:4678 (048:178).

SPAN:4820 (035:174) Latino/a Popular Culture 3 s.h.

Role of Latino/a popular culture as a site of contemporary social practice and cultural politics in both local and global contexts; specific attention to notions of citizenship, identity, and culture. Requirements: one literature or culture course taught in Spanish numbered SPAN:3200 (035:130) or above.

SPAN:4850 (035:172) Topics in Cultural Studies 3 s.h.

Requirements: one literature or culture course taught in Spanish numbered SPAN:3200 (035:130) or above.

SPAN:4860 (035:170) The Spanish Civil War 3 s.h.

Exploration of literature, history, and art of the Spanish Civil War (1936-1939); ideological debates and aesthetic achievements of the period; relationships among art, politics, and propaganda. Requirements: one literature or culture course taught in Spanish numbered SPAN:3200 (035:130) or above.

SPAN:4870 (035:179) Islamic Cultural Presence in Spain 3 s.h.

Islamic history and culture in the Iberian Peninsula from Middle Ages to present. Taught in Spanish. Requirements: one literature or culture course taught in Spanish numbered SPAN:3200 (035:130) or above. Same as RELS:4870 (032:179).

SPAN:4880 (035:195) Comic Books and Graphic Novels in the Hispanic World 3 s.h.

Analysis of comics and graphic novels from Hispanic world; diverse Hispanic representational perspectives on creativity, humor, storytelling, culture, politics, nationality, and ethnicity; opportunity for students to express their own creativity with comics. Recommendations: two literature or culture courses taught in Spanish, at least one of which must be numbered SPAN:3200 (035:130) or above.

SPAN:4900 (035:176) Latin American Studies Seminar 3 s.h.

Interdisciplinary approach. Taught in English. Recommendations: Spanish or Portuguese sufficient for background readings. Same as ANTH:4700 (113:132), PORT:4700 (038:176), LAS:4700 (130:176), HIST:4504 (16W:109), CL:4700 (218:153).

SPAN:4910 (035:194) Topics in Literary Studies 3 s.h.

Requirements: two literature courses in Spanish, at least one of which must be numbered SPAN:3300 (035:131) or above.

SPAN:4920 (035:192) Topics in Film Studies 3 s.h.

Requirements: one literature or culture course taught in Spanish and numbered SPAN:3200 (035:130) or above.

SPAN:4950 (035:196) Advanced Workshop on Creative Writing in Spanish 3 s.h.

In-depth consideration of characters, dialog, conflict, setting, point of view, other fundamentals of fiction; experience writing short stories and other pieces, with class discussion; fictional texts by renowned writers, authors' essays on their own creative process; narrative strategies of short stories, songs, painting, films. Requirements: one creative writing course in Spanish and one literature course in Spanish numbered SPAN:3300 (035:131) or above, or two literature courses in Spanish numbered SPAN:3300 (035:131) or above.

SPAN:4998 (035:198) Honors: Research and Thesis 2-3 s.h.

Requirements: honors standing.

SPAN:4999 (035:199) Special Work 1-3 s.h.

Spanish, Graduate

SPAN:5001 (035:208) Introduction to Graduate Study 2 s.h.

Expectations, resources, and opportunities of graduate study; introduction to course work, development of preprofessional competencies. Same as FREN:5001 (009:208).

SPAN:6000 (035:200) Foreign Language Teaching Methods 3 s.h.

Readings in pedagogical theory and practice and second language acquisition; experience designing activities for teaching and assessment, with critiques based on current theories and approaches; development of reflective practices toward one's own language teaching. Same as SLA:6300 (164:260).

SPAN:6110 (035:209) Spanish Phonology 3 s.h.

Modern approaches to synchronic phonology as applied to Spanish; focus on traditional descriptive problems, recent generative analyses. Requirements: phonology or linguistics course. Same as SLA:6303 (164:263).

SPAN:6120 (035:210) Spanish Syntax 3 s.h.

Spanish syntactic constructions examined in framework of selected syntactic theory; emphasis on development of syntactic argumentation. Requirements: one course in syntax. Same as SLA:6304 (164:264).

SPAN:6150 (035:206) Topics in Spanish Language Acquisition 3 s.h.

Theoretical linguistic approaches to monolingual, bilingual, and second language acquisition of Spanish and Portuguese; varied topics. Requirements: at least one course in linguistics (e.g., general introduction to linguistics). Same as SLA:6301 (164:261).

SPAN:6180 (035:211) Topics in Hispanic Linguistics 3 s.h.

Taught in Spanish or English.

SPAN:6190 (035:207) Topics in Comparative Romance Linguistics 3 s.h.

Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Recommendations: additional graduate course work in linguistics. Same as LING:6190 (103:262), CLSA:6990 (20E:201), SLA:6302 (164:262).

SPAN:6210 (035:310) Introductory Workshop: Short Story 3 s.h.

Craft of writing short stories; underlying principles examined through lectures, readings, craft analysis, discussions, exercises, and workshops; activities linked with International Writing Program. Requirements: admission to M.F.A. Spanish Creative Writing program.

SPAN:6220 (035:318) Introductory Workshop: Writing Poetry 3 s.h.

Construction and recognition of poetic voice through readings, analysis, and exercises from different poets and by students; poetic voice in three spaces (diary of poetic prose, collection of poems, object poem). Requirements: admission to M.F.A. Spanish Creative Writing program.

SPAN:6230 (035:312) Graphic Novel/Comic Script Workshop 3 s.h.

Basic steps to develop a comic book or a graphic novel; different styles and ways to develop scripts and characters; read main authors and their graphic works; student work on possible script or group of characters. Requirements: admission to M.F.A. Spanish Creative Writing program.

SPAN:6235 (035:317) Film Script/Theater Workshop 3 s.h.

Basic steps to developing plays; different styles and ways to develop plays and characters; reading main authors and their plays; student work on a possible play. Requirements: admission to M.F.A. in Spanish Creative Writing program.

SPAN:6240 (035:313) Advanced Narrative Workshop 3 s.h.

Short stories written by internationally published authors; meetings with international authors; reading and discussion of students' short stories or sequential chapters of a novel; for students who have previously completed at least one workshop on narrative in the M.F.A. program. Requirements: admission to M.F.A. in Spanish Creative Writing program.

SPAN:6250 (035:314) Advanced Poetry Workshop 3 s.h.

Analysis and discussion of students' poetic manuscript; work of other poets in context with personal creative experience; meetings with visiting poets and International Writing Programs. Requirements: admission to M.F.A. Spanish Creative Writing program and at least one workshop on poetry in the M.F.A. program.

SPAN:6260 (035:311) Detective Narrative Workshop 3 s.h.

Basic elements of narrative used by authors of detective novels; acclaimed short stories, novels, and theoretical essays related to the genre; write three short stories of detective fiction; written critique of classmates' work. Requirements: admission to M.F.A. Spanish Creative Writing program.

SPAN:6270 (035:316) Children, Youth Literature 3 s.h.

Practice of writing literature for children and youth; reading literary texts in different cultural traditions; how narratives and poems for children or youth are created; using readings as springboards for thinking about ways to write for children and youth; texts for this group of readers. Requirements: admission to M.F.A. Spanish Creative Writing program.

SPAN:6280 (035:315) Nonfiction Workshop 3 s.h.

Practice of self narrative and construction of the self in literature; readings of self-narrated texts in different literary forms and cultural traditions (from autobiography to testimonial narratives); various ways in which the narrating self is formed and deformed by literary conventions that define him/her; readings as springboards for thinking on ways to write the self; series of autobiographical sketches. Requirements: admission to M.F.A. Spanish Creative Writing program.

SPAN:6299 (035:399) Thesis: Creative Writing 3 s.h.

Continuation of work on student manuscript. Requirements: admission to M.F.A. Spanish Creative Writing program.

SPAN:6300 (035:286) Colonial Spanish American Literature 3 s.h.

Chronicles of the conquest: close reading with focus on role of writing and operations of "othering"; balance between critical secondary sources and primary sources.

SPAN:6310 (035:230) Spanish American Narrative: Nineteenth Century 3 s.h.

Review of narrative, with emphasis on Romanticism.

SPAN:6320 (035:236) Contemporary Spanish American Narrative 3 s.h.

Narrative from mid-20th century to present; emphasis on the Boom, post-Boom.

SPAN:6330 (035:231) Spanish American Narrative: Modern and Regional 3 s.h.

SPAN:6390 (035:269) Topics in Spanish American Literature 3 s.h.

SPAN:6400 (035:247) Readings: Latin American History arr.

Same as HIST:7505 (016:288).

SPAN:6600 (035:250) Medieval Spanish Literature 3 s.h.

Critical reading of canonical medieval texts in their cultural context; application of modern theory to medieval texts; works such as *El Poema del Cid*, *El Romancero Viejo*, *Milagros de Nuestra Señora*, *El Conde Lucanor*, *El Libro de Buen Amor*.

SPAN:6620 (035:255) Spanish Renaissance and Baroque Literature 3 s.h.

Critical analysis of social, moral, political function of literature in early modern Spain; Renaissance and Baroque poetry; *La Celestina*; pastoral literature; *Don Quijote*; narratives of the court; modern subjectivity; the question of genre.

SPAN:6660 (035:259) Contemporary Spanish Fiction 3 s.h.

The post-Franco novel in Spain; literary "postmodernism" and relationships between Spanish literature, politics, and society since 1975; representative significant works.

SPAN:6670 (035:264) Contemporary Spanish Poetry 3 s.h.

Poetry on the Spanish literary scene circa 1968; authors' reactions to predecessors, their connections with foreign traditions, metapoetry, the aesthetics of culturalism.

SPAN:6680 (035:260) Contemporary Non-Castilian Narrative Spain 3 s.h.

Readings in Spanish of novels and short stories written in another language of the Spanish state or by a member of one of Spain's non-Castilian historic nationalities.

SPAN:6690 (035:270) Topics in Spanish Literature 3 s.h.

SPAN:6850 (035:225) Topics in Literary Studies 3 s.h.

SPAN:6860 (035:226) Topics in Cultural Studies 3 s.h.

SPAN:6901 (035:201) Second Language Acquisition Research and Theory I 3 s.h.

Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as FREN:6901 (009:237), ASIA:6901 (039:200), SLA:6901 (164:201), JPNS:6901 (39J:201).

SPAN:6902 (035:202) Second Language Acquisition Research and Theory II 3 s.h.

Continuation of SLA:6901 (164:201). Prerequisites: SLA:6901 (164:201). Same as ASIA:6903 (039:201), SLA:6902 (164:202).

SPAN:6903 (035:271) Crossing Borders Proseminar arr.

Same as HIST:6632 (016:244), POLI:6632 (030:243), GEOG:6632 (044:287), ANTH:6632 (113:248), GRMN:6632 (013:260), CINE:6632 (048:244).

SPAN:6904 (035:273) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), PORO:6635 (160:247), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).

SPAN:6905 (035:281) Introduction to Contemporary Literary Theory 3 s.h.

How major theories construct literary text; structuralist, semiotic, psychoanalytic, Marxist, reader response, Derridian criticism. Taught in English. Same as CL:6105 (218:217).

SPAN:6920 (035:212) Multimedia and Second Language Acquisition 3 s.h.

Foreign language multimedia in context of current second language acquisition theories and research; readings on interactivity, interface design, feedback, learner control; acquisition of vocabulary, grammar, and culture. Requirements: foreign language teaching methodology course. Same as SLA:6920 (164:211), FREN:6920 (009:238), GRMN:6920 (013:253).

SPAN:6950 (035:228) Topics in Second Language Acquisition: Speaking 3 s.h.

Theory, pedagogy, research, and assessment in second language speaking. Same as SLA:6950 (164:221), FREN:6950 (009:236).

SPAN:6965 (035:227) Topics in Second Language Acquisition: Writing 3 s.h.

Theory, pedagogy, research, and assessment in second language writing. Taught in English. Same as RHET:6965 (010:275), SLA:6965 (164:227).

SPAN:6998 (035:298) Special Work arr.

SPAN:6999 (035:299) Thesis arr.

SPAN:7000 (035:300) Seminar: Spanish Linguistics 3 s.h.

Same as LING:7000 (103:300).

SPAN:7200 (035:302) Seminar: Literary Studies 3 s.h.

Specific topics on aspects of Spanish and/or Spanish American literature.

SPAN:7300 (035:303) Seminar: Cultural Studies 3 s.h.

Specific topics in Spanish and/or Spanish American cultural studies.

Portuguese, Lower-Level Undergraduate

PORT:1800 (038:020) Contemporary Brazilian Narrative 3 s.h.

Novels, short stories, other narrative forms, beginning with neorealists of 1930s; cultural background of different periods, innovative literary approaches of writers through films, other media. Prerequisites: ENGL:1200 (08G:001). GE: Literary, Visual, and Performing Arts.

PORT:2700 (038:070) Introduction to Latin American Studies 3 s.h.

Cultures of Latin American countries with emphasis on cultural history and cultural production; interdisciplinary survey. Same as SPAN:2700 (035:070), LAS:2700 (130:070), IS:2700 (187:070).

PORT:2800 (038:115) Writing Brazil in the U.S. 3 s.h.

Representation of the Amazon region and Rio de Janeiro in travel narratives, novels, diaries, journals, letters, poems, and essays by American authors published in the United States. Taught in English.

Portuguese, Upper-Level Undergraduate and Graduate

PORT:3010 (038:100) Accelerated Elementary Portuguese 5 s.h.

First-year course in one semester; comprehending, speaking, reading, writing modern Portuguese; emphasis on speaking. GE: World Languages Second Level Proficiency.

PORT:3020 (038:101) Accelerated Intermediate Portuguese 5 s.h.

Second-year course in one semester; reading comprehension, oral and writing skills; grammar review. Prerequisites: PORT:3010 (038:100). GE: World Languages Fourth Level Proficiency.

PORT:3050 (038:102) Portuguese for Spanish Speakers 3 s.h.

Systematic differences and similarities between Spanish and Portuguese; emphasis on reading, writing. Requirements: seven courses numbered SPAN:2000 (035:103) or above.

PORT:3100 (038:103) Composition and Conversation 3 s.h.

Speaking, writing skills through discussion and oral presentations, grammar and vocabulary review, composition; materials from current Brazilian newspapers, magazines, short fiction, telenovelas and films. Prerequisites: PORT:3020 (038:101) or PORT:3050 (038:102).

PORT:3130 (038:108) Business Portuguese 3 s.h.

Clear, concise business writing; emphasis on linguistic and cultural proficiency. Prerequisites: PORT:3020 (038:101) or PORT:3050 (038:102).

PORT:3150 (038:119) Topics in Portuguese Language 3 s.h.

Various aspects of Portuguese language use. Prerequisites: PORT:3020 (038:101) or PORT:3050 (038:102).

PORT:3200 (038:104) Introduction to Literary Analysis 3 s.h.

Basic concepts of genre, literary periods, narrative and literary analysis; close reading of literary texts in Portuguese; tools for improving reading and writing skills. Taught in Portuguese. Prerequisites: PORT:3020 (038:101) or PORT:3050 (038:102).

PORT:3350 (038:105) Brazilian Literature Before 1900 3 s.h.

Beginnings through end of 19th century; representative readings from all periods and genres; focus on works of major Brazilian authors such as Gonzaga, Alencar, Castro Alves, Machado de Assis, Cruz e Sousa. Taught in Portuguese. Prerequisites: PORT:3020 (038:101) or PORT:3050 (038:102).

PORT:3400 (038:106) Brazilian Literature After 1900 3 s.h.

Twentieth-century poetry, novels, short stories; modernism, regionalism, generation of '45, concretism; works of principal figures behind these movements; focus on major writers of modern period, such as Lima Barreto, Mário de Andrade, Drummond, Jorge Amado, Cabral de Melo Neto, Guimarães Rosa, Lispector, and contemporary writers. Taught in Portuguese. Prerequisites: PORT:3020 (038:101) or PORT:3050 (038:102).

PORT:3500 (038:107) Introduction to Portuguese Literature 3 s.h.

Representative readings including Portuguese lyric and epic poetry, Renaissance theater, romantic and realist novels, 20th-century symbolist verse, neorealist prose. Taught in Portuguese. Prerequisites: PORT:3020 (038:101) or PORT:3050 (038:102).

PORT:3800 (038:110) Mapping Portuguese Cultures: Portugal and Africa 3 s.h.

Study of contemporary Portuguese society and its relations with Lusophone Africa through fictional and historiographical readings. Prerequisites: PORT:3020 (038:101).

PORT:4000 (038:112) Topics in Luso-Brazilian Literature 3 s.h.

Genres, themes, movements. Taught in Portuguese. Prerequisites: PORT:3020 (038:101) or PORT:3050 (038:102). Requirements: one Portuguese or Brazilian literature course.

PORT:4100 (038:120) Topics in Luso-Brazilian Culture 3 s.h.

Comparative analysis of Brazil and Portuguese-speaking countries in Africa; colonization, independence, religion, music, language. Taught in Portuguese. Prerequisites: PORT:3020 (038:101) or PORT:3050 (038:102).

PORT:4700 (038:176) Latin American Studies Seminar 3 s.h.

Interdisciplinary approach. Taught in English. Recommendations: Spanish or Portuguese sufficient for background readings. Same as ANTH:4700 (113:132), SPAN:4900 (035:176), LAS:4700 (130:176), HIST:4504 (16W:109), CL:4700 (218:153).

PORT:4998 (038:179) Special Work 1-3 s.h.**PORT:4999 (038:198) Honors Research and Thesis** 2-3 s.h.

Requirements: honors standing.

Portuguese, Graduate**PORT:6998 (038:279) Special Work** arr.

Statistics and Actuarial Science

Chair

- Luke Tierney

Professors

- Joe Cavanaugh (Biostatistics/Statistics and Actuarial Science), Kathryn Chaloner (Biostatistics/Statistics and Actuarial Science), Kung-Sik Chan, Jian Huang (Statistics and Actuarial Science/Biostatistics), Michael P. Jones (Public Policy Center/Statistics and Actuarial Science/Biostatistics), Joseph B. Lang (Statistics and Actuarial Science/Biostatistics), Johannes Ledolter (Management Sciences/Statistics and Actuarial Science), Paul S. Muhly (Mathematics/Statistics and Actuarial Science), Ralph P. Russo, Elias S.W. Shiu (Principal Financial Group Foundation Professor of Actuarial Science), Qihe Tang, Luke Tierney (Ralph E. Wareham Professor of Mathematical Sciences), Dale Zimmerman (Robert V. Hogg Professor of Statistics; Statistics and Actuarial Science/Biostatistics)

Associate professors

- Mary Kathryn Cowles (Statistics and Actuarial Science/Biostatistics), N.D. Shyamalkumar, Osnat Stramer

Assistant professors

- Joyee Ghosh, Aixin Tan, Ting Zhang

Lecturers

- Matthew A. Bognar, Rhonda DeCook, Mary D. Russo, Blake Whitten

Professors emeriti

- James D. Broffitt, Jonathan D. Cryer, Richard L. Dykstra, Robert V. Hogg, Russell V. Lenth

Undergraduate majors: statistics (B.S.); actuarial science (B.S.)

Undergraduate minor: statistics

Graduate degrees: M.S. in statistics (optional subprogram in actuarial science); Ph.D. in statistics

Web site: <http://www.stat.uiowa.edu>

The Department of Statistics and Actuarial Science offers undergraduate majors, an undergraduate minor, and graduate degree programs. It also offers courses that undergraduate students in all majors may use to satisfy the General Education Program (p. 323) Quantitative or Formal Reasoning requirement and a First-Year Seminar designed for entering undergraduates.

Probability and statistics is an important scientific discipline essential to all fields of study that rely on information obtained from data. In a world bombarded with numerical information, informed decisions rely on the ability to separate fact from fiction by applying valid statistical analyses. Statisticians can provide crucial guidance in determining what information is reliable and which predictions may be trusted. They often help search for clues to the solution of a scientific mystery and sometimes keep investigators from being misled by false impressions.

The work of a statistician may range from the theoretical (developing new methodologies and statistical theory) to

the applied (working with scientists and decision makers to collect, analyze, and interpret data). Regardless of the areas in which they work, statisticians need a strong background in mathematics and computer use. Because uncertainty and data arise in many settings, statisticians have the opportunity to work on a variety of projects in industry, education, government, and research. Thousands of statisticians work in medicine, law, agriculture, public policy, marketing, manufacturing, engineering, and other fields in the social and natural sciences. The diversity of applications is an exciting aspect of the field and is one reason why the demand for well-trained statisticians continues to be strong.

An actuary is a business executive, professionally trained in the mathematical sciences. Actuaries specialize in the evaluation of financial risk—most often in the context of life, health, and casualty insurance, where they design, analyze, and refine varied programs to meet the insurance needs of society. Most actuaries are employed by insurance companies, where they have responsibilities for all phases of the development and maintenance of their company's products. They have considerable influence on the financial soundness of their company through work in pricing insurance policies and in compiling data for financial statements.

Many actuaries are employed as consultants. Their actuarial services are used by smaller insurance companies and by individual employers who need actuarial guidance in establishing insurance and retirement programs for their employees. A growing number of actuaries work in the areas of asset/liability management and risk management. Some of these actuaries are employed by investment and consulting firms; others are employed by insurance companies.

Actuaries have been called financial architects and social mathematicians, because their combined analytical and business skills help solve a growing variety of financial and social problems. The actuarial profession is a demanding yet rewarding career choice.

Graduates of the Department of Statistics and Actuarial Science have enjoyed great success in finding employment at all levels of the profession's fields.

Undergraduate Programs of Study

- Major in statistics (Bachelor of Science)
- Major in actuarial science (Bachelor of Science)
- Minor in statistics

Bachelor of Science: Statistics

The Bachelor of Science with a major in statistics requires a minimum of 120 s.h., including at least 47 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Students complete 10 core courses that provide essential instruction in statistical methods, applications, and theory. In addition, they concentrate on an area of interest by completing four courses in one of the major's three emphasis tracks: statistics in business, industry,

government, and research; statistical computing and data science; or mathematical statistics.

The major in statistics requires the following course work.

CORE COURSES

All students complete the following 10 core courses.

Computer science:

CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
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Mathematics—all of these:

MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.
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MATH:2700 (22M:027) Introduction to Linear Algebra	4 s.h.
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MATH:2850 (22M:028) Calculus III	4 s.h.
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Statistics—all of these:

STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
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STAT:3100 (22S:130)-STAT:3101 (22S:131) Introduction to Mathematical Statistics I-II	6 s.h.
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STAT:3200 (22S:152) Applied Linear Regression	3 s.h.
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STAT:3210 (22S:158) Experimental Design and Analysis	3 s.h.
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The department recommends that well-prepared students who elect the mathematical statistics track take STAT:4100 (22S:153) Mathematical Statistics I and STAT:4101 (22S:154) Mathematical Statistics II in place of STAT:3100 (22S:130) Introduction to Mathematical Statistics I and STAT:3101 (22S:131) Introduction to Mathematical Statistics II to satisfy the core requirement in statistics.

Emphasis Tracks

Students choose one of the following tracks and must complete at least four courses in that track.

STATISTICS IN BUSINESS, INDUSTRY, GOVERNMENT, AND RESEARCH TRACK

The statistics in business, industry, government, and research track emphasizes statistical applications and data analysis. It is appropriate for students interested in careers as applied statisticians.

This course:

BIOS:5310 (171:164) Research Data Management	3 s.h.
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Three of these:

STAT:3620 (22S:133) Quality Control	3 s.h.
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STAT:4520 (22S:138) Bayesian Statistics	3 s.h.
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STAT:6220 (22S:173) Statistical Consulting	3 s.h.
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STAT:6510 (22S:162) Applied Generalized Regression	3 s.h.
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STAT:6530 (22S:167) Environmental and Spatial Statistics	3 s.h.
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STAT:6540 (22S:161) Applied Multivariate Analysis	3 s.h.
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STAT:6560 (22S:156) Applied Time Series Analysis	3 s.h.
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BIOS:5730 (171:203) Biostatistical Methods in Categorical Data	3 s.h.
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BIOS:6310 (171:174)/STAT:6550 (22S:160) Introductory Longitudinal Data Analysis	3 s.h.
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STATISTICAL COMPUTING AND DATA SCIENCE TRACK

The statistical computing and data science track emphasizes statistical applications and requires additional course work in computing. It prepares students for statistical work that requires computing expertise for data management, analysis, and reporting.

Both of these:

BIOS:5310 (171:164) Research Data Management	3 s.h.
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CS:2230 (22C:021) Computer Science II: Data Structures	4 s.h.
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Two of these:

STAT:4520 (22S:138) Bayesian Statistics	3 s.h.
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STAT:5400 (22S:166) Computing in Statistics	3 s.h.
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STAT:6220 (22S:173) Statistical Consulting	3 s.h.
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STAT:6510 (22S:162) Applied Generalized Regression	3 s.h.
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STAT:6530 (22S:167) Environmental and Spatial Statistics	3 s.h.
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STAT:6540 (22S:161) Applied Multivariate Analysis	3 s.h.
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STAT:6560 (22S:156) Applied Time Series Analysis	3 s.h.
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BIOS:6310 (171:174)/STAT:6550 (22S:160) Introductory Longitudinal Data Analysis	3 s.h.
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CS:3700 (22C:072) Elementary Numerical Analysis	3 s.h.
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MATHEMATICAL STATISTICS TRACK

The mathematical statistics track provides a solid foundation in statistical theory and applications. It requires additional course work in mathematics and is good preparation for graduate study in statistics.

This course:

MATH:3770 (22M:055) Fundamental Properties of Spaces and Functions I	4 s.h.
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Three of these:

STAT:4100 (22S:153)-STAT:4101 (22S:154) Mathematical Statistics I-II	6 s.h.
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STAT:4520 (22S:138) Bayesian Statistics	3 s.h.
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STAT:6220 (22S:173) Statistical Consulting	3 s.h.
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STAT:6300 (22S:195)-STAT:6301 (22S:196) Probability and Stochastic Processes I-II	6 s.h.
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STAT:6510 (22S:162) Applied Generalized Regression	3 s.h.
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STAT:6530 (22S:167) Environmental and Spatial Statistics	3 s.h.
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STAT:6540 (22S:161) Applied Multivariate Analysis	3 s.h.
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STAT:6560 (22S:156) Applied Time Series Analysis	3 s.h.
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Students who use STAT:4100 (22S:153) Mathematical Statistics I and STAT:4101 (22S:154) Mathematical

Statistics II to satisfy the core requirements may not use those courses to satisfy the track requirement.

Bachelor of Science: Actuarial Science

The Bachelor of Science with a major in actuarial science requires a minimum of 120 s.h., including 60 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The program prepares students for careers as actuaries. It also helps them learn material that is included in professional examinations administered by the Society of Actuaries, which actuaries must pass in order to achieve professional status.

Students take a variety of actuarial science courses. They prepare for business aspects of the actuarial profession by studying accounting, law, finance, insurance, and economics. They also complete courses that enhance important communication skills, such as writing and speaking, as part of their General Education Program requirements.

ADMISSION TO THE MAJOR

Due to the demanding nature of the actuarial science major and the difficulty of the professional examinations, the department maintains a selective admission program for actuarial science. Students must apply and be admitted to the major.

Students interested in becoming actuaries should declare an interest in actuarial science as their major when they enter The University of Iowa. While they are actuarial science interest students, they must complete the following course (transfer students are exempt from this requirement).

ACTS:1001 (22S:028) Introductory Seminar on Actuarial Science	1 s.h.
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Ordinarily, students apply for admission to the actuarial science major in the fall semester of their sophomore year, after they have taken MATH:3770 (22M:055) Fundamental Properties of Spaces and Functions I or MATH:2850 (22M:028) Calculus III, and STAT:3100 (22S:130) Introduction to Mathematical Statistics I. Students should apply no later than the end of the spring semester of their junior year.

Students admitted to the actuarial science major usually have completed at least 40 s.h. at the University or at another postsecondary institution, including a three- or four-course calculus sequence, a course in linear algebra, and a calculus-based course in probability and statistics. The admission decision is based on the student's performance in these courses and other courses relevant to success in the major. The student's grades from semester to semester also are considered. ACT or SAT scores are considered in evaluating transfer students. Factors such as work ethic, enthusiasm, and commitment also may be considered. Students who do well in the prerequisite math courses tend to be the most successful in actuarial science.

For application forms and more information about selective admission, contact the Department of Statistics and Actuarial Science.

COURSES REQUIRED FOR THE MAJOR

The major in actuarial science requires the following course work. Permission to substitute course work taken at another institution for required courses at Iowa is decided case by case; students should contact the department.

Computer science:

CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
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Economics—both of these:

ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
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ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
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Mathematics—all of these:

MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.
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MATH:2700 (22M:027) Introduction to Linear Algebra	4 s.h.
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MATH:2850 (22M:028) Calculus III	4 s.h.
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MATH:3770 (22M:055) Fundamental Properties of Spaces and Functions I	4 s.h.
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Statistics and actuarial science—all of these:

ACTS:3085 (22S:179) Introduction to Mathematics of Finance	4 s.h.
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ACTS:4130 (22S:174) Quantitative Methods for Actuaries	3 s.h.
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ACTS:4180 (22S:181) & ACTS:4280 (22S:182) Life Contingencies I-II	6 s.h.
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ACTS:4380 (22S:183) Mathematics of Finance II	3 s.h.
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STAT:3100 (22S:130)-STAT:3101 (22S:131) Introduction to Mathematical Statistics I-II	6 s.h.
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STAT:4100 (22S:153)-STAT:4101 (22S:154) Mathematical Statistics I-II	6 s.h.
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In exceptional cases, the advisor may grant permission to waive STAT:3100 (22S:130) Introduction to Mathematical Statistics I and/or STAT:3101 (22S:131) Introduction to Mathematical Statistics II.

Students may choose to complete ACTS:6580 (22S:176) Credibility and Survival Analysis and ACTS:6480 (22S:177) Loss Distributions (both courses) instead of ACTS:4380 (22S:183) Mathematics of Finance II, except honors students, who must complete all three courses.

Joint B.S.: Statistics/M.P.H. with Quantitative Methods Subprogram

Bachelor of Science students majoring in statistics who are interested in earning a Master of Public Health degree with quantitative methods (biostatistics) subprogram may apply to the joint B.S./M.P.H. program offered by the College of Liberal Arts and Sciences and the College of Public Health. The program permits students to count 12 s.h. of credit toward the requirements for both degrees, enabling them to begin the study of public health before they complete the bachelor's degree. For information about the public health program, see "Quantitative Methods Subprogram"

in the Master of Public Health Program (p. 1225) section of the Catalog.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Much of the course work in statistics and in actuarial science is sequential, so students must begin requirements for the major as soon as possible. Individual study plans must be made carefully. Students who first enroll for a spring semester must consult their advisor to confirm a four-year plan.

B.S.: Statistics

Courses must be taken in sequence, so students must begin work early.

Before the fifth semester begins: at least four courses in the major, including MATH:1850 (22M:025) Calculus I, MATH:1860 (22M:026) Calculus II, and STAT:2010 (22S:030) Statistical Methods and Computing

Before the seventh semester begins: seven or eight courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: nine or ten courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Actuarial Science

Before the third semester begins: MATH:1860 (22M:026) Calculus II and MATH:2700 (22M:027) Introduction to Linear Algebra

Before the fifth semester begins: MATH:2850 (22M:028) Calculus III, MATH:3770 (22M:055) Fundamental Properties of Spaces and Functions I, STAT:3100 (22S:130) Introduction to Mathematical Statistics I, STAT:3101 (22S:131) Introduction to Mathematical Statistics II, and ACTS:3085 (22S:179) Introduction to Mathematics of Finance

Before the seventh semester begins: STAT:4101 (22S:154) Mathematical Statistics II, ACTS:4130 (22S:174) Quantitative Methods for Actuaries, ACTS:4180 (22S:181) Life Contingencies I, ACTS:4380 (22S:183) Mathematics of Finance II, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: ACTS:4280 (22S:182) Life Contingencies II

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in statistics or in actuarial science have the opportunity to graduate with honors in the major. Departmental honors students must maintain a g.p.a. of

at least 3.40 in their major and a cumulative University of Iowa g.p.a. of at least 3.33.

To graduate with honors in the statistics major, students must complete an honors project or a suitable alternative. Statistics honors students should consult with the statistics honors advisor.

To graduate with honors in the actuarial science major, students must complete the following five courses in addition to all courses required for the major.

ACTS:6480 (22S:177) Loss Distributions	3 s.h.
ACTS:6580 (22S:176) Credibility and Survival Analysis	3 s.h.
STAT:4510 (22S:150) Regression, Time Series, and Forecasting (or STAT:3200 and STAT:6560)	3 s.h.
FIN:3300 (06F:117) Corporate Finance	3 s.h.
MATH:3600 (22M:100) Introduction to Ordinary Differential Equations (or MATH:4860)	2-3 s.h.

Actuarial science honors students may not elect to complete ACTS:6580 (22S:176) Credibility and Survival Analysis and ACTS:6480 (22S:177) Loss Distributions instead of ACTS:4380 (22S:183) Mathematics of Finance II in fulfilling requirements for the actuarial science major. They must complete ACTS:4380 (22S:183) as part of the major, and they must complete ACTS:6580 (22S:176) and ACTS:6480 (22S:177) for honors credit.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor: Statistics

The minor in statistics requires a minimum of 15 s.h. in statistics courses, including 12 s.h. in courses numbered 3000 or above taken at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. The minor requires the following courses:

One of these:

STAT:2010 (22S:030) Statistical Methods and Computing	3 s.h.
STAT:4200 (22S:105) Statistical Methods and Computing	3 s.h.

One of these:

STAT:3200 (22S:152) Applied Linear Regression	3 s.h.
STAT:4510 (22S:150) Regression, Time Series, and Forecasting	3 s.h.

A maximum of one of these:

STAT:3100 (22S:130) Introduction to Mathematical Statistics I	3 s.h.
STAT:3120 (22S:120) Probability and Statistics	4 s.h.
STAT:4100 (22S:153) Mathematical Statistics I	3 s.h.

A maximum of one of these:

STAT:3101 (22S:131) Introduction to Mathematical Statistics II	3 s.h.
STAT:4101 (22S:154) Mathematical Statistics II	3 s.h.

A maximum of three of these:

STAT:3210 (22S:158) Experimental Design and Analysis	3 s.h.
STAT:3620 (22S:133) Quality Control	3 s.h.
STAT:4520 (22S:138) Bayesian Statistics	3 s.h.
STAT:6300 (22S:195) Probability and Stochastic Processes I	3 s.h.
STAT:6510 (22S:162) Applied Generalized Regression	3 s.h.
STAT:6530 (22S:167) Environmental and Spatial Statistics	3 s.h.
STAT:6550 (22S:160) Introductory Longitudinal Data Analysis	3 s.h.
STAT:6560 (22S:156) Applied Time Series Analysis	3 s.h.
BIOS:5310 (171:164) Research Data Management	3 s.h.

Graduate Programs of Study

- Master of Science in statistics (with optional actuarial science subtrack)
- Doctor of Philosophy in statistics

Master of Science

The Master of Science program in statistics requires 34 s.h. of graduate credit. The program prepares students for careers as professional statisticians or for entry into the Ph.D. program. It includes a solid foundation in statistical computing, statistical modeling, experimental design, and mathematical statistics plus electives in statistical methods and/or theory. Students have the opportunity to concentrate on theory or applications or a combination of the two.

In addition to required course work, students must pass the two-part graduate core examination and complete the M.S. creative component. The examination and creative component constitute the M.S. final (comprehensive) examination required by the Graduate College.

M.S. students in statistics must maintain a g.p.a. of at least 3.00 in all work toward the degree and in additional relevant course work. Students must take a computer programming proficiency test during the first semester of study; those who display inadequate programming skills are assigned activities to build their proficiency.

The Master of Science program in statistics requires the following work.

STATISTICS COURSES

All of these:

STAT:5090 (22S:170) ALPHA Seminar	1 s.h.
STAT:5100 (22S:193)-STAT:5101 (22S:194) Statistical Inference I-II	6 s.h.
STAT:5200 (22S:164)-STAT:5201 (22S:165) Applied Statistics I-II	7 s.h.
STAT:5400 (22S:166) Computing in Statistics	3 s.h.
STAT:6220 (22S:173) Statistical Consulting	3 s.h.
STAT:6300 (22S:195) Probability and Stochastic Processes I	3 s.h.
STAT:6990 (22S:197) Readings in Statistics (two consecutive enrollments)	2 s.h.

At least three of these:

STAT:4520 (22S:138) Bayesian Statistics	3 s.h.
STAT:5120 (22S:190) Mathematical Methods for Statistics	3 s.h.
STAT:6301 (22S:196) Probability and Stochastic Processes II	3 s.h.
STAT:6510 (22S:162) Applied Generalized Regression	3 s.h.
STAT:6530 (22S:167) Environmental and Spatial Statistics	3 s.h.
STAT:6540 (22S:161) Applied Multivariate Analysis	3 s.h.
STAT:6547 (22S:163) Nonparametric Statistical Methods	3 s.h.
STAT:6560 (22S:156) Applied Time Series Analysis	3 s.h.
STAT:6970 (22S:172) Topics in Statistics	3 s.h.
A Ph.D.-level course numbered 5000 and above	3 s.h.

M.S. students planning to enter the doctoral program may wish to include STAT:5120 (22S:190) Mathematical Methods for Statistics in their course selections, since it is part of the required Ph.D. core.

GRADUATE CORE EXAMINATION

The graduate core examination consists of two parts: one covers the topics presented in STAT:5100 (22S:193) Statistical Inference I and STAT:5101 (22S:194) Statistical Inference II; the other part covers the topics presented in STAT:5200 (22S:164) Applied Statistics I, STAT:5201 (22S:165) Applied Statistics II, and STAT:5400 (22S:166) Computing in Statistics. Each part includes a few problems that test readiness for the Ph.D. program. Students planning to enter the doctoral program must pass the examination at the Ph.D. encouragement level.

Graduate core exams are offered the week before classes begin in August and in January. Study guides are available in the department office. Students who do not succeed the first time they take the exam may repeat it once.

Students must complete all requirements and be granted the Master of Science within one calendar year of passing the graduate core examination; those who do not meet this deadline are required to take the exam again.

CREATIVE COMPONENT

The M.S. creative component is related to each student's individual application and career interests. The student writes a report (8-15 pages) on a suitable topic, under an advisor's supervision, enrolling twice in STAT:6990 (22S:197) Readings in Statistics, normally during the fall and spring semesters of the second year in the program. The student completes a draft of the paper by the end of the first enrollment and a polished version by mid-semester of the second enrollment. He or she presents the paper orally in a public seminar, and the paper is evaluated by a faculty committee.

Students who will enter the doctoral program may satisfy the M.S. creative component requirement by completing the creative component of the Ph.D. program; see "Doctor of Philosophy" below.

M.S. with Actuarial Science Subprogram

The Master of Science program in statistics with actuarial science subprogram requires 36 s.h. of graduate credit. The program prepares students for actuarial careers by emphasizing the theory that underlies risk processes and the application of this theory to practical problems of insurance pricing and management. It also helps them learn material included in the professional examinations administered by the Society of Actuaries, which actuaries must pass in order to achieve professional status.

Students in the actuarial science subprogram complete required courses and an M.S. final (comprehensive) examination.

The M.S. in statistics with actuarial science subprogram requires the following course work.

One of these sequences:

STAT:4100 (22S:153)-STAT:4101 (22S:154) Mathematical Statistics I-II	6 s.h.
STAT:5100 (22S:193)-STAT:5101 (22S:194) Statistical Inference I-II (for well-prepared students)	6 s.h.

All of these:

ACTS:3080 (22S:180) Mathematics of Finance I	3 s.h.
ACTS:4130 (22S:174) Quantitative Methods for Actuaries	3 s.h.
ACTS:4180 (22S:181) & ACTS:4280 (22S:182) Life Contingencies I-II	6 s.h.
ACTS:4380 (22S:183) Mathematics of Finance II	3 s.h.
ACTS:6160 (22S:171) Topics in Actuarial Science	arr.
ACTS:6480 (22S:177) Loss Distributions	3 s.h.
ACTS:6580 (22S:176) Credibility and Survival Analysis	3 s.h.
STAT:4510 (22S:150) Regression, Time Series, and Forecasting	3 s.h.

M.S. FINAL EXAMINATION

The M.S. final (comprehensive) examination is offered the weekend before classes begin in January. The exam covers the material presented in ACTS:6160 (22S:171) Topics in Actuarial Science, ACTS:4180 (22S:181) Life Contingencies I, ACTS:4280 (22S:182) Life Contingencies II, and ACTS:4380 (22S:183) Mathematics of Finance II. Students who do not succeed the first time they take the exam may repeat it once.

Doctor of Philosophy

The Doctor of Philosophy program in statistics requires a minimum of 76 s.h. of graduate credit, including work done for the master's degree. The program prepares students for careers in research, applications, and teaching.

Ph.D. students complete required course work, including four courses in one of four concentration areas: biostatistics, probability/mathematical statistics, statistical modeling and computing, or actuarial science/financial mathematics (see "Concentration Areas" below for area descriptions and course lists). They may take course work or seminars in other departments to relate an area of

specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn non-English language skills necessary for reading scientific journals and communicating with scholars in other languages.

They also take the two-part graduate core examination and complete the Ph.D. creative component. Students are admitted to Ph.D. candidacy upon successful completion of the graduate core exam and creative component.

Students complete the program by passing the Ph.D. final (comprehensive) examination and writing and defending a dissertation. Students usually complete the program three years after earning the master's degree.

A program that does not conform to the requirements described below but is of high quality may be approved by the department chair.

Ph.D. students in statistics must maintain a g.p.a. of at least 3.00 in all work toward the degree and in additional relevant course work.

Each semester a Ph.D. student in statistics registers for at least 6 s.h., he or she must include at least one 2 s.h. course offered by the department, excluding STAT:6990 (22S:197) Readings in Statistics and STAT:7990 (22S:299) Reading Research.

The Doctor of Philosophy in statistics requires the following work.

STATISTICS COURSES

Ph.D. core included in the M.S. program—all of these:

STAT:5090 (22S:170) ALPHA Seminar	1 s.h.
STAT:5100 (22S:193)-STAT:5101 (22S:194) Statistical Inference I-II	6 s.h.
STAT:5200 (22S:164)-STAT:5201 (22S:165) Applied Statistics I-II	7 s.h.
STAT:5400 (22S:166) Computing in Statistics	3 s.h.
STAT:6220 (22S:173) Statistical Consulting	3 s.h.
STAT:6300 (22S:195) Probability and Stochastic Processes I	3 s.h.
STAT:6990 (22S:197) Readings in Statistics (two consecutive enrollments)	2 s.h.

Additional Ph.D. core—all of these:

STAT:5120 (22S:190) Mathematical Methods for Statistics	3 s.h.
STAT:7100 (22S:253) Advanced Inference I	3 s.h.
STAT:7101 (22S:254) Advanced Inference II	3 s.h.
STAT:7200 (22S:255) Linear Models	4 s.h.
STAT:7300 (22S:203) Foundations of Probability I	3 s.h.
STAT:7400 (22S:248) Computer Intensive Statistics	3 s.h.
STAT:7990 (22S:299) Reading Research Seminars, at least 2 s.h. of STAT:7190 (22S:291) or STAT:7290 (22S:295) or STAT:7390 (22S:293)	18 s.h.

CONCENTRATION AREAS

Students take at least four courses in one of the following concentration areas; at least two of the four courses must be at the Ph.D. level (numbered 5000 or above).

Statistical Modeling and Computing

Statistical modeling and computing emphasizes the theory and application of a broad array of statistical models, such as linear, generalized linear, nonlinear, categorical, spatial, correlated response, and nonparametric regression models. This concentration area prepares students to specify and choose appropriate models; fit the models using available statistical software; and make sound statistical conclusions and interpretive statements. It is excellent preparation for students interested in academic, industrial, or government positions that involve data modeling and analysis.

STAT:6510 (22S:162) Applied Generalized Regression	3 s.h.
STAT:6530 (22S:167) Environmental and Spatial Statistics	3 s.h.
STAT:6540 (22S:161) Applied Multivariate Analysis	3 s.h.
STAT:6560 (22S:156) Applied Time Series Analysis	3 s.h.
STAT:6970 (22S:172) Topics in Statistics	3 s.h.
STAT:7510 (22S:220) Analysis of Categorical Data	3 s.h.
STAT:7520 (22S:238) Bayesian Analysis	3 s.h.
STAT:7560 (22S:235) Time Series Analysis	3 s.h.

Probability/Mathematical Statistics

Probability/mathematical statistics emphasizes a broad, solid foundation in techniques and underpinnings of mathematical statistics. Its focus on breadth and depth is intended to produce well-rounded, knowledgeable scholars. It is excellent preparation for academic positions in mathematical statistics and industrial or government positions that require broadly trained statisticians with a strong understanding of statistical theory.

STAT:6301 (22S:196) Probability and Stochastic Processes II	3 s.h.
STAT:7301 (22S:204) Foundations of Probability II	3 s.h.
STAT:7520 (22S:238) Bayesian Analysis	3 s.h.
STAT:7560 (22S:235) Time Series Analysis	3 s.h.

Biostatistics

Biostatistics emphasizes exposure to various biostatistical methods, such as survival analysis, categorical data analysis, and longitudinal data analysis. It prepares students for consulting and other positions in industry.

STAT:6530 (22S:167) Environmental and Spatial Statistics	3 s.h.
STAT:6540 (22S:161) Applied Multivariate Analysis	3 s.h.
BIOS:7310 (171:264) Longitudinal Data Analysis	3 s.h.
STAT:7510 (22S:220) Analysis of Categorical Data	3 s.h.
STAT:7570 (22S:225) Survival Data Analysis	3 s.h.

Actuarial Science/Financial Mathematics

Actuarial science/financial mathematics emphasizes the theory of actuarial science, finance, and risk management. It is excellent preparation for academic positions in universities that offer actuarial science programs and for positions in the insurance, pension, and financial

industries. Most students who choose this concentration area are admitted after earning an M.S. in statistics with actuarial science emphasis at The University of Iowa.

ACTS:7730 (22S:273) Advanced Topics in Actuarial Science/Financial Mathematics	arr.
STAT:6301 (22S:196) Probability and Stochastic Processes II	3 s.h.
STAT:7560 (22S:235) Time Series Analysis	3 s.h.
FIN:7110 (06F:225) Finance Theory I	3 s.h.
FIN:7130 (06F:227) Finance Theory II	3 s.h.

GRADUATE CORE EXAMINATION

The graduate core examination is usually taken during the M.S. program. It consists of two parts: one covers the topics presented in STAT:5100 (22S:193) Statistical Inference I and STAT:5101 (22S:194) Statistical Inference II, the other covers the topics presented in STAT:5200 (22S:164) Applied Statistics I, STAT:5201 (22S:165) Applied Statistics II, and STAT:5400 (22S:166) Computing in Statistics. Each examination includes a few problems that test readiness for the Ph.D. program. Students planning to enter the doctoral program must pass the examination at the Ph.D. encouragement level.

Graduate core examinations are offered the week before classes begin in August and in January. Study guides are available in the department's office. Students who do not succeed the first time they take the exam may repeat it once.

Students entering the Ph.D. program who already have taken the equivalent of the first-year courses may take the graduate core examination before beginning further studies.

CREATIVE COMPONENT

The Ph.D. creative component is research oriented and related to a potential dissertation topic. The student chooses a faculty advisor for the component and writes a research paper (8-15 pages), enrolling in STAT:6990 (22S:197) Readings in Statistics twice, normally during the fall and spring semesters of the second year in the program. The student completes a draft of the paper by the end of the first enrollment and a polished version by mid-semester of the second enrollment. He or she presents the paper orally in a public seminar, and the paper is evaluated by a faculty committee.

Students must complete the creative component within one calendar year of passing the graduate core examination at the Ph.D. encouragement level; those who do not meet this deadline are required to take the exam again.

Ph.D. FINAL EXAMINATION

Students typically take the Ph.D. final (comprehensive) examination at the beginning of the third year of graduate study, during the week before fall classes begin. Students who do not succeed the first time they take the exam may repeat it once.

The comprehensive examination consists of a written core examination and an oral examination in two of the following four areas:

statistical inference [topics in STAT:7100 (22S:253) Advanced Inference I];

linear models [topics in STAT:7200 (22S:255) Linear Models];

probability [topics in STAT:6300 (22S:195) Probability and Stochastic Processes I and STAT:7300 (22S:203) Foundations of Probability I]; and

statistical modeling and computing [topics in STAT:7400 (22S:248) Computer Intensive Statistics and concentration courses in modeling].

Ph.D. students in the actuarial science/financial mathematics concentration area may qualify to take an examination designed by their advisors and approved by the director of graduate studies.

Ph.D. COMMITTEE

Upon passing the Ph.D. final exam, the candidate chooses a committee of at least five members, which is approved by the advisor. One of the committee members must be from outside the student's home discipline and may not serve as the committee's chair.

PROSPECTUS

Within 12 months of passing the Ph.D. final exam, the candidate presents a written and oral prospectus to the committee. The prospectus describes the problems the student is considering for the thesis, relevant background material, ideas for solving the problems, and any preliminary results.

Financial Support

Funds are available to help support outstanding Ph.D. applicants. Fellowships, teaching assistantships, and research assistantships provide an attractive stipend plus resident tuition status and tuition scholarships for students who are appointed at least one-quarter time. In some cases, full tuition waivers are granted.

Students who wish to be considered for financial assistance for their third year in the program should request a Ph.D. candidacy review no later than the spring semester of their second year.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Facilities

The Department of Statistics and Actuarial Science is housed in Schaeffer Hall, adjacent to Old Capitol, a National Historic Landmark and the center of campus. The department operates two computer labs in Schaeffer Hall. One, which also is used as an electronic classroom, contains 28 Windows PCs. The second houses 18 high-end UNIX workstations. Students use these labs for class work and research.

Courses

Once students have earned credit in a Department of Statistics and Actuarial Science course numbered above 3000, they may not earn credit in one numbered below 3000.

Students may earn credit for only two of these:

STAT:1010 (22S:002) Statistics and Society,

STAT:1020 (22S:025) Elementary Statistics and Inference [same as PSQF:1020 (07P:025)], STAT:1030 (22S:008) Statistics for Business, and STAT:2010 (22S:030) Statistical Methods and Computing.

Credit for STAT:1010 (22S:002) Statistics and Society may be earned only if the course is taken before any of these:

STAT:1020 (22S:025) Elementary Statistics and Inference [same as PSQF:1020 (07P:025)], STAT:1030 (22S:008) Statistics for Business, or STAT:2010 (22S:030) Statistical Methods and Computing.

Students may receive credit for only one course from each of these pairs:

STAT:2010 (22S:030) Statistical Methods and Computing and STAT:4200 (22S:105) Statistical Methods and Computing,
STAT:3100 (22S:130) Introduction to Mathematical Statistics I and STAT:3120 (22S:120) Probability and Statistics, and
STAT:3510 (22S:101) Biostatistics and STAT:4143 (22S:102) Introduction to Statistical Methods.

Lower-Level Undergraduate

Actuarial Science

ACTS:1001 (22S:028) Introductory Seminar on Actuarial Science 1 s.h.

Introduction to actuarial science; U.S. actuarial organizations and actuarial qualification process; program requirements and tips for academic success; career center, actuarial club, and internships; actuarial career; ethics; communication; introduction to actuarial computing. Requirements: actuarial science interest major and first-year standing.

Statistics

STAT:1000 (22S:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

STAT:1010 (22S:002) Statistics and Society 3 s.h.

Statistical ideas and their relevance to public policy, business, and the social, health, and physical sciences; focus on critical approach to statistical evidence. Requirements: one year of high school algebra or MATH:0100 (22M:001). GE: Quantitative or Formal Reasoning.

STAT:1020 (22S:025) Elementary Statistics and Inference 3 s.h.

Graphing techniques for presenting data, descriptive statistics, correlation, regression, prediction; logic of statistical inference, elementary probability models, estimation and tests of significance. Requirements: one year of high school algebra or MATH:0100 (22M:001). GE: Quantitative or Formal Reasoning. Same as PSQF:1020 (07P:025).

STAT:1030 (22S:008) Statistics for Business 4 s.h.

Descriptive statistics, graphical presentation, elementary probability, estimation and testing, regression, correlation; statistical computer packages. Prerequisites: MATH:1005 (22M:008). GE: Quantitative or Formal Reasoning.

STAT:2010 (22S:030) Statistical Methods and Computing 3 s.h.

Methods of data description and analysis using SAS; descriptive statistics, graphical presentation, estimation, hypothesis testing, sample size, power; emphasis on learning statistical methods and concepts through hands-on experience with real data. Prerequisites: MATH:1005 (22M:008). Recommendations: undergraduate standing. GE: Quantitative or Formal Reasoning.

STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences 3 s.h.

Probability, random variables, important discrete and continuous distributions, joint distributions, transformations of random variables, descriptive statistics, point and interval estimation, tests of hypotheses, regression. Prerequisites: MATH:1560 (22M:032).

Upper-Level Undergraduate and Graduate

Actuarial Science

ACTS:3080 (22S:180) Mathematics of Finance I 3 s.h.

Mathematics of compound interest; annuities certain, amortization schedules, yield rates, sinking funds, bonds; introduction to financial derivatives. Offered fall semesters. Prerequisites: STAT:3100 (22S:130). Requirements: grade of B- or higher in STAT:3100 (22S:130) or graduate standing.

ACTS:3085 (22S:179) Introduction to Mathematics of Finance 4 s.h.

Mathematics of compound interest, including annuities certain, amortization schedules, yield rates, sinking funds, bonds, introduction to financial derivatives. Offered spring semesters. Prerequisites: STAT:3100 (22S:130). Requirements: grade of B- or higher in STAT:3100 (22S:130).

ACTS:3110 (22S:188) Actuarial Exam P/1 Preparation 1 s.h.

Preparation for the Society of Actuaries and the Casualty Actuarial Society exams.

ACTS:3210 (22S:189) Actuarial Exam FM/2 Preparation 1 s.h.

Preparation for the Society of Actuaries and the Casualty Actuarial Society exams. Corequisites: ACTS:3080 (22S:180) or ACTS:3085 (22S:179), if not taken as a prerequisite.

ACTS:4110 (22S:199) Actuarial Exam MLC Preparation 1 s.h.

Preparation for the Society of Actuaries exam. Corequisites: ACTS:4280 (22S:182), if not taken as a prerequisite.

ACTS:4130 (22S:174) Quantitative Methods for Actuaries 3 s.h.

Survival distributions, life tables, and mathematics of derivatives. Offered fall and spring semesters. Corequisites: ACTS:3080 (22S:180) or ACTS:3085 (22S:179), and STAT:4100 (22S:153) or STAT:5100 (22S:193). Requirements: multivariate calculus and linear algebra.

ACTS:4180 (22S:181) Life Contingencies I 3 s.h.

Life insurance, life annuities, benefit premiums and reserves. Offered spring semesters. Prerequisites: ACTS:3085 (22S:179) or ACTS:3080 (22S:180), ACTS:4130 (22S:174), and STAT:4100 (22S:153) or STAT:5100 (22S:193). Requirements: grade of C+ or higher in ACTS:4130 (22S:174), and grade of C+ or higher in ACTS:3080 (22S:180) or ACTS:3085 (22S:179).

ACTS:4280 (22S:182) Life Contingencies II 3 s.h.

Continuation of ACTS:4180 (22S:181); net and gross premium reserves, multistate models, universal life insurance, interest rate risk. Offered fall semesters. Prerequisites: ACTS:4180 (22S:181). Requirements: grade of C+ or higher in ACTS:4180 (22S:181).

ACTS:4380 (22S:183) Mathematics of Finance II 3 s.h.

Derivatives markets, options on stocks and interest rates, financial applications. Offered spring semesters. Prerequisites: ACTS:3080 (22S:180) or ACTS:3085 (22S:179), ACTS:4130 (22S:174), and STAT:4100 (22S:153) or STAT:5100 (22S:193). Requirements: grade of C+ or higher in ACTS:4130 (22S:174), and grade of C+ or higher in ACTS:3080 (22S:180) or ACTS:3085 (22S:179).

Statistics

STAT:3100 (22S:130) Introduction to Mathematical Statistics I 3 s.h.

Descriptive statistics, probability, discrete and continuous distributions, sampling, sampling distributions. Prerequisites: MATH:1560 (22M:032) or MATH:1860 (22M:026).

STAT:3101 (22S:131) Introduction to Mathematical Statistics II 3 s.h.

Estimation, testing statistical hypotheses, linear models, multivariate distributions, nonparametric methods. Prerequisites: STAT:3100 (22S:130).

STAT:3120 (22S:120) Probability and Statistics 4 s.h.

Models, discrete and continuous random variables and their distributions, estimation of parameters, testing statistical hypotheses. Prerequisites: MATH:1560 (22M:032) or MATH:1860 (22M:026).

STAT:3200 (22S:152) Applied Linear Regression 3 s.h.

Regression analysis with focus on applications; model formulation, checking, selection; interpretation and presentation of analysis results; simple and multiple linear regression; logistic regression; ANOVA; hands-on data analysis with computer software. Prerequisites: STAT:2010 (22S:030) or STAT:2020 (22S:039). Same as IE:3760 (056:176).

STAT:3210 (22S:158) Experimental Design and Analysis 3 s.h.

Single- and multifactor experiments; analysis of variance; multiple comparisons; contrasts; diagnostics; fixed, random, and mixed effects models; designs with blocking and/or nesting; two-level factorials and fractions thereof; use of statistical computing packages. Prerequisites: STAT:2010 (22S:030) and STAT:3200 (22S:152).

STAT:3510 (22S:101) Biostatistics 3 s.h.
Statistical concepts and methods for the biological sciences; descriptive statistics, elementary probability, sampling distributions, confidence intervals, parametric and nonparametric methods, one-way ANOVA, correlation and regression, categorical data. Prerequisites: MATH:0100 (22M:001).

STAT:3620 (22S:133) Quality Control 3 s.h.
Basic techniques of statistical quality control; application of control charts for process control variables; design of inspection plans and industrial experimentation; modern management aspects of quality assurance systems. Offered fall semesters. Prerequisites: STAT:2020 (22S:039). Same as IE:3600 (056:162), CEE:3142 (053:142).

STAT:4100 (22S:153) Mathematical Statistics I 3 s.h.
Probability, conditional probability, random variables, distribution and density functions, joint and conditional distributions, various families of discrete and continuous distributions, mgf technique for sums, convergence in distribution, convergence in probability, central limit theorem. Prerequisites: MATH:2700 (22M:027) and MATH:2850 (22M:028).

STAT:4101 (22S:154) Mathematical Statistics II 3 s.h.
Transformations, order statistics, point estimation, sufficient statistics, Rao-Blackwell Theorem, delta method, confidence intervals, likelihood ratio tests, applications. Prerequisites: STAT:4100 (22S:153).

STAT:4143 (22S:102) Introduction to Statistical Methods 3 s.h.
Analysis, interpretation of research data; descriptive statistics; introduction to probability, sampling theory, statistical inference (binomial, normal distribution, t-distribution models); linear correlation, regression. Same as PSQF:4143 (07P:143).

STAT:4200 (22S:105) Statistical Methods and Computing 3 s.h.
Methods of data description and analysis using SAS; descriptive statistics, graphical presentation, estimation, hypothesis testing, sample size, power; emphasis on learning statistical methods and concepts through hands-on experience with real data. Prerequisites: MATH:1005 (22M:008). Recommendations: graduate standing in non-statistics or less quantitative major.

STAT:4510 (22S:150) Regression, Time Series, and Forecasting 3 s.h.
Regression analysis, forecasting, time series methods; use of statistical computing packages. Prerequisites: STAT:4101 (22S:154) or STAT:5101 (22S:194). Requirements: grade of C+ or higher in STAT:4101 (22S:154) or STAT:5101 (22S:194).

STAT:4520 (22S:138) Bayesian Statistics 3 s.h.
Bayesian statistical analysis, with focus on applications; Bayesian and frequentist methods compared; Bayesian model specification, choice of priors, computational methods; hands-on Bayesian data analysis using appropriate software; interpretation and presentation of analysis results. Prerequisites: STAT:3100 (22S:130) and STAT:3101 (22S:131), or STAT:3120 (22S:120), or STAT:4100 (22S:153) and STAT:4101 (22S:154); and STAT:3200 (22S:152). Same as PSQF:4520 (07P:148).

STAT:4740 (22S:169) Large Data Analysis 3 s.h.
Current areas that deal with problem of Big Data; techniques from computer science, mathematics, statistics; high performance and parallel computing, matrix techniques, cluster analysis, visualization; variety of applications including Google PageRank, seismology, Netflix-type problems, weather forecasting; fusion of data with simulation; projects. Prerequisites: CS:1210 (22C:016) and STAT:3200 (22S:152). Corequisites: MATH:3800 (22M:072). Same as CS:4740 (22C:179), MATH:4740 (22M:179).

Graduate Actuarial Science

ACTS:6160 (22S:171) Topics in Actuarial Science arr.
Prerequisites: ACTS:4180 (22S:181) and ACTS:4380 (22S:183). Requirements: grades of C+ or higher in ACTS:4180 (22S:181) and ACTS:4380 (22S:183).

ACTS:6480 (22S:177) Loss Distributions 3 s.h.
Severity, frequency, and aggregate models and their modifications; risk measures; construction of empirical models. Offered spring semesters. Prerequisites: STAT:4101 (22S:154) or STAT:5101 (22S:194). Corequisites: ACTS:6580 (22S:176). Requirements: grade of C+ or higher in STAT:4101 (22S:154) or STAT:5101 (22S:194).

ACTS:6580 (22S:176) Credibility and Survival Analysis 3 s.h.
Construction and selection of parametric models; credibility; simulation. Offered spring semesters. Prerequisites: STAT:4101 (22S:154) or STAT:5101 (22S:194). Corequisites: ACTS:6480 (22S:177). Requirements: grade of C+ or higher in STAT:4101 (22S:154) or STAT:5101 (22S:194).

ACTS:7730 (22S:273) Advanced Topics in Actuarial Science/Financial Mathematics arr.

Statistics

STAT:5090 (22S:170) ALPHA Seminar 1 s.h.
Resources available to students, program requirements, tips for academic success, professional statistical organizations, library and career center resources, statistical computing, scientific document preparation, history of statistics. Requirements: graduate standing in statistics.

- STAT:5100 (22S:193) Statistical Inference I** 3 s.h.
Review of probability, distribution theory (multiple random variables, moment-generating functions, transformations, conditional distributions), sampling distributions, order statistics, convergence concepts, generating random samples. Prerequisites: MATH:2850 (22M:028) and STAT:3101 (22S:131).
- STAT:5101 (22S:194) Statistical Inference II** 3 s.h.
Continuation of STAT:5100 (22S:193); principles of data reduction, point estimation theory (MLE, Bayes, UMVU), hypothesis testing, interval estimation, decision theory, asymptotic evaluations. Prerequisites: STAT:5100 (22S:193).
- STAT:5120 (22S:190) Mathematical Methods for Statistics** 3 s.h.
Real numbers, point set theory, limit points, limits, metric spaces, continuity, sequences and series, Taylor series (multivariate), uniform convergence, Riemann-Stieltjes integrals. Requirements: statistics graduate standing.
- STAT:5200 (22S:164) Applied Statistics I** 4 s.h.
Introduction to computing environments and statistical packages, descriptive statistics, basic inferential methods (confidence intervals, chi-square tests); linear models (regression and ANOVA models—specification and assumptions, fitting, diagnostics, selection, testing, interpretation). Prerequisites: STAT:3120 (22S:120). Requirements: facility with matrix algebra.
- STAT:5201 (22S:165) Applied Statistics II** 3 s.h.
Design of experiments and analysis of designed experiments; models for fixed and random effects; mixed models; design and analysis of complex plans; sample-size methods. Prerequisites: STAT:5200 (22S:164).
- STAT:5400 (22S:166) Computing in Statistics** 3 s.h.
R; database management; graphical techniques; importing graphics into word-processing documents (e.g., LaTeX); creating reports in LaTeX; SAS; simulation methods (Monte Carlo studies, bootstrap, etc.). Corequisites: STAT:5100 (22S:193) and STAT:5200 (22S:164).
- STAT:5610 (22S:140) Design and Analysis of Biomedical Studies** 3 s.h.
Simple and multiple linear regression and correlation; one- and two-way layout considerations in planning experiments; factorial experiments; multiple comparison techniques; orthogonal contrasts. Offered spring semesters. Prerequisites: BIOS:5110 (171:161). Same as BIOS:5120 (171:162).
- STAT:5810 (22S:201) Research Data Management** 3 s.h.
Overview of problems encountered in gathering and processing data from biomedical investigations; introduction to data management techniques useful in biomedical studies; introduction to Microsoft Access. Offered fall semesters. Requirements: Python or Java or C programming capability. Same as BIOS:5310 (171:164).
- STAT:6220 (22S:173) Statistical Consulting** 3 s.h.
Realistic supervised data analysis experiences, including statistical packages, statistical graphics, writing statistical reports, dealing with complex or messy data. Offered spring semesters. Prerequisites: STAT:3200 (22S:152) and STAT:3210 (22S:158), or STAT:5200 (22S:164) and STAT:5201 (22S:165). Requirements: major g.p.a. of 3.00 or above for undergraduates.
- STAT:6300 (22S:195) Probability and Stochastic Processes I** 3 s.h.
Conditional expectations; Markov chains, including random walks and gambler's ruin; classification of states; stationary distributions; branching processes; Poisson processes; Brownian motion. Prerequisites: STAT:4100 (22S:153).
- STAT:6301 (22S:196) Probability and Stochastic Processes II** 3 s.h.
Markov chains with continuous state space, Martingales, random walks, Brownian motion and other continuous-time Markov chains, simulation methods. Prerequisites: STAT:6300 (22S:195).
- STAT:6510 (22S:162) Applied Generalized Regression** 3 s.h.
Applications of semiparametric models, generalized linear models, nonlinear normal errors models, correlated response models; use of statistical packages, especially SAS. Requirements: introductory statistics and applied linear models.
- STAT:6513 (22S:148) Intermediate Statistical Methods** 4 s.h.
Foundation for more advanced applied courses; logic of statistical inference, chi-square, and other tests of statistical hypotheses; small sample error theory, interval estimates, introduction to analysis of variance, selected nonparametric methods. Requirements: for PSQF:6243 (07P:243) — PSQF:4143 (07P:143); for STAT:6513 (22S:148) — STAT:4143 (22S:102). Same as PSQF:6243 (07P:243).
- STAT:6514 (22S:157) Correlation and Regression** 4 s.h.
Correlation techniques; selected bivariate procedures, multiple, partial, curvilinear correlation; multiple linear regression; sampling theory applied to regression analysis and correlation coefficients; simple causal models. Requirements: for PSQF:6244 (07P:244) — PSQF:6243 (07P:243); for STAT:6514 (22S:157) — STAT:6513 (22S:148). Same as PSQF:6244 (07P:244).
- STAT:6516 (22S:159) Design of Experiments** 4 s.h.
Theory and methods in the planning and statistical analysis of experimental studies; testing of hypotheses about linear contrasts among means in single-factor and multifactor, completely randomized, and repeated measurement designs. Requirements: for PSQF:6246 (07P:246) — PSQF:6243 (07P:243); for STAT:6516 (22S:159) — STAT:6513 (22S:148). Same as PSQF:6246 (07P:246).
- STAT:6530 (22S:167) Environmental and Spatial Statistics** 3 s.h.

Methods for sampling environmental populations, sampling design, trend detection and estimation, geostatistics, kriging, variogram estimation, lattice data analysis, analysis of spatial point patterns. Prerequisites: STAT:3200 (22S:152) and STAT:4101 (22S:154).

STAT:6540 (22S:161) Applied Multivariate Analysis 3 s.h.

Multivariate descriptive statistics, multivariate normal distribution, Hotelling's T-squared, MANOVA, multivariate regression, principal components, discrimination and classification, cluster analysis. Prerequisites: STAT:3200 (22S:152) and STAT:3210 (22S:158). Requirements: facility with matrix algebra. Same as PSQF:6245 (07P:245).

STAT:6547 (22S:163) Nonparametric Statistical Methods 3 s.h.

Selected nonparametric methods; one- and two-sample location tests and estimation methods, measures of association, analyses of variance; emphasis on relationships to classical parametric procedures. Prerequisites: PSQF:6243 (07P:243) or STAT:3120 (22S:120). Same as PSQF:6247 (07P:247).

STAT:6550 (22S:160) Introductory Longitudinal Data Analysis 3 s.h.

Statistical models and estimation methods used to analyze correlated data (e.g., same subject measured repeatedly); emphasis on use of statistical software. Offered fall semesters of odd years. Prerequisites: STAT:3200 (22S:152) or STAT:6510 (22S:162) or BIOS:5730 (171:203) or BIOS:6110 (171:241). Same as BIOS:6310 (171:174).

STAT:6560 (22S:156) Applied Time Series Analysis 3 s.h.

General stationary, nonstationary models, autocovariance autocorrelation functions; stationary, nonstationary autoregressive integrated moving average models; identification, estimation, forecasting in linear models; use of statistical computer packages. Offered spring semesters. Prerequisites: STAT:3101 (22S:131), and STAT:3200 (22S:152) or STAT:5200 (22S:164).

STAT:6970 (22S:172) Topics in Statistics 3 s.h.

STAT:6990 (22S:197) Readings in Statistics arr.

STAT:7100 (22S:253) Advanced Inference I 3 s.h.

Concepts of convergence, asymptotic methods including the delta method, sufficiency, asymptotic efficiency, Fisher information and information bounds for estimation, maximum likelihood estimation, the EM-algorithm, Bayes estimation, decision theory. Prerequisites: STAT:5101 (22S:194) and STAT:5120 (22S:190).

STAT:7101 (22S:254) Advanced Inference II 3 s.h.

Hypothesis testing, asymptotics of the likelihood ratio test, asymptotic efficiency, statistical functionals, robustness, bootstrap and jackknife, estimation with dependent data. Prerequisites: STAT:7100 (22S:253).

STAT:7190 (22S:291) Seminar: Mathematical Statistics arr.

STAT:7200 (22S:255) Linear Models 4 s.h.

Linear spaces and matrix theory, multivariate normal distribution and distributions of quadratic forms, full-rank and non-full-rank linear models, estimability, interval estimation, hypothesis testing, random and mixed models, applications. Prerequisites: STAT:5101 (22S:194), STAT:5200 (22S:164), and STAT:5201 (22S:165).

STAT:7290 (22S:295) Seminar: Applied Statistics arr.

STAT:7300 (22S:203) Foundations of Probability I 3 s.h.

Probability theory, with emphasis on constructing rigorous proofs; measure spaces, measurable functions, random variables and induced measures, distribution functions, Lebesgue integral, product measure and independence, Borel Cantelli lemma, modes of convergence. Prerequisites: STAT:5120 (22S:190).

STAT:7301 (22S:204) Foundations of Probability II 3 s.h.

Laws of large numbers, characteristic functions and properties, central limit theorem, Radon-Nikodym derivatives, conditional expected value and martingales. Prerequisites: STAT:7300 (22S:203).

STAT:7390 (22S:293) Seminar: Probability arr.

STAT:7400 (22S:248) Computer Intensive Statistics 3 s.h.

Computer arithmetic; random variate generation; numerical optimization; numerical linear algebra; smoothing techniques; bootstrap methods; cross-validation; MCMC; EM and related algorithms; other topics per student/instructor interests. Prerequisites: STAT:3101 (22S:131), and STAT:5200 (22S:164) or BIOS:5710 (171:201). Requirements: proficiency in Fortran or C or C++ or Java.

STAT:7510 (22S:220) Analysis of Categorical Data 3 s.h.

Models for discrete data, distribution theory, maximum likelihood and weighted least squares estimation for categorical data, tests of fit, models selection. Offered spring semesters. Prerequisites: STAT:4101 (22S:154) or STAT:5101 (22S:194), and STAT:5200 (22S:164) or BIOS:5720 (171:202). Same as BIOS:7410 (171:262).

STAT:7520 (22S:238) Bayesian Analysis 3 s.h.

Decision theory, conjugate families, structure of Bayesian inference, hierarchical models, asymptotic approximations for posterior distributions, Markov chain Monte Carlo methods and convergence assessment, model adequacy and model choice. Prerequisites: STAT:5101 (22S:194), STAT:5200 (22S:164), and STAT:5400 (22S:166).

STAT:7560 (22S:235) Time Series Analysis 3 s.h.

Stationary time series, ARIMA models, spectral representation, linear prediction inference for the spectrum, multivariate time series, state space models and processes, nonlinear time series. Prerequisites: STAT:4101 (22S:154) and STAT:6560 (22S:156).

STAT:7570 (22S:225) Survival Data Analysis 3 s.h.

Types of censoring and truncation; survival function estimation; life tables; parametric inference using exponential, Weibull, and accelerated failure time models; nonparametric tests; sample size calculation; Cox regression with stratification and time-dependent covariates; regression diagnostics; competing risks; analysis of correlated survival data. Offered fall semesters. Prerequisites: BIOS:5720 (171:202), and STAT:4101 (22S:154) or STAT:5101 (22S:194). Same as BIOS:7210 (171:261).

STAT:7990 (22S:299) Reading Research arr.

Theatre Arts

Director, Division of Performing Arts

- Alan MacVey

Chair, Department of Theatre Arts

- Alan MacVey

Professors

- John Cameron, Eric Forsythe, Alan MacVey, Kim Marra, Bryon Winn

Associate professors

- Loyce Arthur, Art Borreca, Merrel Dare Clubb, R. Eric Stone

Assistant professors

- Paul Kalina, Anne Marie Nest, Tlaloc Rivas

Lecturers

- James Albert, Meredith Alexander, Carol MacVey, David McGraw, Melissa Turner

Professors emeriti

- Tisch Jones, David Schaal, David Thayer

Undergraduate major: theatre arts (B.A.)

Undergraduate minor: theatre arts

Graduate degree: M.F.A. in theatre arts

Web site: <http://theatre.uiowa.edu/>

The Department of Theatre Arts offers academic programs for undergraduate and graduate students. It also stages live performances throughout the academic year and during the summer.

The department is one of three academic units in the Division of Performing Arts (p. 234). It participates in offering the division's Certificate in Performing Arts Entrepreneurship (p. 512).

Undergraduate Programs of Study

- Major in theatre arts (Bachelor of Arts)
- Minor in theatre arts

The undergraduate program in theatre arts is based on the philosophy that the best way to develop future artists is to expose them to rigorous professional practice within the framework of a liberal arts and sciences education.

Department of Theatre Arts students take workshop courses in acting, directing, design, technical theatre, stage management, and playwriting and complement them with classes in dramatic literature, history, and criticism. Students also are encouraged to explore a range of courses throughout the University. Around 25 public productions are staged each year, providing additional opportunities to learn the theatre craft and to develop a personal artistic vision.

The department also educates students who plan to enter other fields in which understanding of the arts and experience with theatre skills are useful. Some earn a major in theatre arts, occasionally with a second major in another discipline. Others take theatre classes as

nonmajors or earn a minor; see "Minor" and "Courses for Nonmajors" in this section of the Catalog.

Bachelor of Arts

The Bachelor of Arts with a major in theatre arts requires a minimum of 120 s.h., including 33 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The curriculum for the theatre arts major listed below constitutes the basic experience for all undergraduate theatre arts students. Registration in some courses for the major requires special permission. Contact the Department of Theatre Arts for details.

Students who transfer to the University from other accredited two- or four-year institutions must demonstrate that they have successfully completed course work equivalent to the basic requirements of the Department of Theatre Arts and The University of Iowa before they may take advanced-level electives. If a student completes the courses listed for the approved 2 Plus 2 theatre arts program at Kirkwood Community College in Iowa, those courses are automatically counted toward requirements for the theatre arts major at The University of Iowa. Consult the department's director of undergraduate studies for more information.

In planning course work, especially electives, students should be guided by the College of Liberal Arts and Sciences maximum hours rule: students earning a B.A. or B.S. may apply a maximum of 56 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 56 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students majoring in theatre arts may count a maximum of 23 s.h. earned in Department of Theatre Arts elective courses (prefix THTR) toward the Bachelor of Arts. Theatre arts elective credit beyond 23 s.h. is listed on the transcript but does not count toward the 120 s.h. required for graduation.

Students must complete a course's prerequisites before registering for the course. They normally complete the following required courses (from the "Theatre Foundation Courses" list below) within their first four semesters in the major:

- THTR:2140 (049:025) Acting I,
- THTR:2402 (049:060) Performance Analysis,
- THTR:2410 (049:112) History of Theatre and Drama I, and
- THTR:2411 (049:113) History of Theatre and Drama II.

Students who complete THTR:1400 (049:002) Theatre and Society: Ancients and Moderns or THTR:1401 (049:003) Theatre and Society: Romantics and Rebels before declaring a major in theatre arts must consult the undergraduate director before they may register for THTR:2410 (049:112) History of Theatre and Drama I or THTR:2411 (049:113) History of Theatre and Drama II.

The theatre arts major requires the following course work.

THEATRE FOUNDATION COURSES

All of these:

THTR:2140 (049:025) Acting I	3 s.h.
THTR:2215 (049:044) Introduction to Theatrical Production Technology	3 s.h.
THTR:2402 (049:060) Performance Analysis	3 s.h.
THTR:2410 (049:112) History of Theatre and Drama I	3 s.h.
THTR:2411 (049:113) History of Theatre and Drama II	3 s.h.
Elective requirement: additional 6 s.h. of theatre arts courses. Approved courses include THTR:2301 (049:062) Playwriting I and all courses numbered 3000 and above.	6 s.h.

Design—one of these:

THTR:2200 (049:043) Elements of Design	3 s.h.
THTR:3230 (049:134) Scene Design I	3 s.h.
THTR:3240 (049:135) Costume Design I	3 s.h.
THTR:3250 (049:136) Lighting Design I	3 s.h.
THTR:4240 (049:138) Costume Design II	3 s.h.

Dramatic literature—one of these:

THTR:1410 (049:050) Musical Theatre	3 s.h.
THTR:2405 (049:080) Staging Americans: U.S. Cultures Through Theatre and Performance	arr.
THTR:3276 (049:181) Medieval Drama	3 s.h.
THTR:3277 (049:184) English Renaissance Drama	3 s.h.
THTR:3287 (049:072) Shakespeare	3 s.h.
THTR:3403 (049:182) Free Style Writing: Poetry, Plays, and Performances	3 s.h.
THTR:3410 (049:190) African American Theatre I	3 s.h.
THTR:3411 (049:191) African American Theatre II	3 s.h.
THTR:3415 (049:185) Cultural Diversity and Identity	3 s.h.
THTR:3420 (049:188) Sex and Gender in Performance	3 s.h.
THTR:3421 (049:114) Performing Autobiography	3 s.h.
THTR:3440 (049:117) American Drama Since 1900	3 s.h.
THTR:3462 (049:186) African American Drama	3 s.h.
THTR:4401 (049:118) American Women Playwrights: 1776-Present	3 s.h.
THTR:4402 (049:119) Dramas of the Spirit	3 s.h.
THTR:4403 (049:193) Studies in Drama	3 s.h.
THTR:4410 (049:164) Shakespeare the Dramatist	3 s.h.
THTR:4413 (049:183) Black Feminist Tradition and Culture	3 s.h.
THTR:4420 (049:116) Dramatic Theory	3 s.h.
THTR:4630 (049:177) London Performance Study	3 s.h.

PRODUCTION COURSES

Required production lab:

THTR:2220 (049:045) Production Lab	3 s.h.
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Students must earn a total of 3 s.h. in THTR:2220 (049:045) Production Lab. The course requires students to work backstage on a department production. All students must serve as a crew member on at least one production (normally earning 1 s.h. per production). They have options to earn 2 s.h. for serving as a crew chief or taking on other advanced responsibilities.

Elective production courses:

THTR:3221 (049:147) Technology for the Entertainment Industry	3 s.h.
THTR:3501 (049:132) Stage Management I	3 s.h.

With the instructor's approval, students who enroll in one of these two elective production courses [THTR:3501 (049:132) or THTR:3221 (049:147)] also may enroll in the required production course THTR:2220 (049:045) Production Lab during the same semester or session and may complete an additional project, earning 1 s.h. for THTR:2220 (049:045) in addition to the credit they earn for the elective course. Students may earn a maximum of 1 s.h. of required production course credit for THTR:2220 (049:045) this way.

CAPSTONE COURSE

One of these:

THTR:4180 (049:130) Directing I	3 s.h.
THTR:4690 (049:172) Senior Seminar	3 s.h.

Student Auditions for Theatre Arts Productions

Theatre arts majors are encouraged to audition for the department's productions in general auditions at the beginning of the fall semester. Students normally present a three-minute audition consisting of two contrasting pieces. From this audition, callback lists are posted for major productions offered during the first semester. Additional general auditions normally are scheduled in early November and in February.

Students in other majors are welcome to audition for the department's productions, as are community members (see "Productions and Auditions" later in this section). For academic considerations, theatre arts majors are given first consideration for roles.

Materials and information about the general auditions are available from the Department of Theatre Arts office in August. Notices of auditions for all subsequent productions are posted on the department's call board.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the fifth semester begins: three courses in the major chosen from THTR:2140 (049:025) Acting I, THTR:2402 (049:060) Performance Analysis, THTR:2410 (049:112) History of Theatre and Drama I, and THTR:2411 (049:113) History of Theatre and Drama II

Before the seventh semester begins: three more courses in the major, two semesters of production credit, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: two more courses in the major and one more semester of production credit

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in theatre arts have the opportunity to graduate with honors in the major. Students who wish to graduate with honors should declare their intention to the department's honors advisor. To graduate with honors in the major, students must maintain a g.p.a. of at least 3.33 in the major; complete at least 12 s.h. of work in Department of Theatre Arts honors courses, which must include THTR:4692 (049:197) Honors Theatre Arts; and give a creative presentation or performance or write an honors thesis.

Students who elect to give a creative presentation or performance must have senior standing and must complete at least one honors course before their proposed project may be approved. They must apply to the director of theatre for approval of their project by April 1 of the year before the project is to be scheduled (projects are not guaranteed a production slot). They also must enroll in THTR:4692 (049:197) Honors Theatre Arts during the semester in which they complete their presentation or performance.

For more information about theatre arts honors requirements, contact the Department of Theatre Arts office.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Minor

The minor in theatre arts requires a minimum of 15 s.h. in theatre arts courses, including 12 s.h. in courses considered advanced for the minor taken at The University of Iowa. Students must maintain a cumulative g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Students must complete all prerequisites for the courses they choose for the minor.

All theatre courses are open to students minoring in theatre arts except THTR:2140 (049:025) Acting I, which is normally reserved for students earning the theatre arts major. Theatre arts minors who are interested in acting usually take THTR:1140 (049:020) Basic Acting and THTR:1141 (049:021) Basic Acting II. Then they may request permission to enroll in THTR:3140 (049:120) Acting II. When enrollment allows, they also may request permission to take THTR:2140 (049:025) Acting I.

The following courses are considered advanced for the minor.

THTR:1141 (049:021) Basic Acting II	3 s.h.
THTR:2140 (049:025) Acting I	3 s.h.
THTR:2200 (049:043) Elements of Design	3 s.h.
THTR:2215 (049:044) Introduction to Theatrical Production Technology	3 s.h.

THTR:2301 (049:062) Playwriting I	3 s.h.
THTR:2402 (049:060) Performance Analysis	3 s.h.
Courses numbered 3000 and above (some require special permission)	

Contact the Department of Theatre Arts for more information about how to meet the requirements for the minor.

Courses for Nonmajors

Most theatre arts courses are open to all students, regardless of their majors, and are appropriate for nonmajors interested in theatre. The following courses are designed specifically for nonmajors.

THTR:1141 (049:021) Basic Acting II	3 s.h.
THTR:1410 (049:050) Musical Theatre	3 s.h.
THTR:1412 (049:052) The Arts in Performance	3 s.h.
THTR:2120 (049:035) Movement: Special Topics	2-3 s.h.
THTR:3150 (049:103) Public Speaking	3 s.h.
THTR:3210 (049:156) Makeup Design for the Stage	3 s.h.
THTR:3301 (049:155) Playwriting II	3 s.h.
THTR:3510 (049:109) Introduction to Arts Management	3 s.h.
THTR:3520 (049:111) New Ventures in the Arts	3 s.h.
THTR:3521 (049:102) Acting for Singers and for Dancers	2 s.h.

For a complete list of theatre arts courses, see "Courses" below.

Several of the department's courses are approved for General Education; look for courses with the prefix THTR in the area lists under "Culture, Society, and the Arts" in the General Education Program (p. 323) section of the Catalog.

Graduate Program of Study

- Master of Fine Arts in theatre arts

Master of Fine Arts

The Master of Fine Arts program in theatre arts requires 61-82 s.h. of graduate credit, depending on the student's specialty area. Students normally must complete six semesters in residence (internships may be substituted).

The graduate program is dedicated to creative development of theatre artists. Graduates have a solid background in major performance theories, dramatic literature, and practices of the past and present as well as in the craft of their chosen specialties.

Special attention is given to understanding the role and importance of live theatre in society. Interactions among the various theatre disciplines are emphasized, both in classes and through the department's extensive production program. Particular emphasis is placed on the development of new works for the theatre.

Students must make normal progress toward completion of the degree requirements to remain in the program: they must maintain a g.p.a. of at least 3.00 overall and in all course work within the primary area of concentration, and they must build a record of substantial creative work of high quality. Students who fail to make normal progress are placed on academic probation and given one

additional semester to demonstrate their qualifications for earning the degree.

Contact the Department of Theatre Arts for specific information on any of the M.F.A. specialty areas.

Admission

Students who demonstrate exceptional ability in acting, directing, dramaturgy, playwriting, design, or stage management may apply for admission to the program of study and production leading to the M.F.A. Admission is based on interview, audition, and/or a portfolio of relevant work, the undergraduate record or other proof of artistic accomplishment, and letters of recommendation.

Submission of playscripts is the most important element in gaining admission to the Playwrights Workshop.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Productions and Auditions

The Department of Theatre Arts presents around 25-30 public productions each year. These include a subscription series of five plays, a festival of new works by students, productions by Iowa Summer Repertory Theatre (a professional company that also employs students), and other productions, many of them new plays.

Special attention is given to the process of developing new works and to the collaborative process that involves writers, directors, designers, dramaturgs, stage managers, and actors. Graduates, undergraduates, faculty, and visiting guest artists work together on large and small projects throughout the year and in a special summer repertory season.

Auditions for Theatre Arts Productions

Auditions for theatre arts productions are open to everyone, including all University of Iowa students and members of the local community. Theatre arts students are given first priority for roles, but many roles are available throughout the year, so many students in other majors and nonstudent actors are cast each season. Occasionally, professional actors are employed.

General auditions are held at the beginning of the fall semester, and callback lists are posted during the semester. Additional general auditions usually are scheduled in early November and in February. Information about auditions is available from the Department of Theatre Arts office in August. Notices of auditions are posted on the department's call board.

Facilities

The University of Iowa has one of the finest educational theatre complexes in the country. The Theatre Building offers four theatres and up-to-date facilities for classroom, laboratory, shop, and performance work.

The E.C. Mabie Theatre, a continental-style, 457-seat proscenium playhouse, is one of the finest theatres of its type in the United States. The David Thayer Theatre is a "black box" production space; its flexible seating units accommodate from 140 to 225 people and allow modification of space and audience relationships. Theatre B, which seats 144, is an open-stage theatre dedicated

primarily to the production of new and experimental works. The flexible studio theatre seats 50.

In addition to classrooms for acting and directing, several spaces are designed for teaching particular aspects of dramatic studies. The Cosmo Catalano Acting Studio is for study of movement and motion by acting students. The Arnie Gillette Design Studio serves as classroom and studio workshop for design students.

To support its production schedule and to provide students with an appropriate range of experience, the department maintains shops for building, painting, maintaining, and storing scenery, costumes, and properties. Using these shops, students learn to work in metal, plastics, canvas, and wood.

Courses

Lower-Level Undergraduate

THTR:1000 (049:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

THTR:1010 (049:001) Art of the Theatre 3 s.h.

Fundamentals of acting, playwriting, directing. GE: Literary, Visual, and Performing Arts.

THTR:1140 (049:020) Basic Acting 3 s.h.

Concentration, relaxation, imagination, observation, communication, sensory awareness; development of theatrical creativity through objectives, obstacles, action, conflict, spontaneity; development of a scene from scripts. Requirements: non-theatre arts major. GE: Literary, Visual, and Performing Arts.

THTR:1141 (049:021) Basic Acting II 3 s.h.

Continuation of THTR:1140 (049:020); emphasis on development of scenes. Prerequisites: THTR:1140 (049:020). Requirements: non-theatre arts major.

THTR:1400 (049:002) Theatre and Society: Ancients and Moderns 3 s.h.

Representative plays as performed in social contexts of ancient Egypt; classical Greece, Rome, India, and Japan; and medieval and early modern Europe. Duplicates THTR:2410 (049:112). GE: Historical Perspectives; Literary, Visual, and Performing Arts.

THTR:1401 (049:003) Theatre and Society: Romantics and Rebels 3 s.h.

Representative plays as performed in social contexts of revolutionary and modern Europe and postwar United States. Duplicates THTR:2411 (049:113). GE: Historical Perspectives; Literary, Visual, and Performing Arts.

- THTR:1410 (049:050) Musical Theatre** 3 s.h.
American musical theatre's form, function, evolution; major composers (Berlin, Gershwin, Rodgers and Hammerstein, Sondheim), lesser-known and contemporary writers; roots of the rock musical, future of musical theatre, how musicals reflect their own eras and cultural attitudes of their times; readings, recordings, videos. Ability to read music not required.
- THTR:1411 (049:051) Comedy and Society** 3 s.h.
How comedy reflects, comments upon, and intersects with western culture, society, and identity; roots of western comedy, satire, censorship; stand-up comedians, improv and sketch troupes, satirists; race, gender and sexuality, class perception; how portrayals of African Americans in popular culture evolved from 19th century to present; videos, readings, live performances. GE: Values, Society, and Diversity.
- THTR:1412 (049:052) The Arts in Performance** 3 s.h.
GE: Literary, Visual, and Performing Arts; Values, Society, and Diversity. Same as DPA:1412 (188:052), DANC:1412 (137:052).
- THTR:2120 (049:035) Movement: Special Topics** 2-3 s.h.
Specialized study in movement techniques and movement styles for body conditioning; development of yoga techniques; varied topics.
- THTR:2140 (049:025) Acting I** 3 s.h.
Development of creativity, imagination, and openness through exercises to engage mind, body, and voice in theatrical play and scene work. Requirements: theatre arts major, or theatre arts minor and THTR:1140 (049:020).
- THTR:2200 (049:043) Elements of Design** 3 s.h.
Development of visual literacy; manipulation of line, shape, color, value, texture, form; development of designs for theatre through techniques explored in class.
- THTR:2215 (049:044) Introduction to Theatrical Production Technology** 3 s.h.
Theatrical production; technology and backstage operations including sound, projections, lighting, scenery, costumes, stage management.
- THTR:2220 (049:045) Production Lab** 1-3 s.h.
Practical experience in physical construction and operation of live theatre; theatre department productions provide lab experiences for applied learning in technical theatre and run crew opportunities in scenery, costumes, lighting, sound, and stage management.
- THTR:2301 (049:062) Playwriting I** 3 s.h.
Elements of playwriting; emphasis on analysis and discussion of original student writing. GE: Literary, Visual, and Performing Arts.
- THTR:2402 (049:060) Performance Analysis** 3 s.h.
Basic skills in critical reading and close analysis of dramatic texts, with focus on dramatic structure, challenges of putting texts into production.
- THTR:2405 (049:080) Staging Americans: U.S. Cultures Through Theatre and Performance** arr.
Role of American theatre as a complex tapestry of race, gender, sexuality, and disability; examination of plays and performance outside primarily white-male canon; contemporary social practice and cultural politics in local and national contexts. GE: Values, Society, and Diversity.
- THTR:2410 (049:112) History of Theatre and Drama I** 3 s.h.
Major developments in Anglo-European, Indian, Asian, and African theatre and drama, 3000 B.C.E. to C.E. 1700; sociopolitical, economic, and cultural circumstances of original productions. Offered spring semesters. GE: Historical Perspectives; Literary, Visual, and Performing Arts.
- THTR:2411 (049:113) History of Theatre and Drama II** 3 s.h.
Continuation of THTR:2410 (049:112), 1700 to 1960; revolutionary and modern European theatre and culturally diverse postwar U.S. theatre. Offered fall semesters. GE: Historical Perspectives; Literary, Visual, and Performing Arts.
- THTR:2610 (049:090) Acting for Success** 3 s.h.
How skills learned by actors in the theatre world can be applied to presentations and interactions in business, education, and beyond; business world reliance on technology for communication; ability to connect and communicate on a personal level with others as the x-factor to stand out as a team player and a leader; acting techniques traditionally used in theatre to open up communication in office and interviews; presentations and elevator pitches (armed with techniques to avoid stage fright); how to connect and bring authentic self to everything you do. Same as RHET:2610 (010:092).

Upper-Level Undergraduate and Graduate

Acting and Directing

- THTR:3070 (049:108) Dance Kinesiology** 3 s.h.
Body science related to demands of dance; structural and muscular analysis for efficient, effective dance training and prevention of injuries; investigation of skeletal and ligamentous structure for working knowledge of how the body produces movement; joint actions and restrictions, common injuries to those sites; attachments of the voluntary muscles, pathways and potential actions; neuromuscular analysis of an action; functional skeletal alignment; how individual differences may affect movement performance. Prerequisites: HHP:1100 (027:053). Same as DANC:3070 (137:147).
- THTR:3110 (049:125) Voice for the Actor** 3 s.h.
Progressive development of voice and speech for theatre; physical awareness, relaxation, breathing, freeing the sound channel, resonance, articulation; application of voice work through prose, poetry, text. Prerequisites: THTR:2140 (049:025).

- THTR:3120 (049:127) Theatre Movement** 3 s.h.
The body as a tool for dramatic expression; basic principles and practices of stage movement; approaches to physical technique. Prerequisites: THTR:2140 (049:025). Requirements: theatre arts major.
- THTR:3130 (049:106) Singing for Actors** 2 s.h.
Skill development for healthy, effective singing in the musical theatre style; techniques of vocal production through breath management, resonance, articulation, flexibility; song interpretation and repertoire. Recommendations: for MUS:3520 (025:169) — concurrent registration in MUS:1020 (025:059). Same as MUS:3520 (025:169).
- THTR:3140 (049:120) Acting II** 3 s.h.
Extension of work begun in THTR:2140 (049:025); scene study, with focus on contemporary realism and development of collaborative dynamic. Prerequisites: THTR:1141 (049:021) or THTR:2140 (049:025).
- THTR:3150 (049:103) Public Speaking** 3 s.h.
How to be an effective and confident communicator; exercises designed to develop and improve vocal sound, vocal strength, clarity of speech; appropriate interpretation of text.
- THTR:3151 (049:126) Voice, Text, and the Actor** 3 s.h.
Varied topics on a rotational basis, may include vocal study of classical text including Shakespeare, dialects, and voice in classical and contemporary comedy. Prerequisites: THTR:3110 (049:125).
- THTR:3160 (049:128) Movement Styles** 3 s.h.
Intensive study of a selected movement style (e.g., mask, clown, commedia dell'arte). Prerequisites: THTR:3120 (049:127).
- THTR:3162 (049:154) Movement: Special Topics II** 3 s.h.
Specialized study in movement techniques and movement styles for body conditioning; intermediate development of yoga techniques; varied topics. Prerequisites: THTR:2120 (049:035).
- THTR:3315 (049:107) Stand-Up Comedy** 3 s.h.
Writing and performing stand-up comedy; emphasis less on creating a comic persona and more on pulling from and articulating personal truth; analysis of contemporary comedians and joke structure; performing original work for multiple audiences in classroom and out in community. Prerequisites: THTR:1140 (049:020) or THTR:2140 (049:025) or THTR:2301 (049:062).
- THTR:3421 (049:114) Performing Autobiography** 3 s.h.
Write and perform original pieces stemming from personal experiences and interests; readings and videos; genre of contemporary autobiographical performance as established artists have developed it; improvisational performance and writing exercises to foster deeper reflection on personal experiences; final staging of students' original work. Same as GWSS:3421 (131:114).
- THTR:3521 (049:102) Acting for Singers and for Dancers** 2 s.h.
Fundamentals of acting technique, with attention to demands on performers in opera, musical theater, and dance. Same as MUS:3521 (025:175), DANC:3521 (137:165).
- THTR:3601 (049:110) Theatre for Social Outreach** arr.
Use of improvisation, storytelling, readers' theatre to explore complex social issues; participation in Darwin Turner Action Theatre; experience creating works that examine social issues, especially those related to cultural diversity; performances in Iowa schools and communities.
- THTR:3605 (049:163) Inclusive Theatre** 3 s.h.
Introduction to implementation of performance opportunities for special populations (defined as those with cognitive or physical disability) and underrepresented populations. Same as EDTL:3963 (07U:163).
- THTR:3610 (049:101) Drama in the Classroom** 3 s.h.
Theories of community, culture, identity in relation to language arts teaching and learning; emphasis on incorporating multiple literacies, both oral and print, into language arts curricula; action research involving oral literacy. Same as EDTL:3180 (07E:180).
- THTR:3850 (049:105) Introduction to Laban Movement Studies** 2-3 s.h.
Introduction to Bartenieff Fundamentals (BF) and Laban Movement Analysis (LMA) as methods of organizing and integrating movement to support artistic goals and expanding expressive range; BF teaches body awareness, breath support, developmental patterns, ergonomically-efficient alignment, balancing of muscular strength and stretch, and coordination; LMA teaches vocabulary of expressive movement and nonverbal communication, including effort (use of energy/dynamics for expression, stamina, stress relief) and shape (how posture and gesture communicate); quality of movement that supports individual goals in artistic expression, sound production, and wellness. Same as MUS:3850 (025:167), DANC:3850 (137:160), DPA:3850 (188:167).
- THTR:3851 (049:170) Introduction to the Alexander Technique** 3 s.h.
The Alexander Technique and "self-use"—how movement choices affect results achieved; improvement of physical skills and presence; principles in support of performing arts (e.g., speaking, singing, playing an instrument, dancing, acting); application to skills in daily life, addressing underpinnings of movement; physical participation (e.g., lying down, rolling, sitting, standing, locomotion). Same as DPA:3851 (188:168), MUS:3851 (025:176), DANC:3851 (137:173).
- THTR:4144 (049:124) Acting: Special Topics** 3 s.h.
Specialized study in a specific aspect or theory of acting.

- THTR:4180 (049:130) Directing I** 3 s.h.
Basic elements of stage direction; exercises in composition, emphasis, movement, rhythm, directorial analysis; director's role in production process; short scenes, projects, papers. Prerequisites: THTR:2140 (049:025), THTR:2402 (049:060), and THTR:2200 (049:043) or THTR:3230 (049:134) or THTR:3240 (049:135) or THTR:3250 (049:136). Requirements: completion of design requirement.
- THTR:4182 (049:131) Directing II** 3 s.h.
Continuation of THTR:4180 (049:130); practical work in stage direction culminating in a larger directing project. Prerequisites: THTR:4180 (049:130).
- THTR:6140 (049:220) Advanced Acting** 3 s.h.
Preprofessional training; may include psychophysical training in impulse, openness and the "mask," individual and group dynamics, improvisation, repetition, characterization and scene work, Shakespeare and style, on-camera, development of professional work habits and skills, audition and interview. Requirements: admission to M.F.A. program.
- THTR:6150 (049:225) Vocal Technique** 3 s.h.
Skills training; voice and speech for the actor, phonetics, dialects, sound exploration, contemporary and classical text analysis. Requirements: admission to M.F.A. program.
- THTR:6160 (049:227) Movement Technique** 3 s.h.
Fundamental principles and practices required for physical acting technique; basic stage movement, stage combat, mime technique, Lecoq-based improvisation; a new works project. Requirements: admission to M.F.A. program.
- THTR:6170 (049:229) Graduate Acting: Special Topics** 3 s.h.
Specialized study in one aspect or theory of acting. Requirements: admission to M.F.A. program.
- THTR:6180 (049:230) Director's Seminar** 1-3 s.h.
Preprofessional training in stage direction; the art and craft of directing; research, practical experience; development of new pieces; approaches to a variety of theatrical materials through concept, type, style. Requirements: admission to M.F.A. program.
- THTR:6525 (049:201) Voice for Performers** 2 s.h.
Comparison of Kinesthetic techniques for singing and acting voice; relaxation, posture, breathing, tone quality, diction, interpretation. Same as CSD:6204 (003:204), MUS:6525 (025:216).
- Design and Technical Theatre**
- THTR:3202 (049:144) Web Design** 3 s.h.
Creation of graphic identities and web sites using Adobe Photoshop and Dreamweaver.
- THTR:3203 (049:145) Computer Visualization** 3 s.h.
Creation of virtual design using Adobe Photoshop and Google SketchUp.
- THTR:3205 (049:157) Concepts in Drawing** 3-4 s.h.
Intermediate-level topics; observation, theory, media, form, content; emphasis on personal direction. Prerequisites: DRAW:2310 (01F:007). Same as DRAW:3310 (01F:105).
- THTR:3206 (049:158) Environmental Design I** 4 s.h.
Human interaction with the interior and exterior environment. Offered fall semesters of odd years. Prerequisites: TDSN:2210 (01T:021). Same as TDSN:3210 (01T:137).
- THTR:3208 (049:152) Mask and Puppet Crafts** 3 s.h.
Mask and puppet design; paper mache, plaster gauze, thermal plastics, and soft sculpture techniques.
- THTR:3210 (049:156) Makeup Design for the Stage** 3 s.h.
Same as DPA:3210 (188:156).
- THTR:3211 (049:141) Period Styles** 3 s.h.
Survey of design and motifs spanning history of western civilization through development of interior and exterior architecture, furniture, decorative themes, fashion, and fine art.
- THTR:3220 (049:046) Construction Technology for New Works** 3 s.h.
Production of scenic and prop elements for the Department of Theatre Arts annual Iowa New Play Festival; basic construction and painting skills in a lab environment; weekly design and production meetings to include each student in the entire production process; run crew assignments, projects.
- THTR:3221 (049:147) Technology for the Entertainment Industry** 3 s.h.
Introduction to technology skills that are at the center of the entertainment industry; programming and operating digital lighting and sound consoles, intelligent lighting systems, projection hardware and software; outdoor event rigging, metal construction, and fabrication. Same as DPA:3221 (188:147).
- THTR:3223 (049:149) Introduction to Lighting Technology** 3 s.h.
Training for a career as a touring or resident stage electrician in the entertainment industry; plot organization/shop orders, digital fixtures, power distribution, personal management, console configuration/control, and electrical troubleshooting/maintenance.
- THTR:3225 (049:159) Makeup Design: Body Art** 3 s.h.
Advanced techniques in stage makeup design and application through analysis of forms, research, and hands-on projects.
- THTR:3230 (049:134) Scene Design I** 3 s.h.
Development of theatre scenery; how to research, conceptualize, and express ideas in 3-D models, simple sketches, and drafting. Same as ARTS:3230 (01P:134).

- THTR:3240 (049:135) Costume Design I** 3 s.h.
Introduction to theatre costumes; how to conceptualize and express ideas through rendering and 3-D mannequin projects. May be taken after THTR:4240 (049:138).
- THTR:3250 (049:136) Lighting Design I** 3 s.h.
How to research, conceptualize, and express ideas through light plots, other design paperwork, and theatre lighting design projects.
- THTR:3260 (049:140) Sound Design for the Theatre** 3 s.h.
Introduction to digital sound recording and live sound reinforcement techniques for a variety of entertainment venues (theatre, dance, concerts, and industrial projects); creation of soundscapes using Pro Tools software; implementation of designs through the use of SFX/QLab playback systems; documentation of sound design for theatrical or realized production. Offered every other year.
- THTR:3270 (049:150) Entertainment Design** 3 s.h.
Introduction to entertainment design and technology; primary focus on contemporary approaches to design and delivery of content in entertainment industry; assignment of practical projects using media servers, projection, LED arrays, video editing software, and moving light technologies. Offered every other year.
- THTR:3876 (049:104) Video for Performance** 4 s.h.
Introduction to making video for use in a performance; how video can unlock new artistic possibilities for performance in theater, dance, and performing arts in general; focus on acquiring basic skills necessary to shoot and edit video, and project it during a performance; practices of animation, found or archival footage work, and live performance. No previous knowledge of cameras or editing equipment required. Same as CINE:3876 (048:136).
- THTR:4207 (049:142) Textile Science** 3 s.h.
Fiber, yarn, and fabric science; fabric painting, dyeing, and other laboratories. Same as SIED:4107 (097:107).
- THTR:4230 (049:137) Scene Design II** 3 s.h.
Design and execution of increasingly complex projects in a variety of formats, including perspective sketching, detailed drafting, and color models. Prerequisites: THTR:3230 (049:134).
- THTR:4240 (049:138) Costume Design II** 3 s.h.
Conceptual and analysis skills in costuming; fashion history and dress related to individual, cultural, and artistic expression. May be taken before THTR:3240 (049:135).
- THTR:4250 (049:139) Lighting Design II** 3 s.h.
Production styles and venues; skills developed through increasingly complex light plots, more precise paperwork. Prerequisites: THTR:2402 (049:060) and THTR:3250 (049:136).
- THTR:4270 (049:151) Scenic Art** 3 s.h.
Techniques in scenic art for the theatre; classical trompe l'oeil scene painting, sculpting with nontraditional materials, finishing. Offered every other year.
- THTR:5200 (049:235) Graduate Design Seminar** arr.
Graduate design in set, lighting, and costume design; teamwork; meetings with design faculty in specific disciplines; short-term projects in the theatre department; long-term projects, including summer design work, internships, and other professional opportunities during the three-year program and beyond. Prerequisites: THTR:4230 (049:137) or THTR:4240 (049:138) or THTR:4250 (049:139).
- THTR:5230 (049:237) Scene Design III** 3 s.h.
Complex assignments; documentation skills, scenic design preparation. Prerequisites: THTR:3230 (049:134) and THTR:4230 (049:137).
- THTR:5240 (049:238) Costume Design III** 3 s.h.
Advanced projects in costume design and portfolio development. Prerequisites: THTR:4240 (049:138).
- THTR:5250 (049:239) Lighting Design III** 3 s.h.
Advanced projects in venues such as dance, opera, industrials; preparation of lighting designs for production. Prerequisites: THTR:4250 (049:139).
- THTR:7260 (049:251) Internship in Design** 1-6 s.h.
Experience as designer or assistant designer with a professional theatre, dance, or opera company or with a professional design studio. Requirements: theatre design M.F.A. enrollment.
- ## Stage Management and Arts Management
- THTR:3501 (049:132) Stage Management I** 3 s.h.
Duties and procedures of stage management; focus on development of production from preparatory work through performance; role of stage manager in collaboration.
- THTR:3510 (049:109) Introduction to Arts Management** 3 s.h.
Nonprofit performing arts management and administrative principles; practical applications, trends in the field; focus on arts organizations and their key administrative positions. Same as INTD:3510 (145:109), DPA:3510 (188:109).
- THTR:3520 (049:111) New Ventures in the Arts** 3 s.h.
Arts administration principles and trends as applied to creation of an arts-related enterprise; case studies; students create business plan for a new arts organization. Duplicates ENTR:2000 (06T:120) and MGMT:3100 (06J:125). Corequisites: ENTR:1350 (06T:050), or ACCT:2100 (06A:001) and MKTG:3000 (06M:100). Same as ENTR:3520 (06T:125), INTD:3520 (145:111), DPA:3520 (188:111).

- THTR:3550 (049:162) Stage Management II** 3 s.h.
Duties and procedures of stage management; focus on development and understanding of leadership role of stage manager; examination of stage manager's role in a professional theatre; topics may include equity contracts and stage managing for opera. Prerequisites: THTR:3501 (049:132).
- THTR:4510 (049:195) Arts Leadership Seminar** 3 s.h.
Performing arts management and administrative principles, practical applications, trends in arts leadership and advocacy. Requirements: for THTR:4510 (049:195) — THTR:3510 (049:109) or THTR:3520 (049:111) or graduate standing in an arts discipline. Same as ENTR:4510 (06T:155), INTD:4510 (145:195), DPA:4510 (188:195).
- THTR:5500 (049:200) Stage Management: Special Topics** 3 s.h.
Topics in stage management, arts production, and their professional practice. Requirements: admission to M.F.A. stage management program.
- THTR:5510 (049:249) Production Management** 3 s.h.
Organization and supervision of theatre productions; resources, procedures for successfully mounting a theatre production or season; personnel, equipment, facility and budget management, scheduling, communication. Requirements: stage management M.F.A. enrollment.
- THTR:6500 (049:233) Stage Management Seminar** 1-2 s.h.
Practice and techniques of stage management. Requirements: graduate stage management major.
- Playwriting**
- THTR:3300 (049:165) Advanced Playwriting** 3 s.h.
Continuation of THTR:3301 (049:155); original student writing, extensive rewriting; may focus on specific style, genre, or approach. Prerequisites: THTR:3301 (049:155).
- THTR:3301 (049:155) Playwriting II** 3 s.h.
Application of fundamental skills learned in THTR:2301 (049:062) to more advanced study of dramatic structure and style; reading of plays, weekly writing assignments; focus on writing one-act play. Prerequisites: THTR:2301 (049:062).
- THTR:3310 (049:169) Undergraduate Playwriting Workshop** 1-3 s.h.
Workshop discussion of original full-length plays, collaborative creation of new plays, work with guest artists. Prerequisites: THTR:2301 (049:062) and THTR:3301 (049:155). Requirements: submission of writing sample.
- THTR:3320 (049:168) Writing for Film/Television** 3 s.h.
Rigorous introduction to writing for film and/or television; focus on one medium; for students with experience in dramatic writing. Requirements: completion of at least 60 s.h. or graduate standing.
- THTR:3403 (049:182) Free Style Writing: Poetry, Plays, and Performances** 3 s.h.
Creative writing lab experience in reading, writing, and performing poetry and short plays; expansion of students' horizons of the self; arc of innovation in African American literature from Harlem Renaissance to present, with texts from Langston Hughes and Zora Neale Hurston to Saul Williams and Jill Scott; role of the artist in society and as outsider and insider; shifting perspectives on race, gender, class; musical influences and models, from blues to house music; sensuality, spirituality; artistic reflections on the cultural moment; effects of these on literary form and performance style; students create and perform a work for an audience. Same as AFAM:3840 (129:182).
- THTR:5300 (049:272) The Collaborative Process** 3 s.h.
Development of new plays, collaboratively created works.
- THTR:5600 (049:271) Orientation to Graduate Studies** 1-2 s.h.
Requirements: theatre arts M.F.A. enrollment.
- THTR:5610 (049:275) Collaborative Performance** 1-4 s.h.
Collaborative experience with advanced artists from varied disciplines that culminates in a final performance; emphasis on sharing and investigating ideas, artistic intent, personal vision, and creating collaborative projects. Same as DANC:5550 (137:275), DPA:5550 (188:275).
- THTR:6300 (049:173) Guest Seminar** arr.
- THTR:6310 (049:270) Special Topics in Playwriting** 3 s.h.
- THTR:7300 (049:269) Playwrights Workshop** 3 s.h.
Development of works by Iowa Playwrights Workshop members. Requirements: playwriting or dramaturgy M.F.A. enrollment.
- Dramatic Literature, Theory, and Dramaturgy**
- THTR:3180 (049:174) Topics in Digital Media** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3180 (008:173).
- THTR:3276 (049:181) Medieval Drama** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as ENGL:3276 (008:144).
- THTR:3277 (049:184) English Renaissance Drama** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as ENGL:3277 (008:145).

- THTR:3287 (049:072) Shakespeare** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as ENGL:3287 (008:147).
- THTR:3410 (049:190) African American Theatre I** 3 s.h.
Works by African American playwrights and relevant historical documents, Africa through Black Renaissance; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as AFAM:3810 (129:175).
- THTR:3411 (049:191) African American Theatre II** 3 s.h.
Works by African American playwrights and relevant historical documents, Black Renaissance to present; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as AFAM:3811 (129:191).
- THTR:3415 (049:185) Cultural Diversity and Identity** 3 s.h.
Nature of personal and cultural identity within a pluralistic society; race, ethnicity, national identity, class, sexuality, and gender as categories of cultural difference. Same as GWSS:3415 (131:183).
- THTR:3420 (049:188) Sex and Gender in Performance** 3 s.h.
Relationship between sex and gender in the performing body across a range of public venues, including stage, film, athletic events, and social spaces; articles, texts, plays, films, television, and videos; attendance at live performances of theatre, sports, and other events scheduled in the University and local community; discussion format. Same as GWSS:3420 (131:187).
- THTR:3440 (049:117) American Drama Since 1900** 3 s.h.
American playwrights and plays after 1900. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th/21st-Century Literature. Same as ENGL:3440 (008:197).
- THTR:3462 (049:186) African American Drama** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:3462 (008:186), AFAM:3462 (129:186).
- THTR:4401 (049:118) American Women Playwrights: 1776-Present** 3 s.h.
How women in the United States have expressed themselves in theatre since 1776; diversity of voices in works by African American, Asian American, Latina, Native American, European American, lesbian playwrights; female-authored drama and production in relation to concurrent male-authored traditions and socioeconomic, political, cultural phenomena. Same as AMST:4401 (045:118).
- THTR:4402 (049:119) Dramas of the Spirit** 3 s.h.
Western and nonwestern dramatic texts that enact or describe journeys of the human spirit; textual analysis, investigation of the notion of spirit and its relation to dramatic form. Prerequisites: THTR:2402 (049:060), THTR:2410 (049:112), and THTR:2411 (049:113).
- THTR:4403 (049:193) Studies in Drama** 3 s.h.
Exploration of a specific period of dramatic literature, or the work of specific authors, or dramatic principles central to playwrighting.
- THTR:4410 (049:164) Shakespeare the Dramatist** 3 s.h.
Exploration of a number of Shakespeare's greatest works; close textual analysis supplemented with historical, theoretical, theatrical, and philosophical considerations; special attention given to Shakespeare's dramatic method and relation of his dramaturgy to profession of theater-making.
- THTR:4413 (049:183) Black Feminist Tradition and Culture** 3 s.h.
Survey of selected theoretical texts that chronicle shifting perspectives on feminism; comparative interdisciplinary survey of artistic works that reflect such perspectives. Same as AFAM:4500 (129:183).
- THTR:4420 (049:116) Dramatic Theory** 3 s.h.
Theoretical questions of interest to dramatists and philosophers in western and nonwestern traditions; metaphysics of play; theories of character, psyche, self; narrative and nonnarrative dramatic forms. Prerequisites: THTR:2402 (049:060), THTR:2410 (049:112), and THTR:2411 (049:113).
- THTR:4421 (049:194) Dramaturgy** 3 s.h.
Theory, practice: history in Europe and the United States; relationship to dramatic criticism; practical experience in critical writing, play analysis, dramaturgical research, conceptualization of productions; evaluation, advocacy, and development of new plays; audience relations and education. Requirements: THTR:2402 (049:060).
- THTR:5420 (049:210) Dramaturgy Practicum** arr.
Exploration of theoretical, creative, and practical issues that arise in working dramaturgically on both established and new plays, and in a variety of collaborative processes; practical dramaturgical exercises in script reporting, dramaturgical research, educational programming, season planning, production documentation, and writing of critical and dramaturgical essays for a general audience. Requirements: admission to M.F.A. dramaturgy program.
- THTR:6400 (049:215) Classical to Romantic Theatre** 3 s.h.

Representative plays from the Classical to the Romantic periods—in historical context of their original productions, contemporary production potential. Requirements: theatre arts M.F.A. enrollment.

THTR:6401 (049:216) Modern Drama 3 s.h.

Questions of dramatic form and content examined in-depth through close readings of modern plays.

THTR:6402 (049:217) Postmodern Theatre 3 s.h.

Diverse postmodern traditions; emphasis on questions of relation of text.

THTR:6403 (049:213) Shakespeare 3 s.h.

Same as ENGL:6220 (008:253).

THTR:6420 (049:294) Dramaturgy Seminar 3 s.h.

Dramatic history, literature, and dramaturgy topics of interest to M.F.A. candidates. Requirements: dramaturgy M.F.A. enrollment.

Workshops, Performances, Special Studies

THTR:4630 (049:177) London Performance Study 3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:4172 (008:128).

THTR:4690 (049:172) Senior Seminar 3 s.h.

Theatre arts capstone seminar; how personal aesthetic relates one's work to great theatrical visionaries of the past and present-day practitioners; research culminating in a collaborative theatre piece. Requirements: senior standing and theatre arts major.

THTR:4691 (049:196) Projects in Theatre arr.

THTR:4692 (049:197) Honors Theatre Arts arr.

Development and production of a new work for film or television by writers, directors, actors.

THTR:4693 (049:199) Independent Study arr.

THTR:4694 (049:115) Design: Special Topics 1-3 s.h.

Specialized study in a specific aspect or theory of theatrical design.

THTR:4695 (049:198) Performance Practicum 1-2 s.h.

Act in a faculty-directed production produced by the Department of Theatre Arts.

THTR:6510 (049:234) Internship in Stage Management 1-6 s.h.

Experience as stage manager or assistant stage manager with a professional theatre, dance, or opera company. Requirements: stage management M.F.A. enrollment.

THTR:6691 (049:296) Projects in Theatre Advanced arr.

Create a special project under the mentorship of a faculty member; projects may include performing in a main stage production, writing, directing, or designing a play performed in the department, developing a research project that intersects production.

THTR:7601 (049:298) M.F.A. Thesis 0-3 s.h.

Work related to M.F.A. thesis projects in theatre arts.

Translation

Director, Division of World Languages, Literatures, and Cultures

- Russell Ganim

Director, Translation Program

- Maureen Robertson (Asian and Slavic Languages and Literatures)

Graduate degree: M.F.A. in comparative literature—translation

Web site: <http://clas.uiowa.edu/dwllc/mfa-literary-translation>

Translation has been an integral part of the curriculum and conversation about writing at The University of Iowa for more than 40 years. The Translation Program is committed to the idea that translation is much more than carrying a work from one language to another; it also involves the linguistic, aesthetic, and ideological dimensions of works as well as the literary, cultural, and historical contexts from which those works arise.

The Translation Program enjoys close relationships with the University's program in comparative literature; M.F.A. programs in creative writing (fiction and poetry), nonfiction writing, and playwriting; and the International Writing Program. Faculty members from departments in the Division of World Languages, Literatures, and Cultures provide resources for the Translation Program and often serve as language mentors and committee members for M.F.A. students in translation.

Graduates of the program have gone on to work in the world of professional publishing as editors and reviewers or as free-lance translators; to become university professors after earning a Ph.D.; and to pursue other careers involving cross-cultural and artistic exchange. In recent years, publishers of works by Translation Program alumni have included Greywolf, Seven Stories, Autumn Hill Books, Melville House, Word Without Borders, The Iowa Review, 91st Meridian, TWO LINES Online, Circumference, The Literary Review, Passport, Absinthe, and others.

Graduate Program of Study

- Master of Fine Arts in comparative literature—translation

Master of Fine Arts

The Master of Fine Arts program in comparative literature—translation requires 48 s.h. of graduate credit, including a thesis. Students typically complete the program and graduate in two to three years.

Translators in the program focus on creating works that can convey the timelessness of the classics or the immediacy of new poetry, fiction, and drama. Students consider ideas of literariness, style, cultural politics, authority, and how these come into play in the relationships between authors and their texts, authors and translators, translations and readers, and in the media landscapes in which these all circulate.

The core of the M.F.A. program is TRNS:7460 (218:260) Translation Workshop, which every student must take at least four times (minimum of 16 s.h. of credit). Depth in the literature and culture of the source language, creative

writing (translation is considered a writing art), translation theory and history, and contemporary literary theory are basic curricular requirements, supplemented with elective courses in which students may develop an area of special interest in consultation with their advisors.

During the first year, each student has an advisory committee of two faculty members: one from the translation program, who is the student's primary advisor; and one from comparative literature, or from one of the M.F.A. writing programs, or from a department in the Division of World Languages, Literatures, and Cultures. A third member joins the committee during the second year, when the student submits his or her thesis proposal. At least one member of the committee should be competent in the student's source language.

The M.F.A. in comparative literature—translation requires the following work.

REQUIRED COURSES

Students complete all of these (37 s.h.):

TRNS:6459 (218:259) Issues in Translation	3 s.h.
TRNS:7460 (218:260) Translation Workshop (taken at least four times)	16 s.h.
Courses in literature and culture of the source language	9 s.h.
Courses in contemporary literary theory (chosen in consultation with advisor)	3 s.h.
Courses in creative writing (chosen in consultation with advisor)	6 s.h.

ELECTIVES

Students earn 5-8 s.h. from these:

TRNS:3480 (218:180) Literature and Translation	3 s.h.
TRNS:4497 (218:197) Techniques of Translation	3 s.h.
TRNS:5205 (218:205) International Translation Workshop	1-3 s.h.
TRNS:5491 (218:291) Translation Internship	1-2 s.h.
Independent study course(s)	arr.
Book arts course(s) offered by the Center for the Book (prefix UICB)	arr.

THESIS AND EXAMINATION

Students earn 3-6 s.h. for the thesis, which is a translated collection of poems, literary essays, short stories, a short novel, or a drama with an introduction that sets the work in appropriate context. The introduction should include a critical discussion of issues and problems related to the translation; it should present a rationale for the translator's approach and strategies, based on interpretation, analysis of the leading features, structure, style, or authorial objectives of the source text. The source text should be a work that has not been translated previously or, at the discretion of the advisory committee, a work whose previous translation is judged to be outdated or inadequate in some respect. An oral defense of the thesis examines the student's translation and the introductory essay in detail.

Admission

Applicants to the M.F.A. program are evaluated mainly on a writing portfolio. The portfolio should include translations,

including source texts, and an original critical literary essay or literary writing in English; a statement of purpose; and three letters of recommendation. Applicants should provide evidence of advanced competence in their source language—normally at least three years of college-level work or the equivalent—and substantial preparation in English literature. Availability of faculty expertise in the applicant's source language and culture is considered in admission decisions.

All applicants must submit their scores on the Graduate Record Examination (GRE) General Test and transcripts from previous college-level study. Individuals whose first language is not English should provide scores on the Test of English as a Foreign Language (TOEFL).

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

The program nominates up to two newly admitted, qualified students for the Iowa Arts Fellowship, a full-support fellowship awarded by the Graduate College each year. In addition, qualified students may receive teaching assistantships or part-time graduate assistantships. Students must apply for assistantships and other support; contact the Translation Program and the Office of Student Financial Aid for information.

Resources

Student translators in the M.F.A. program publish exchanges: a journal of literary translation. A vibrant source of international writing in translation, the journal provides hands-on editing and online publishing experience as well as an occasional venue for the editors' own works. The M.F.A. program regularly hosts and cohosts conferences, invites speakers from around the world for readings and short-term residences, and is a constituent unit of the Virtual Writing University.

Courses

The Translation Program offers courses for undergraduates as well as graduate students. See "Courses" in the Division of World Languages, Literatures, and Cultures (p. 235) section of the Catalog for course descriptions and prerequisites for enrollment.

TRNS:1017 (218:017) Workshop in Literary Magazine Publishing	2 s.h.
TRNS:1018 (218:018) Workshop in Literary Review Writing	2 s.h.
TRNS:2179 (218:079) Undergraduate Translation Workshop	3 s.h.
TRNS:2499 (218:078) Undergraduate Translation Seminar	3 s.h.
TRNS:3201 (218:130) Workshop in Japanese Literary Translation	3 s.h.
TRNS:3202 (218:131) Workshop in Chinese Literary Translation	3 s.h.
TRNS:3480 (218:180) Literature and Translation	3 s.h.
TRNS:4481 (218:181) Introduction to Computer-Assisted Translation	1 s.h.

TRNS:4497 (218:197) Techniques of Translation	3 s.h.
TRNS:5205 (218:205) International Translation Workshop	1-3 s.h.
TRNS:5491 (218:291) Translation Internship	arr.
TRNS:6459 (218:259) Issues in Translation	3 s.h.
TRNS:7460 (218:260) Translation Workshop	4 s.h.

Writing

Director

- Helena Dettmer

Associate director

- Daniel Khalastchi

Undergraduate certificate: writing

Web site: <http://magidcenter.uiowa.edu/about>

The University of Iowa is known nationally and internationally for its writing programs, particularly for its top-ranked Master of Fine Arts programs in creative writing (p. 219) (Iowa Writers' Workshop) and nonfiction writing (p. 252) (Department of English). It also offers a creative writing track for undergraduate English (p. 252) majors and numerous discipline-based programs that emphasize writing. Several of the University's colleges have their own writing centers.

The undergraduate Certificate in Writing enables students in all majors to benefit from the University's wide-ranging writing programs and resources by pursuing a concentration in writing related to their majors, their career goals, or their personal interests.

The Certificate in Writing is administered by the College of Liberal Arts and Sciences (p. 22).

Learn more about the University's wealth of writing resources by visiting The Writing University web site, and read about the University's central role in Iowa City's designation as a UNESCO City of Literature.

Undergraduate Program of Study

- Certificate in Writing

Certificate in Writing students explore writing and develop their own writing skills in a wide range of genres and for varied purposes, including creative writing (fiction, nonfiction, poetry); writing for the professions, such as the arts, business, journalism, or science; writing for organizations; and writing related to personal interests.

Certificate

The Certificate in Writing requires a minimum of 21 s.h. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

Students who complete the certificate develop:

- skill in planning and using strategies that help them start to write and overcome obstacles to writing, obtain feedback from other writers, revise their work, and present their writing in public venues;
- skills in the craft of writing, such as the ability to write clearly and concisely, control of mechanics and style, and the ability to communicate with particular audiences for specific purposes; and
- competence in discussing writing.

Course work for the certificate includes a minimum of 11 s.h. in core courses, a minimum of 9 s.h. in focused

electives, and a minimum of 1 s.h. in a capstone independent study course that results in a project and/or portfolio of work. Students may count a maximum of 6 s.h. earned for a major, a minor, or another certificate toward the Certificate in Writing.

Certificate students participate as members of a writing community through activities such as attending readings and lectures; presenting their own work in public; working with professional journals, newspapers, or other publications; and repeated registrations in WRIT:1500 (220:020) Writing Commons: A Community of Writers.

The Certificate in Writing requires the following work.

CORE COURSES

Students earn a minimum of 11 s.h. in core courses.

All students complete this core course:

WRIT:1500 (220:020) Writing Commons: A Community of Writers	2 s.h.
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Students complete the remaining core course requirement with courses from the following lists:

WRIT:1600 (220:030) Fast Fixes: Improving Your Writing in Six Short Weeks (repeated three times with different subtitles to count as one core course)	1 s.h.
CNW:3632 (08N:102) Prose Style	3 s.h.
CW:4745 (08C:145) The Sentence: Strategies for Writing	3 s.h.
CW:4760 (08C:160) The Art of Revision: Rewriting Prose for Clarity and Impact	3 s.h.
LING:1003 (103:028) English Grammar	3 s.h.
LING:3080 (103:131) History of the English Language	3 s.h.

May include one of these:

CLSA:1740 (20E:040) Writing Strategies: Word Origins and Word Choice	3 s.h.
CLSA:3742 (20E:142) Word Power: Building English Vocabulary	3 s.h.
LING:1030 (103:035) English Words	3 s.h.

FOCUSED ELECTIVES

Students earn a total of at least 9 s.h. in focused electives, which they select from courses in at least two of the following categories (maximum of 6 s.h. from any one category).

- Writing for the professions
- Writing and the literary arts
- Writing and the media
- Writing in context
- Student-designated writing-intensive courses

Each focused elective course may be used to fulfill only one certificate requirement, even if the course is listed in more than one category below. Some of these courses have prerequisites and other requirements for registration; students must complete a course's prerequisites and meet its registration requirements before they may register for the course.

Writing for the Professions

Art

ARTH:1080 (01H:007) Writing About the Visual Arts 3 s.h.

ARTS:3400 (01P:185) Grant Writing in the Arts 3 s.h.

Book Arts

UICB:2100 (108:102) Creative Writing for Book Arts 3 s.h.

Business

BUS:3000 (06B:100) Business Communication and Protocol 3 s.h.

BUS:3800 (06B:140) Business Writing 3 s.h.

Business may include one of these:

CNW:3640 (08N:113) Writing for Business and Industry 3 s.h.

ENNM:3640 (08A:113) Writing for Business and Industry for Non-English Majors 3 s.h.

Journalism

CNW:2780 (08N:089) The Art and Craft of Writing About Sports 3 s.h.

CNW:2830 (08N:095) The Art and Craft of Immersion Journalism 3 s.h.

JMC:2010 (019:098) Journalistic Reporting and Writing 4 s.h.

JMC:3405 (019:121) Depth Reporting and Writing 4 s.h.

JMC:3412 (019:124) Strategic Communication Writing 4 s.h.

JMC:3415 (019:128) Writing Across Cultures 4 s.h.

JMC:3450 (019:125) Freelance Reporting and Writing 4 s.h.

JMC:3460 (019:126) Arts and Culture Reporting and Writing 4 s.h.

JMC:3470 (019:127) Narrative Journalism 4 s.h.

SPAN:3020 (035:119) Journalistic Writing in Spanish 3 s.h.

Literature, Language, and Translation

SPAN:3060 (035:120) Introductory Workshop on Creative Writing in Spanish 3 s.h.

SPAN:4950 (035:196) Advanced Workshop on Creative Writing in Spanish 3 s.h.

TRNS:2179 (218:079)/ENGL:2810 (08W:079) Undergraduate Translation Workshop 3 s.h.

TRNS:2499 (218:078) Undergraduate Translation Seminar 3 s.h.

TRNS:3480 (218:180)/SLAV:3480 (041:180)/PORO:3480 (160:180) Literature and Translation 3 s.h.

Political Science

POLI:3107 (030:104) Writing in Political Science: Writing for "Science" and for "Politics" 3 s.h.

Sciences

WRIT:3200 (220:130) Writing for the Earth and Environmental Sciences 3 s.h.

CHEM:4261 (004:161)/WRIT:3261 (220:161) Selected Topics in Chemistry (with subtitle Writing for Chemical and Biochemical Sciences only) 1-3 s.h.

CNW:2730 (08N:084) The Art and Craft of Science Writing 3 s.h.

Undergraduate Research

BUS:3999 (06B:194)/ECON:3999 (06E:194) Honors Seminar 1-3 s.h.

BUS:4999 (06B:195) Honors Thesis in Business 3 s.h.

HONR:3400 (143:044) Honors Writing Workshop 1-3 s.h.

An undergraduate thesis related to any undergraduate discipline

Writing and the Literary Arts

Creative Writing

CW:3107 (08C:107)/INTD:3107 (145:107) Creative Writing for the Health Professions 3 s.h.

CW:3215 (08C:115)/INTD:3300 (145:115) Creative Writing and Popular Culture 3 s.h.

CW:3218 (08C:108)/INTD:3200 (145:108) Creative Writing for New Media 3 s.h.

CW:4751 (08C:151) Creative Writing for the Musician 3 s.h.

CW:4894 (08C:195) Undergraduate Project in Creative Writing arr.

Creative writing may include one of these:

CW:1800 (08C:001) Creative Writing Studio Workshop 3 s.h.

CW:2100 (08C:023) Creative Writing 3 s.h.

Creative writing may include one of these:

INTD:3001 (145:101)/CW:3001 (08C:101) Creative Writing for Business 3 s.h.

INTD:3005 (145:105)/CW:3005 (08C:105) Professional and Creative Business Communication 3 s.h.

Fiction

CW:2870 (08C:097) Fiction Writing 3 s.h.

CW:4870 (08C:163) Undergraduate Writers' Workshop: Fiction arr.

Nonfiction

CNW:1620 (08N:020) Introduction to Creative Nonfiction 3 s.h.

CNW:2680 (08N:080) The Art and Craft of Creative Nonfiction 3 s.h.

CNW:2690 (08N:090) The Art and Craft of Writing About Business 3 s.h.

CNW:2700 (08N:081) The Art and Craft of Personal Writing 3 s.h.

CNW:2790 (08N:091) The Art and Craft of Humor Writing 3 s.h.

CNW:2810 (08N:093) The Art and Craft of Writing with Emotion 3 s.h.

CNW:3630 (08N:120) Advanced Nonfiction Writing 3 s.h.

CNW:3662 (08N:147) Graphic Writing 3 s.h.

CNW:4631 (08N:150) Undergraduate Essay Workshop 3 s.h.

CNW:4690 (08N:199) Undergraduate Project in Nonfiction Writing arr.

ENNM:2100 (08A:080) Nonfiction Writing for Non-English Majors	3 s.h.
ENNM:3633 (08A:104) Personal Writing for Non-English Majors	3 s.h.

Playwriting

THTR:2301 (049:062) Playwriting I	3 s.h.
THTR:3301 (049:155) Playwriting II	3 s.h.
THTR:3403 (049:182)/AFAM:3840 (129:182) Free Style Writing: Poetry, Plays, and Performances	3 s.h.
THTR:3421 (049:114)/GWSS:3421 (131:114) Performing Autobiography	3 s.h.

Poetry

CW:2875 (08C:098) Poetry Writing	3 s.h.
CW:4875 (08C:166) Undergraduate Writers' Workshop: Poetry	arr.

Writing and the Media

Cinema

CINE:2867 (048:067) Screenwriting: Long Form	3 s.h.
CINE:3877 (048:125) Screenwriting: Short Form	4 s.h.
CINE:4836 (048:127) Advanced Screenwriting	4 s.h.
CNW:3661 (08N:146) Film and Writing	3 s.h.

Other Media

CL:1019 (218:019) Media Matters	3 s.h.
CNW:2770 (08N:088) The Art and Craft of Writing for New Media	3 s.h.
CNW:3660 (08N:145) Multimedia Writing	3 s.h.
CNW:3663 (08N:148) Radio and Writing	3 s.h.
CW:3218 (08C:108)/INTD:3200 (145:108) Creative Writing for New Media	3 s.h.
JMC:3600 (019:130) Topics in Media Production	4 s.h.

Writing in Context

Students select from the following courses. They also may select internships, service learning opportunities, or other relevant experiences offered through the Pomerantz Career Center or other University units. All selections, except the courses listed below, must have prior approval of the certificate coordinator in the student's own undergraduate college.

WRIT:3100 (220:120) Writing with Purpose: Arts Outreach and Reflection with the Iowa Youth Writing Project	3 s.h.
WRIT:3900 (220:175) Writing: Undergraduate Internship	1-3 s.h.
ABRD:3566 (165:914) Overseas Writing Workshop	3 s.h.
CNW:2710 (08N:082) The Art and Craft of Food Writing	3 s.h.
CNW:2720 (08N:083) The Art and Craft of Writing About Culture	3 s.h.
CNW:2740 (08N:085) The Art and Craft of Writing about the Environment	3 s.h.
CNW:2760 (08N:087) The Art and Craft of Writing for Social Change	3 s.h.

CNW:2800 (08N:092) The Art and Craft of Writing Across Genres	3 s.h.
CNW:3644 (08N:192) Dublin Writing Workshop	3 s.h.
CW:3107 (08C:107)/INTD:3107 (145:107) Creative Writing for the Health Professions	3 s.h.
CW:3215 (08C:115)/INTD:3300 (145:115) Creative Writing and Popular Culture	3 s.h.
CW:4751 (08C:151) Creative Writing for the Musician	3 s.h.
EDTL:4355 (07S:155)/CNW:4355 (08N:141) Approaches to Teaching Writing	3 s.h.
HONR:3220 (143:102) Honors Writing Fellows: Writing Theory and Practice	3 s.h.
INTD:3001 (145:101)/CW:3001 (08C:101) Creative Writing for Business	3 s.h.
IWP:3191 (181:191)/ENGL:3595 (008:191)/WLLC:3191 (218:191) International Literature Today	1, 3 s.h.
UICB:2100 (108:102) Creative Writing for Book Arts	3 s.h.

Student-Designated Writing-Intensive Courses

Students may request permission to count a maximum of 3 s.h. earned in a course of their choice numbered 3000 or above as credit toward the focused elective requirement. They propose a writing-related project that extends the writing focus of their chosen course. They must have the approval of the faculty member teaching the course and of the writing certificate coordinator in their own undergraduate college.

CAPSTONE: INDEPENDENT WRITING PROJECT

Each student must earn at least 1 s.h. in an independent writing project course that serves as a capstone experience and results in a substantial project and/or portfolio of the student's own writing. Students must have a faculty sponsor for the independent writing project and must register for the course.

WRIT:4000 (220:180) Writing: Independent Project	1-3 s.h.
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Courses

WRIT:1500 (220:020) Writing Commons: A Community of Writers

1-3 s.h.
Exploration of the art and craft of writing, including fiction, nonfiction, poetry, scientific and technical writing, and other genres of professional writing (i.e., grants, proposals, scripts, treatments); readings and discussion of work by published writers; readings by visiting authors; workshop format.

WRIT:1600 (220:030) Fast Fixes: Improving Your Writing in Six Short Weeks

1 s.h.
Common writing problems.

WRIT:3100 (220:120) Writing with Purpose: Arts Outreach and Reflection with the Iowa Youth Writing Project

arr.

Creation of lesson plans, direct activities, and production of a group publication for an after-school creative writing program at a local Iowa City elementary school; experiential learning techniques, service opportunities, and written reflection; on-site service with after-school program, service experience reflected through workshops; readings about writing, teaching, outreach, empathy, and relationships between life of the mind and communal life draw from interdisciplinary perspectives.

WRIT:3200 (220:130) Writing for the Earth and Environmental Sciences 3 s.h.

Practical methods of content creation across curriculum; effective communication to lay and academic audiences; methods of planning, drafting, revising, and editing everything from general articles of interest to scientific papers.

WRIT:3261 (220:161) Selected Topics in Chemistry 1-3 s.h.

Prerequisites: CHEM:2210 (004:121) or CHEM:2230 (004:123). Same as CHEM:4261 (004:161).

WRIT:3900 (220:175) Writing: Undergraduate Internship 1-3 s.h.

Professional and/or creative experience; students arrange faculty-approved internship. Requirements: undergraduate standing and minimum of 24 s.h. of course work with at least 12 s.h. in University of Iowa courses.

WRIT:4000 (220:180) Writing: Independent Project 1-3 s.h.

Completion of writing capstone requirement for the Certificate in Writing. Requirements: junior or higher standing.

Tippie College of Business

Dean

- Sarah Fisher Gardial

Senior associate dean

- Kurt M. Anstreicher

Associate dean, School of Management

- David W. Frasier

Associate dean, undergraduate programs

- Kenneth G. Brown

Undergraduate major: B.B.A.

Undergraduate minor: business administration

Undergraduate certificates: entrepreneurial management; international business; risk management and insurance

Graduate degrees: M.Ac.; M.B.A.; Ph.D.

Web site: <http://tippie.uiowa.edu/>

The Henry B. Tippie College of Business is composed of six academic departments: accounting, economics, finance, management and organizations, management sciences, and marketing.

The college's undergraduate and graduate programs are accredited by AACSB International—the Association to Advance Collegiate Schools of Business.

Research, executive development, and education activities are supported by the centers and institutes of the college: Emmett J. Vaughan Institute of Risk Management and Insurance, Entrepreneurial Management Institute, Hawkinson Institute of Business Finance, Institute for International Business, Iowa Electronic Markets Institute, John Pappajohn Entrepreneurial Center, Judith R. Frank Business Communications Center, Marketing Institute, Pomerantz Career Center, McGladrey Institute of Accounting Education and Research, Small Business Development Center, and Tippie Business Solutions Center.

HONOR CODE

Integrity and honesty are essential to success in all facets of life. The purpose of the Tippie College Undergraduate Honor Code and the Full-Time M.B.A. Honor Code is to promote honorable and ethical behavior. Students admitted to the college or enrolled in courses offered by the college are required to uphold the honor code.

Undergraduate Programs of Study

The Tippie College of Business offers the Bachelor of Business Administration (B.B.A.) with majors in accounting, business analytics and information systems, economics, finance, management (includes a distance education option), and marketing, and it collaborates with the College of Liberal Arts and Sciences to offer an undergraduate major in economics for Bachelor of Arts and Bachelor of Science students in economics. See Bachelor of Business Administration (p. 670) for information about B.B.A. requirements common to all of the majors as well as admission and academic rules and procedures for the B.B.A.; see the Tippie College of Business department

sections in the Catalog for information about the individual majors. The college also offers joint undergraduate degrees with the College of Engineering and the College of Liberal Arts and Sciences; see "Joint Degrees" in the Bachelor of Business Administration section.

The college offers the undergraduate Certificate in Entrepreneurial Management (p. 693) and Certificate in Risk Management and Insurance (p. 721). It collaborates with the College of Engineering to offer the Certificate in Technological Entrepreneurship (p. 937) and with the College of Liberal Arts and Sciences to offer the Certificate in International Business (p. 420). The John Pappajohn Entrepreneurial Center collaborates with the College of Liberal Arts and Sciences to offer the Certificate in Performing Arts Entrepreneurship (p. 512).

The college also offers a minor in business administration for non-business students; see "Minor" below.

Minor

The minor in business administration is open to all University of Iowa undergraduates except those majoring in business (Tippie College of Business) and interdepartmental studies majors in the business studies track (College of Liberal Arts and Sciences).

The minor in business administration requires 36 s.h., including at least 12 s.h. taken in the Tippie College of Business. Students must maintain a g.p.a. of at least 2.00 in the minor overall and in all courses in the minor taken at The University of Iowa. Course work in the minor may not be taken pass/nonpass.

The following courses, or their equivalents, satisfy all requirements for the minor. Some of these courses have prerequisites and other requirements for registration; students must complete a course's prerequisites and meet its registration requirements before they may register for the course.

ACCT:2100 (06A:001) Introduction to Financial Accounting	3 s.h.
ACCT:2200 (06A:002) Managerial Accounting	3 s.h.
ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
FIN:3000 (06F:100) Introductory Financial Management	3 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
MGMT:2000 (06J:047) Introduction to Law	3 s.h.
MGMT:2100 (06J:048) Introduction to Management	3 s.h.
MKTG:3000 (06M:100) Introduction to Marketing Strategy	3 s.h.
MSCI:1500 (06K:050) Business Computing Essentials	2 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.

Students who will have completed all requirements for the minor when they graduate should indicate a business administration minor on the Application for Degree. Contact the Undergraduate Program Office for more information about the business administration minor.

Graduate Programs of Study

The Tippie College of Business offers four graduate degree programs: the Master of Accountancy (M.Ac.), the Master of Business Administration (M.B.A.), the Doctor of Philosophy (Ph.D.) in business administration, and the Doctor of Philosophy in economics. For information about the M.Ac. and the Ph.D. in economics, see Accounting (p. 663) and Economics (p. 680) in the Catalog.

The M.B.A. program is offered by the Tippie School of Management; see Master of Business Administration Program (p. 715) in the Catalog.

For a description of the Ph.D. in business administration, see Doctor of Philosophy (p. 679) in the Catalog.

The Ph.D. is an interdepartmental degree; programs leading to the degree are offered by the Departments of Accounting (p. 663), Finance (p. 697), Management and Organizations (p. 702), Management Sciences (p. 707), and Marketing (p. 711).

Study Abroad

The Consortium of Universities for International Studies (CUIS) and the Consortium Institute of Management and Business Analysis (CIMBA) offer semester and summer programs for undergraduates and graduate students at Paderno del Grappa, Italy, northwest of Venice. Students and faculty in the programs come from a variety of public and private universities worldwide.

CUIS and CIMBA programs encourage personal growth through intense international academic experiences that focus on developing an appreciation for diversity in culture and perspective. Rigorous, high-quality courses emphasize current international events and leadership and are taught in English. Students are encouraged to study the Italian language and to participate in executive lectures, plant tours, and unique personal development opportunities.

Centers and Institutes

Emmett J. Vaughan Institute of Risk Management and Insurance

The Tippie College of Business, in partnership with the Iowa insurance industry, has established the Emmett J. Vaughan Institute of Risk Management and Insurance to provide innovative education and research in modern risk management and insurance.

The institute collaborates with the Department of Finance to offer the Certificate in Risk Management and Insurance. The certificate program provides undergraduate students with a foundation for careers in corporate risk management, risk management consulting, employee benefits management, insurance brokerage, underwriting, personal banking and asset management, financial analysis, claims adjustment, and auditing. See Risk Management and Insurance (p. 721) in the Catalog.

Entrepreneurial Management Institute

The Entrepreneurial Management Institute works with top entrepreneurial management track students in the B.B.A. management major and with Certificate in Entrepreneurial Management students to help them develop career advancement skills. Experienced business professionals and entrepreneurial leaders provide strategic career development training. Activities include seminars on

developing professional résumés, creating extensive personal networks, networking with successful Iowa CEOs and business leaders, and making connections for internships and job placement.

Hawkinson Institute of Business Finance

The Hawkinson Institute of Business Finance facilitates career opportunities in investment banking, sales and trading, and related areas for students in the Tippie College of Business. The institute sponsors the Hawkinson Scholars Program, which trains high-achieving undergraduates for interviews, internships, and full-time jobs in the financial services industry. Criteria for admission to the institute include a strong academic record, involvement in campus and community activities, high motivation, good interpersonal skills, and demonstrated interest in business, markets, and corporate finance.

Hawkinson scholars participate in a class that is taught by former investment bankers and features guest speakers from investment banking, private equity, hedge funds, start-ups, and other sectors. Hawkinson scholars also receive intensive education in equity valuation, financial market dynamics, and more. An extensive network of dedicated Hawkinson alumni serve as mentors.

The Institute has worked to broaden entry-level employment opportunities for Iowa graduates, who land jobs at prestigious firms such as Goldman Sachs, Credit Suisse, Barclays, Merrill Lynch, JP Morgan, and UBS. Graduating Hawkinson scholars typically enjoy a placement rate of 100 percent.

Institute for International Business

The Institute for International Business promotes international perspectives and develops international opportunities for students, faculty, and staff of the Tippie College of Business. The institute houses the International Perspectives Program, which provides guidance and financial support to Tippie College of Business students who earn a second major in a world language. Working with the Undergraduate Program Office and the Tippie School of Management, the institute develops and supports international internships and other international learning opportunities for business students. It also created and conducts an online course in entrepreneurship and global trade. The institute is a member of the Eastern Iowa Chapter of the International Traders of Iowa.

Iowa Electronic Markets Institute

The Iowa Electronic Markets Institute supports scholarship in prediction markets and experimental economics. It operates the Iowa Electronic Markets (IEM), online futures markets where contract payoffs are based on real-world events such as political outcomes, companies' earnings per share, and stock price returns. Known internationally as the genesis of modern prediction markets, the Iowa Electronic Markets are used as tools for research and teaching.

John Pappajohn Entrepreneurial Center

The John Pappajohn Entrepreneurial Center (JPEC) has developed a comprehensive, interdisciplinary program that combines advanced course work with experiential learning for University of Iowa students. The program prepares students to launch new ventures, manage

growing companies, and apply entrepreneurship concepts in their careers. It is designed to empower students to accelerate their careers and pursue their dreams.

The entrepreneurship curriculum incorporates experiential learning opportunities in which students apply their knowledge and skills in their own ventures or in emerging or growing Iowa companies. JPEC's Bedell Entrepreneurship Learning Laboratory is dedicated to student entrepreneurs creating new businesses. Students also may participate in a wide variety of extracurricular programs such as business plan competitions, lecture series, conferences, workshops, a living-learning community, and the I-Envision student organization.

B.B.A. students in the Tippie College of Business who are majoring in management (p. 702) may complete the major's entrepreneurial management track, and University of Iowa students working toward bachelor's degree may earn the Certificate in Entrepreneurial Management (p. 693). Both programs are offered on campus at the business college as well as online through the Division of Continuing Education. Graduate and professional students across the University may enroll in advanced entrepreneurship courses; see Master of Business Administration Program (p. 715) in the Catalog.

JPEC offers several programs for entrepreneurial businesses and individuals, including student field study projects, training, consulting, seminars, and conferences. In partnership with the Jacobson Institute for Youth Entrepreneurship, it provides training and a specialized curriculum to Iowa high school teachers in an effort to foster the development of innovative, creative, and entrepreneurial young Iowans. The center also partners with Iowa community colleges to deliver entrepreneurship training statewide.

Judith R. Frank Business Communications Center

The Judith R. Frank Business Communications Center provides one-on-one tutoring to Tippie College of Business undergraduates for writing assignments, projects, and case studies. The center's staff includes graduate students with expertise in writing and undergraduate peer tutors who have completed a semester-long peer tutor training course. Communication consultants are available on staff to help students with speech presentations or other oral communication assignments.

The center serves as a resource for the college's international students. It offers targeted programming that promotes fluency in written and spoken English. It also provides programming to support cross-cultural sensitivity and communication, including English Language Discussion Circles and sessions for staff and faculty on how to pronounce Chinese names.

The center's course-dedicated consulting program helps faculty and students plan and prepare for required writing projects. Center staff members work closely with faculty members to study assignment requirements, develop handouts and assessment rubrics, and deliver class or workshop presentations to students on how to meet the expectations of the assignment. Staff members work with departmental Ph.D. program directors to prepare second-year doctoral students for dissertation writing during the summer term. They also provide ongoing training and mentoring to the center's undergraduate peer tutors.

The Frank Business Communications Center oversees the B.B.A. core course BUS:3000 (06B:100) Business Communication and Protocol; the peer tutor training courses BUS:3900 (06B:130) Business Communication Internship I and BUS:3910 (06B:131) Business Communication Internship II; and the elective BUS:3800 (06B:140) Business Writing. In addition, the center's staff adjudicates the annual Mary Thomas Prappas Business Ethics Essay Competition and helps prepare Tippie College of Business undergraduates for national case competitions.

Marketing Institute

The Marketing Institute prepares students for today's diverse and competitive job market in the areas of marketing, market research, and sales. Each year, the institute invites around 15 top undergraduate students to become members. Students are selected on the basis of their academic performance, leadership, interpersonal skills, and executive potential. Field Immersion Projects are a major component of the three-semester program. In the immersion projects, students work as consultants for a variety of clients, including multimillion- or billion-dollar businesses, gaining hands-on experience in identifying and solving marketing-related issues and problems. Students are advised and mentored by an advisory board of top executives from companies such as Kraft Foods, Hormel, Pella, HON, Frank Magid & Associates, and Target. The Marketing Institute and its advisory board work together to foster internship opportunities and provide career guidance that helps students use their skills and talents to develop rewarding careers.

Pomerantz Career Center

Career development and on-campus recruiting services are provided by the Marvin A. and Rose Lee Pomerantz Career Center. The center's career advisors and online resources provide University undergraduate students and alumni with help on résumés, cover letters, internship and job searches, employer research, interviewing skills, negotiation of job offers, community involvement through volunteerism, and more. The center's Find Your Focus program helps students choose a major and identify careers related to specific majors. The center also presents several fall and spring semester career fairs. Campus recruitment is facilitated through HireaHawk.com. Students may participate in mock interviews and in actual on-campus interviews for full-time positions and internships during the academic year. The center also offers career-related and professional development courses such as CCP:3102 (409:102) Job Search Strategies, LS:2002 (421:076) Career Leadership Academy—Phase 1 and 2, and leadership studies courses numbered LS:2000 (421:106) through LS:3002 (421:110)]. Contact the Pomerantz Career Center for more information.

McGladrey Institute of Accounting Education and Research

The McGladrey Institute of Accounting Education and Research fosters educational excellence in accounting at The University of Iowa, encourages high-quality research by Iowa accounting faculty members, and fosters the development of doctoral students in accounting. The institute sponsors varied educational initiatives and activities, including an annual national speaker series, the biennial Sidney Winter Lecture Series, and the PricewaterhouseCoopers Accounting Research Workshop.

Small Business Development Center

Since 1981, The University of Iowa Small Business Development Center has played an important role in helping enterprising Iowans manage or start their own successful businesses. The center provides support for small business owners and entrepreneurs. Its personnel are trained to meet the varied needs of small business management, including market, business, financial, and human resource planning; cash flow analysis; product commercialization; market research and analysis; strategic planning; international trade; and advertising and public relations.

Tippie Business Solutions Center

The Tippie Business Solutions Center provides M.B.A. students with opportunities to engage in strategic consulting projects with companies ranging from mid-sized firms to Fortune 500 companies in Iowa and around the world. The center brings together diverse teams possessing a variety of skills, knowledge, and experience. The teams apply rigorous business tools and techniques in order to research circumstances surrounding a business problem for a real-world client. Students meet with representatives from the client company, analyze the situation, and present recommendations and action plans for the client to pursue.

Facilities and Resources

The Henry B. Tippie College of Business is located in the John Pappajohn Business Building, at the heart of the campus. The Pappajohn Business Building contains seminar and conference rooms, a computer laboratory, two auditoriums, two computer classrooms, a behavioral laboratory, a restaurant (Pat's Diner), the Marvin A. Pomerantz Business Library, and a variety of classroom facilities.

The computer laboratory in the John Pappajohn Business Building serves the instructional programs of the college, and the staff maintains a current library of computational programs to accommodate users' needs. Business students also have access to the full range of services offered by the University's Information Technology Services and the extensive research materials and other resources of the University of Iowa Libraries.

Alumni Relations

The Tippie College of Business alumni network numbers more than 46,000 graduates worldwide. Alumni have access to the college's wide array of resources, including the in-house Office of Alumni Relations. The college's director of alumni relations and staff in the Undergraduate Program Office and the Tippie School of Management maintain relationships with alumni. Tippie Magazine is mailed to alumni who support the college.

The alumni office hosts individual visits, receptions, speakers, and other events on campus and in cities nationwide and around the world. Members of the Business Student Ambassadors, an undergraduate student organization, often serve as hosts and guides for alumni who visit the college, and the Young Alumni Board works to strengthen ties between the college and younger alumni.

Learn more about staying in touch at Alumni and Friends on the college's web site.

Nondepartmental Courses

Most Tippie College of Business courses are offered by the college's departments and programs. They are listed and described in the corresponding General Catalog sections; see the links under "Index: Academic Programs" on this page.

The college also offers the following nondepartmental courses for undergraduate students.

Lower-Level Undergraduate

BUS:1100 (06B:010) Tippie Scholars Seminar 1-3 s.h.

Introduction to majors and academic departments, research opportunities, and professional enrichment activities in the Tippie College of Business. Requirements: enrollment in Tippie Scholars Program.

BUS:1200 (06B:020) Tippie College Direct Admit Seminar 1 s.h.

Facilitates a more seamless transition to The University of Iowa and Tippie College of Business; weekly lectures from notable faculty and business executives, small group discussions; weekly topics include leadership, civic engagement, major and career exploration, and building a personal brand. Requirements: admitted to the direct admission program.

BUS:2150 (06B:055) Tippie College Admission Writing Workshop 0 s.h.

Development and refinement of macro-level writing skills; focus on thesis statement and topic sentence construction, paragraph organization, and precision in language choices. Requirements: application to Tippie College of Business and eligible to enroll in workshop.

BUS:2300 (06B:050) Searching for Business Information 1 s.h.

Search concepts and sources specific to business information; subscription and government online research sites.

BUS:2450 (06B:024) Business and Culture in China 3 s.h.

Business and cultural environment of China; lectures, readings, case studies, company visits, and immersion in cultural experiences; Chinese history, politics, business, economics, and culture; topics may include Chinese business culture and relationships, local companies going global, business strategies of multinational companies in Chinese market; United States-China trade relations, entrepreneurship, Chinese consumer, sustainability and social responsibility; two-week study program in China. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002). Requirements: 2.75 UI and cumulative g.p.a.

BUS:2500 (06B:090) International Perspectives Program I 0 s.h.

First in a two-course sequence; orientation to International Perspectives Program (IPP) community; introduction to the concept of an academic study map; development of an individual strategy towards academic study maps; begin foundational introduction to materials covered in BUS:2510 (06B:091), including an introduction to concepts of identity and culture from macro and micro perspectives; required seminar for all first-year IPP students. Requirements: admission to the International Perspectives Program.

BUS:2510 (06B:091) International Perspectives Program II 1 s.h.

Continuation BUS:2500 (06B:090); exploration of concepts of identity and culture from both a macro and micro perspective; how culture and background impact how students think about and understand the world; exploration of having built-in assumptions about the world and why in some circumstances the ability to challenge those assumptions can be useful; study of cross-cultural communication. Prerequisites: BUS:2500 (06B:090). Requirements: admission to the International Perspectives Program.

BUS:2520 (06B:092) IPP Capstone Project 2 s.h.

Enhancement of foreign language studies and study abroad experiences; students select a topic of interest to explore an aspect of a study abroad country and culture in greater depth; creation of real-world interactions with people in host communities to utilize and develop language skills. Prerequisites: BUS:2500 (06B:090) and BUS:2510 (06B:091). Requirements: admission to the International Perspectives Program.

Upper-Level Undergraduate and Graduate

BUS:3000 (06B:100) Business Communication and Protocol 3 s.h.

Foundation in business communication and protocol; composing business messages, organizing and reporting workplace data, developing business presentation and team-building skills, exploring issues pertaining to professional behavior. Prerequisites: RHET:1030 (010:003). Requirements: admission to Tippie College of Business and 30 s.h. earned.

BUS:3050 (06B:102) Business, Culture, and Society 3 s.h.

International business environment and interpersonal traits and skills expected of successful international businessperson; interdisciplinary overview of issues related to business in Western Europe; important cultural differences, the code of business and professional etiquette, business protocol, Italian business history, cultural appreciation, and executive legal/ethical concerns in the workplace; series of lectures, workshops, speakers, plant tours, and cultural events.

BUS:3400 (06B:080) Business Student Ambassador Seminar 1 s.h.

Experiences as a Business Student Ambassador providing tours of the John Pappajohn Building, acting as hosts at college functions, providing information and assistance to visiting groups, assisting student recruitment activities. Requirements: admission to Tippie College of Business and acceptance as a Business Student Ambassador.

BUS:3500 (06B:060) Tippie Senate 1 s.h.

For elected student representatives on the Tippie Senate.

BUS:3800 (06B:140) Business Writing 3 s.h.

Series of practical projects; development of effective and persuasive business communication and analytical skills in public relations context.

BUS:3850 (06B:187) Global Business Perspectives 3 s.h.

Virtual classroom component of summer internships in London, Dublin, or Hong Kong; value of international work assignments, work as part of cross-cultural teams, skills and perspectives for living and working in a culturally diverse world; students set goals and complete professional development assignments, and analyze cultural and political environment of their internship sites.

BUS:3900 (06B:130) Business Communication Internship I 3 s.h.

Opportunity for students to earn academic credit for serving as a peer tutor, an orientation and training assistant, or an administrative intern in the Judith R. Frank Business Communications Center.

BUS:3910 (06B:131) Business Communication Internship II 1-3 s.h.

Continuation of BUS:3900 (06B:130); opportunity for students to earn academic credit for serving as a peer tutor, an orientation and training assistant, or an administrative intern in the Judith R. Frank Business Communications Center. Prerequisites: BUS:3900 (06B:130).

BUS:3999 (06B:194) Honors Seminar 1-3 s.h.

Research topics and methods in business. Requirements: honors standing. Same as ECON:3999 (06E:194).

BUS:4900 (06B:199) Academic Internship arr.

Professional internship experience with associated academic content (e.g., paper, course work).

BUS:4999 (06B:195) Honors Thesis in Business 3 s.h.

Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: BUS:3999 (06B:194) or ECON:3999 (06E:194). Requirements: admission to the Tippie College of Business honors program.

Interdepartmental Degrees

Bachelor of Business Administration (p. 670)

Master of Business Administration Program (p. 715)

Doctor of Philosophy (p. 679)

Departments and Programs

Accounting (p. 663)

Economics (p. 680)

Enterprise Leadership (p. 690)

Finance (p. 697)

Management and Organizations (p. 702)

Management Sciences (p. 707)

Marketing (p. 711)

Certificate Programs

Business Analytics (p. 678)

Entrepreneurial Management (p. 693)

International Business (p. 420)

Risk Management and Insurance (p. 721)

Accounting

Chair

- Daniel W. Collins

Directors, Professional Program in Accounting

- Thomas J. Carroll, Kevin Den Adel

Director, McGladrey Institute of Accounting Education and Research

- Ramji Balakrishnan

Professors

- Ramji Balakrishnan (Carlson-KPMG Research Professor of Accounting), Joyce E. Berg (Pioneer Research Fellow), Daniel W. Collins (Henry B. Tippie Research Chair in Accounting), Douglas V. Dejong (Lloyd J. and Thelma W. Palmer Professor of Accounting), Paul Hribar (Leonard A. Hadley Professor of Accounting), Mark C. Penno (Ray William Shearman Research Fellow)

Associate professor

- Cristi A. Gleason (Henry B. Tippie Research Fellow)

Assistant professors

- H. Scott Asay, Kevin S. Markle, Samuel J. Melessa, Richard D. Mergenthaler (Henry B. Tippie Research Fellow), Jaron H. Wilde

Lecturers

- Amy An, Thomas J. Carroll, Kevin J. Den Adel, Robert J. Hartman

Professors emeriti

- W. Bruce Johnson, Valdean C. Lembke

Associate professors emeriti

- Richard A. Grimlund, Richard M. Tubbs

Undergraduate major: accounting (B.B.A.)

Graduate degrees: M.Ac.; accounting subprogram for the Ph.D. in business administration

Web site: <http://tippie.uiowa.edu/accounting/>

The Department of Accounting offers a broad education that prepares undergraduate and graduate students for careers in public accounting, private industry, government, nonprofit organizations, and academia.

PROFESSIONAL PROGRAM IN ACCOUNTING

The Professional Program in Accounting draws on curricula that provide a strong base of traditional technical subject matter and the skills needed for solving complex business problems. This framework of study enables students to continue professional growth over the entire span of their careers. The program emphasizes communication skills and provides the academic background required for leadership positions in business, government, and public accounting. It also qualifies students to take the Certified Public Accountant (CPA) examination.

The Professional Program in Accounting leads to a Bachelor of Business Administration with a major in accounting, which requires 120 s.h. of credit (see "Undergraduate Program of Study" below), and the Master of Accounting, which requires 30 s.h. of graduate credit (see "Graduate

Programs of Study" later in this section). Students are granted the B.B.A. upon successful completion of the third and fourth years of the Professional Program in Accounting; they are granted the M.Ac. after successful completion of 30 s.h. beyond the B.B.A.

Undergraduate Program of Study

- Major in accounting (Bachelor of Business Administration)

Students who wish to earn the Bachelor of Business Administration with a major in accounting must be admitted to the Professional Program in Accounting. Undergraduate accounting majors are subject to the probation and dismissal rules described in the Bachelor of Business Administration (p. 670) section of the Catalog and are governed by the Tippie College Undergraduate Honor Code.

The B.B.A. is not sufficient preparation for CPA licensure in states that have passed a 150-hour law, including Iowa.

Bachelor of Business Administration

The Bachelor of Business Administration with a major in accounting requires a minimum of 120 s.h., including at least 25 s.h. of work for the major. Students must be admitted to the Professional Program in Accounting in order to major in accounting. Course work in the program provides concentrated coverage of professional accounting subjects and closely related topics in commercial law, business, and information systems.

To enter the Professional Program in Accounting, undergraduates must be admitted to the Tippie College of Business. They must have a University of Iowa g.p.a. of at least 3.00 and a cumulative g.p.a. of at least 3.00; a g.p.a. of at least 2.67 (B-minus average) in ACCT:2100 (06A:001) Introduction to Financial Accounting and ACCT:2200 (06A:002) Managerial Accounting; and a passing score on the Department of Accounting writing assessment. Students who wish to declare accounting as a major but do not satisfy the automatic admission requirements may still apply to the professional program; applications are reviewed case-by-case.

Students must complete the following B.B.A. prerequisite courses before admission to the Professional Program in Accounting.

ACCT:2100 (06A:001) Introduction to Financial Accounting	3 s.h.
ACCT:2200 (06A:002) Managerial Accounting	3 s.h.
ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.

Students usually spend the first and second year taking prerequisites and other course work required for all B.B.A. students; for B.B.A. common requirements, see Bachelor of Business Administration (p. 670) in the Catalog.

The major in accounting requires the following work during the third and fourth years.

THIRD YEAR**Fall Semester**

ACCT:3100 (06A:150) Professional Orientation Seminar Series (must be taken during first or second semester in the professional program)	1 s.h.
ACCT:3200 (06A:131) Income Measurement and Asset Valuation	3 s.h.
ACCT:3400 (06A:133) Introduction to Taxation	3 s.h.
BUS:3000 (06B:100) Business Communication and Protocol (taken first year after admission to the college)	3 s.h.
One business core requirement	3 s.h.
Elective	3 s.h.

The business core requirements [FIN:3000 (06F:100) Introductory Financial Management, MGMT:2000 (06J:047) Introduction to Law, MGMT:2100 (06J:048) Introduction to Management, MSCI:3000 (06K:100) Operations Management, MKTG:3000 (06M:100) Introduction to Marketing Strategy] may be taken in any sequence, preferably before the fourth year; MGMT:2000 (06J:047) Introduction to Law is a prerequisite to ACCT:4300 (06A:148) Business Law, so it should be taken before spring semester of the fourth year. Students must complete BUS:3000 (06B:100) Business Communication and Protocol during their first year after admission to the Tippie College of Business.

Due to overlap in course content, accounting majors may not count ACCT:3020 (06A:120) Financial Accounting and Reporting toward the B.B.A. degree.

Spring Semester

ACCT:3300 (06A:132) Valuation of Financial Claims	3 s.h.
ACCT:3600 (06A:134) Applied Information Systems	3 s.h.
Two business core requirements	6 s.h.
Elective	3 s.h.

SUMMER: GMAT AND ADMISSION TO THE M.AC.

Students who intend to continue in the Professional Program in Accounting after receiving the B.B.A. should take the Graduate Management Admission Test (GMAT) during the summer before their senior year, as preparation for applying to the Master of Accountancy program.

FOURTH YEAR

Students must choose one of the following accounting electives during their fourth year.

ACCT:3500 (06A:141) Advanced Tax Topics (offered fall only)	3 s.h.
ACCT:4400 (06A:145) Advanced Financial Accounting (offered spring only)	3 s.h.

Fall Semester

ACCT:4100 (06A:144) Auditing	3 s.h.
One accounting elective	3 s.h.
One business core requirement	3 s.h.
Two electives	6 s.h.

Spring Semester

ACCT:4200 (06A:130) Accounting for Management Analysis and Control	3 s.h.
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ACCT:4300 (06A:148) Business Law	3 s.h.
One accounting elective (if not taken fall semester)	3 s.h.
Two or three electives	6-9 s.h.

OPTIONAL ACCOUNTING ELECTIVE

All undergraduates, whether admitted to the M.Ac. program or not, may take ACCT:4900 (06A:199) Academic Internship for 1 s.h. in fall, spring, or summer. Department consent is required.

Graduate Programs of Study

- Master of Accountancy
- Accounting subprogram for the Doctor of Philosophy in business administration

The department collaborates with the College of Law to offer the joint M.Ac./J.D. program; see "Joint M.Ac./J.D." below. It also participates in the M.B.A. program, which is offered by the Tippie School of Management; see Master of Business Administration Program (p. 715) in the Catalog.

Graduate students in accounting are subject to the probation and dismissal rules of the Graduate College and are governed by the Full-Time M.B.A. Honor Code.

Master of Accountancy

The Master of Accountancy requires 30 s.h. beyond the B.B.A. The program permits students to specialize in accounting areas according to their interests and objectives. It builds on the technical skills acquired in the undergraduate program, broadens students' perspectives on the role of accounting in organizations and decision making, and further develops written and oral communication skills.

Students from a variety of academic backgrounds enter the M.Ac. program. Those who enter with an undergraduate degree in accounting can expect to complete the degree in 12 months. Those who enter with a non-accounting undergraduate degree typically require four semesters to complete the M.Ac. Study plans are adjusted to reflect each student's particular academic background; see "Students Without Undergraduate Degrees in Accounting" later in this section.

The M.Ac. is a nonthesis program. Course work focuses on the conceptual and economic foundations of accounting with applications to current and emerging problems of professional practice. M.Ac. students also have the opportunity to acquire expertise in one of four specialization areas: financial accounting/auditing, management information systems, taxation, and managerial accounting.

The 30 s.h. required for the M.Ac. must include at least 12 s.h. in graduate-level accounting courses and at least 21 s.h. in courses numbered 5000 or above. Some work for the specialization areas is cross-disciplinary, with courses from other departments as well as from accounting.

The M.Ac. requires the following course work. Students complete the requirements for their chosen specialization or for the core program.

**SPECIALIZATION IN FINANCIAL ACCOUNTING/
AUDITING****Accounting Courses**

Total of 12 s.h.

All of these:

ACCT:9040 (06A:245) Financial Information and Capital Markets	3 s.h.
ACCT:9130 (06A:221) Financial Reporting: Theory and Practice	3 s.h.
ACCT:9140 (06A:230) Advanced Auditing	3 s.h.

One of these:

ACCT:9050 (06A:231) Taxes and Business Strategy	3 s.h.
ACCT:9120 (06A:220) Design and Use of Cost Management Systems	3 s.h.

Finance Courses

Total of 6 s.h.

MBA:8180 (06N:225) Managerial Finance (requires consent of M.B.A. office)	3 s.h.
One additional finance course numbered 5000-7999	3 s.h.

Management Information Systems Courses

Total of 3-6 s.h.

MSCI:9200 (06K:226) Business Programming (if not already taken)	3 s.h.
MSCI:9230 (06K:230) Database Systems	3 s.h.

General Electives

Total of 6-9 s.h.

**SPECIALIZATION IN MANAGEMENT
INFORMATION SYSTEMS**

Due to the timing of course offerings, students who do not begin the M.Ac. program in the summer session should take a computer programming course while they are undergraduates. This decreases the number of required management information systems courses and increases electives by 3 s.h. in the M.Ac. program.

Accounting Courses

Total of 12 s.h.

ACCT:9120 (06A:220) Design and Use of Cost Management Systems	3 s.h.
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Two of these:

ACCT:9050 (06A:231) Taxes and Business Strategy	3 s.h.
ACCT:9130 (06A:221) Financial Reporting: Theory and Practice	3 s.h.
ACCT:9140 (06A:230) Advanced Auditing	3 s.h.

One of these (not already taken):

ACCT:9040 (06A:245) Financial Information and Capital Markets	3 s.h.
ACCT:9050 (06A:231) Taxes and Business Strategy	3 s.h.
ACCT:9130 (06A:221) Financial Reporting: Theory and Practice	3 s.h.

ACCT:9140 (06A:230) Advanced Auditing	3 s.h.
ACCT:9150 (06A:241) Tax Research	3 s.h.

Management Information Systems Courses

Total of 9-12 s.h.

MSCI:9200 (06K:226) Business Programming (if not already taken)	3 s.h.
Three information systems courses (CS or MSCI) numbered 5000-7999	9 s.h.

General Electives

Total of 6-9 s.h.

SPECIALIZATION IN TAXATION**Accounting Courses**

Total of 9 s.h.

Two of these:

ACCT:9120 (06A:220) Design and Use of Cost Management Systems	3 s.h.
ACCT:9130 (06A:221) Financial Reporting: Theory and Practice	3 s.h.
ACCT:9140 (06A:230) Advanced Auditing	3 s.h.

One of these (not already taken):

ACCT:9040 (06A:245) Financial Information and Capital Markets	3 s.h.
ACCT:9120 (06A:220) Design and Use of Cost Management Systems	3 s.h.
ACCT:9130 (06A:221) Financial Reporting: Theory and Practice	3 s.h.
ACCT:9140 (06A:230) Advanced Auditing	3 s.h.
ACCT:9150 (06A:241) Tax Research	3 s.h.

Taxation Courses

Total of 12 s.h.

ACCT:9050 (06A:231) Taxes and Business Strategy	3 s.h.
ACCT:9150 (06A:241) Tax Research	3 s.h.
College of Law tax courses	6 s.h.

General Electives

Total of 9 s.h.

College of Law courses (prefix LAW) follow a different calendar than do business courses. Some courses may require consent of instructor.

SPECIALIZATION IN MANAGERIAL ACCOUNTING**Accounting Courses**

Total of 12 s.h.

ACCT:9120 (06A:220) Design and Use of Cost Management Systems	3 s.h.
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Two of these:

ACCT:9050 (06A:231) Taxes and Business Strategy	3 s.h.
ACCT:9130 (06A:221) Financial Reporting: Theory and Practice	3 s.h.
ACCT:9140 (06A:230) Advanced Auditing	3 s.h.

One of these (not already taken):

ACCT:9040 (06A:245) Financial Information and Capital Markets	3 s.h.
ACCT:9050 (06A:231) Taxes and Business Strategy	3 s.h.
ACCT:9130 (06A:221) Financial Reporting: Theory and Practice	3 s.h.
ACCT:9140 (06A:230) Advanced Auditing	3 s.h.
ACCT:9150 (06A:241) Tax Research	3 s.h.

Management Information Systems Courses

Total of 3-6 s.h.

MSCI:9200 (06K:226) Business Programming (if not already taken)	3 s.h.
MSCI:9230 (06K:230) Database Systems	3 s.h.

Business Electives Outside Accounting

Two business electives numbered 5000-7999	6 s.h.
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General Electives

Total of 6-9 s.h.

CORE PROGRAM

Students who do not wish to pursue a specialization area must complete 30 s.h. beyond the B.B.A. At least 15 s.h. must be earned in graduate-level accounting courses and at least 21 s.h. must be earned in courses numbered 5000 or above. The following courses are required.

Accounting Courses

Total of 15 s.h.

ACCT:9050 (06A:231) Taxes and Business Strategy (taken fall semester)	3 s.h.
ACCT:9120 (06A:220) Design and Use of Cost Management Systems (taken spring semester)	3 s.h.
ACCT:9130 (06A:221) Financial Reporting: Theory and Practice (taken fall semester)	3 s.h.
ACCT:9140 (06A:230) Advanced Auditing (taken spring semester)	3 s.h.

One of these (not already taken):

ACCT:9040 (06A:245) Financial Information and Capital Markets	3 s.h.
ACCT:9150 (06A:241) Tax Research	3 s.h.

Management Information Systems Courses

Total of 3-6 s.h.

MSCI:9200 (06K:226) Business Programming (if not already taken)	3 s.h.
MSCI:9230 (06K:230) Database Systems	3 s.h.

General Electives

Total of 9-12 s.h.

Students Without Undergraduate Accounting Degrees

Course work for students who enter the program with a non-accounting bachelor's degree is determined by each student's background and interest area. In addition to meeting the core program requirements for the M.Ac., students typically take a combination of undergraduate and M.B.A. courses to remove academic deficiencies in quantitative methods, business, and accounting. Students with a bachelor's degree in another area of business

typically are required to take 45-51 s.h. in order to complete the M.Ac. program. Those with degrees outside of business and with no accounting courses typically are required to take 57-60 s.h.

CPA Examination and the Iowa Accountancy Act

The Iowa Accountancy Act that became effective in January 2001 requires individuals who wish to take the CPA examination to have a bachelor's degree, 24 s.h. of business course work, and 24 s.h. of accounting course work beyond ACCT:2100 (06A:001) Introduction to Financial Accounting.

Admission

Admission to the M.Ac. program is competitive. The admissions committee reviews applications individually, considering quantitative aspects (grade-point average and GMAT scores) and qualitative aspects of each applicant's background and professional experience (if applicable) to assess the applicant's potential for academic success and professional growth.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Application materials must include the following: the Application for Graduate Admission; official transcripts of all undergraduate and graduate course work submitted by each institution the applicant has attended; official scores on the Graduate Management Admission Test (GMAT); a supplemental application form with essay responses; a résumé and cover letter; and at least three letters of reference from former instructors or employers. (B.B.A. accounting students at The University of Iowa are not required to provide letters of reference.)

Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

University of Iowa undergraduate accounting students are encouraged to take the Graduate Management Admission Test (GMAT) the summer before their senior year. They may apply to the M.Ac. after December 1 of their fourth year. See "Application Deadlines" below.

For complete information about application procedures, contact the Department of Accounting.

APPLICATION DEADLINES

The Department of Accounting admissions committee reviews completed M.Ac. application files (which must include official GMAT scores) on five dates: March 1, April 15, July 15, October 1, and December 1. Applications are reviewed on these dates regardless of whether the applicant plans to begin the M.Ac. program in the fall semester (August), spring semester (January), or summer session (June). Final Graduate College application deadlines are as follows.

Fall semester entry: July 15 (April 15 for international students)

Spring semester entry: December 1 (October 1 for international students)

Summer session entry: April 15 (March 1 for international students)

Students who wish to apply for a teaching assistantship must apply to the M.Ac. program no later than March 1.

Joint M.Ac./J.D.

The Department of Accounting and the College of Law offer the joint Master of Accountancy/Juris Doctor program. The joint M.Ac./J.D. requires a minimum of 18 s.h. of graduate course work in accounting. Students in the program may count up to 12 s.h. of College of Law courses as electives for the M.Ac. and up to 12 s.h. of graduate accounting courses as electives for the J.D. Separate application to each degree program is required; applicants must be admitted to each program before they may be admitted to the joint program.

For information about the J.D. degree, see the College of Law (p. 1005) section of the Catalog.

Doctor of Philosophy

Graduate students in accounting may earn a Doctor of Philosophy in business administration. For a description of the Ph.D. program and requirements, see Doctor of Philosophy (p. 679) (Tippie College of Business) in the Catalog and visit the Department of Accounting web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. Application materials must include the applicant's score on the Graduate Management Admission Test (GMAT).

Faculty

The department's faculty members stay current in their discipline by producing and disseminating accounting-related knowledge. They keep abreast of the latest developments in the field of education and the profession by participating in educational conferences and seminars and publishing in leading academic journals.

Courses

Lower-Level Undergraduate

ACCT:2100 (06A:001) Introduction to Financial Accounting 3 s.h.

Accounting and financial reporting procedures used by business and not-for-profit entities; emphasis on accounting concepts and use of accounting information in making economic decisions. Requirements: sophomore or higher standing.

ACCT:2200 (06A:002) Managerial Accounting 3 s.h.

Basic topics in cost behavior, measurement, accumulation; use of cost data for relevant analysis, budgeting, performance evaluation. Prerequisites: ACCT:2100 (06A:001), ECON:1100 (06E:001), and MATH:1380 (22M:017).

Upper-Level Undergraduate and Graduate

ACCT:3020 (06A:120) Financial Accounting and Reporting 3 s.h.

External financial reporting practices in context of decisions by management, current and potential stockholders, financial analysts; emphasis on interpretation, use of financial statements. Prerequisites: ACCT:2200 (06A:002). Requirements: non-accounting major.

ACCT:3100 (06A:150) Professional Orientation Seminar Series 1 s.h.

Seminar topics, including accounting careers, curriculum, M.Ac. program, internships, CPA examination and other professional certificates, Beta Alpha Psi, ethics, and global standards. Offered fall semesters. Corequisites: ACCT:3200 (06A:131) or ACCT:3300 (06A:132). Requirements: admission to Professional Program in Accounting.

ACCT:3200 (06A:131) Income Measurement and Asset Valuation 3 s.h.

Accounting rules that determine how economic events and transactions are described in published financial reports; emphasis on revenue and expense recognition, asset valuation, accrual accounting model. Corequisites: ACCT:3400 (06A:133). Requirements: admission to Professional Program in Accounting.

ACCT:3300 (06A:132) Valuation of Financial Claims 3 s.h.

Current and long-term liabilities and stockholders' equity, off-balance sheet financing, cash flow statement, earnings-per-share, financial instruments. Prerequisites: ACCT:3200 (06A:131) and ACCT:3400 (06A:133). Corequisites: ACCT:3100 (06A:150).

ACCT:3400 (06A:133) Introduction to Taxation 3 s.h.

Federal income taxation of individuals and businesses, including corporations, partnerships, and sole proprietorships; emphasis on developing a broad perspective on structure, administration, and rationale of federal income tax system. Corequisites: ACCT:3200 (06A:131). Requirements: admission to Professional Program in Accounting.

ACCT:3450 (06A:135) Tax Practicum 1-2 s.h.

Transformative opportunity to work on real world tax problems with real clients; application of skills learned in classroom to real world problems; development of crucial accounting career soft skills including communication (explaining complicated ideas in simple language), moving out of one's comfort zone, working as a team, and having an appreciation for the importance of community service. Corequisites: ACCT:3400 (06A:133). Requirements: acceptance to undergraduate accounting program.

ACCT:3500 (06A:141) Advanced Tax Topics 3 s.h.

Taxation of corporations and partnerships from organization through liquidation; relative merits of conducting business as C corporation, partnership, S corporation; the alternative minimum tax; introduction to tax research. Prerequisites: ACCT:3400 (06A:133). Requirements: senior standing.

ACCT:3550 (06A:149) Financial Statement Analysis 3 s.h.

How to analyze published financial statements; practical experience using financial statement information to assess accounting quality, historical performance, forecasted performance, credit risk, firm value. Prerequisites: ACCT:3020 (06A:120).

ACCT:3600 (06A:134) Applied Information Systems 3 s.h.

Application of computer technology to accounting and transaction processing systems; information systems infrastructure and trends; problem solving with microcomputer spreadsheets, databases; accounting cycle operations. Prerequisites: ACCT:2100 (06A:001), ACCT:2200 (06A:002), and MSCI:3005 (06K:105). Same as MSCI:3100 (06K:180).

ACCT:4000 (06A:170) Special Topics in Accounting 1-3 s.h.

ACCT:4001 (06A:171) Continuing Education: Special Topics in Accounting arr.
Independent study topics determined by faculty member.

ACCT:4050 (06A:101) Directed Readings in Accounting arr.

Individual guided readings in accounting topics. Requirements: admission to Professional Program in Accounting.

ACCT:4100 (06A:144) Auditing 3 s.h.

General framework underlying auditing, role of audit standards in planning and conduct of audits, effect of regulation, ethics, liability on audit practices. Prerequisites: ACCT:3100 (06A:150), ACCT:3300 (06A:132), ECON:2800 (06E:071), and MSCI:3100 (06K:180). Requirements: senior standing.

ACCT:4200 (06A:130) Accounting for Management Analysis and Control 3 s.h.

Advanced topics in cost estimation, measurement, accumulation; use of cost data for decision making, performance evaluation in multi-unit organizations. Prerequisites: ECON:2800 (06E:071) and MSCI:2000. Requirements: admission to Professional Program in Accounting.

ACCT:4300 (06A:148) Business Law 3 s.h.

Contracts, sales, debtor-creditor relations, business organizations, other aspects of law applied to business. Prerequisites: MGMT:2000 (06J:047). Requirements: senior standing.

ACCT:4400 (06A:145) Advanced Financial Accounting 3 s.h.

Accounting and reporting standards for business combinations, including mergers, consolidations, and multinational enterprises; accounting for partnerships, business segments, transactions denominated in foreign currency, including hedges using foreign currency derivative instruments; reporting standards for interim financial statements and fund accounting applied to government and nonprofit entities. Prerequisites: ACCT:3300 (06A:132). Requirements: senior standing.

ACCT:4500 (06A:147) Accounting Measurement: Research and Analysis 3 s.h.

How uncertainty and risk influence accounting judgments, estimates, and forecasts that underlie reported financial statement amounts; applications drawn from familiar accounting measurement challenges and those unique to industries (e.g., airline transportation, healthcare, insurance, gaming, oil and gas exploration). Prerequisites: ACCT:3300 (06A:132). Corequisites: ACCT:4100 (06A:144).

ACCT:4900 (06A:199) Academic Internship 1 s.h.
Professional internship experience.

ACCT:4999 (06A:195) Honors Thesis in Accounting 3 s.h.

Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: BUS:3999 (06B:194) or ECON:3999 (06E:194). Requirements: admission to the Tippie College of Business honors program.

Graduate

ACCT:7850 (06A:286) Seminar in Accounting Research arr.

Forum on current research in accounting, related disciplines; faculty, student, guest papers, Ph.D. dissertation proposals. Requirements: Ph.D. enrollment.

ACCT:7900 (06A:287) Seminar in Selected Accounting Topics arr.

Individual study, research paper preparation. Requirements: Ph.D. enrollment.

ACCT:7975 (06A:290) Thesis: Accounting arr.
Requirements: Ph.D. enrollment.

ACCT:9020 (06A:235) Strategic Cost Analysis 3 s.h.

Introduction to cost accumulation, reporting, cost management systems; managerial and divisional performance evaluation; appropriate use of cost data for short- and long-run decisions; product costing in manufacturing and service industries. Prerequisites: MBA:8140 (06N:215).

ACCT:9030 (06A:240) Financial Accounting Standards and Analysis 3 s.h.

Accounting model, underlying measurement concepts, valuation rules for assets, liabilities, related issues of income determination; emphasis on economic substance of transactions, evaluation and interpretation of financial data. Prerequisites: MBA:8140 (06N:215).

ACCT:9040 (06A:245) Financial Information and Capital Markets 3 s.h.

Use of corporate financial statements for investment and lending decisions; emphasis on financial analysis techniques, valuation, business analysis, cash flow projections, credit scoring, related research evidence. Prerequisites: ACCT:3200 (06A:131) and ACCT:3300 (06A:132), or MBA:8140 (06N:215); and MBA:8180 (06N:225).

ACCT:9050 (06A:231) Taxes and Business Strategy 3 s.h.

Effect of taxes on business decisions, including investment strategies, capital structure decisions, compensation policies, international business, mergers and acquisitions, and financial reporting. Prerequisites: ACCT:3500 (06A:141) or MBA:8140 (06N:215) or LAW:8194 (091:272). Requirements: graduate standing in business. Same as LAW:8921 (091:383).

ACCT:9120 (06A:220) Design and Use of Cost Management Systems 3 s.h.

Development of cost accumulation and reporting systems that complement a firm's strategy and structure; how activity-based cost management systems increase competitiveness by helping a firm manage its costs, processes, people. Prerequisites: ACCT:4200 (06A:130) or ACCT:9020 (06A:235).

ACCT:9130 (06A:221) Financial Reporting: Theory and Practice 3 s.h.

Corporate accounting choices in framework of traditional accounting theory, economic consequences, firm valuation. Prerequisites: ACCT:3300 (06A:132). Requirements: graduate standing in business.

ACCT:9140 (06A:230) Advanced Auditing 3 s.h.

Advanced issues such as ethics, internal control audits, forensic auditing, and fair value auditing. Prerequisites: ACCT:4100 (06A:144). Requirements: graduate standing in business.

ACCT:9150 (06A:241) Tax Research 3 s.h.

Understanding the validity and use of various tax law sources; performing tax research using printed and electronic tax materials; evaluation of tax law provisions and application to specific facts and circumstances; preparing tax memorandums. Prerequisites: ACCT:3500 (06A:141). Requirements: admission to M.Ac. program.

ACCT:9160 (06A:246) Corporate Governance 3 s.h.

How to evaluate and implement mechanisms for good corporate governance; to ensure returns for investors and firms' access to capital markets on reasonable terms; perspectives of investor, firm, regulator.

Bachelor of Business Administration

Undergraduate major: B.B.A.
Web site: <http://tippie.uiowa.edu/>

Undergraduate Program of Study

- Bachelor of Business Administration

The Bachelor of Business Administration is offered with majors in accounting, business analytics and information systems, economics, finance, management, and marketing. The major in management with the entrepreneurial management track includes a distance education option.

This Catalog section provides information about requirements that all B.B.A. students must fulfill, regardless of their major, as well as admission information and academic rules and procedures for the B.B.A. For information about the individual majors, see Accounting (p. 663), Economics (p. 680), Finance (p. 697), Management and Organizations (p. 702), Management Sciences (p. 707), and Marketing (p. 711) in the Catalog.

Students may earn double majors in the B.B.A.; they also may earn joint degrees in the College of Engineering or the College of Liberal Arts and Sciences. See "Double Majors in Business" and "Joint Degrees" below. Many business students earn one or more certificates and minors offered in disciplines across the University; see "Minors" and "Certificates" below.

The Tippie College of Business's undergraduate and graduate programs are accredited by AACSB International—the Association to Advance Collegiate Schools of Business.

UNDERGRADUATE ADVISING

All business students are advised at the business college's Undergraduate Program Office. Pre-business students are advised at the University's Academic Advising Center or the college's Undergraduate Program Office. Assignment to the Undergraduate Program Office for advising depends on a student's grade-point average, completion of calculus and statistics, and/or the number of semester hours completed. Walk-in hours and scheduled appointments are available at both offices. For more information on advising, contact the college's Undergraduate Program Office or the UI Academic Advising Center.

HONOR CODE

Integrity and honesty are essential to success in all facets of life. The purpose of the Tippie College Undergraduate Honor Code is to promote honorable and ethical behavior. Students admitted to the college or enrolled in courses offered by the college are required to uphold the honor code.

Bachelor of Business Administration

The Bachelor of Business Administration requires a minimum of 120 s.h. of credit, including at least 48 s.h. earned in business courses and at least 60 s.h. earned in nonbusiness courses.

B.B.A. students must earn 30 s.h. in residence following admission to the Tippie College of Business. At least 24 s.h. in courses offered by the business college and at least two-thirds of the semester hours in the student's major must be earned at The University of Iowa. Nonresident instruction includes course work at colleges and universities other than The University of Iowa.

To graduate, B.B.A. students must have a cumulative g.p.a. of at least 2.00 in all college course work attempted, all college course work attempted in business, all college course work attempted in the major, all course work attempted at The University of Iowa, all business course work attempted at The University of Iowa, and all course work in the major attempted at The University of Iowa.

Common B.B.A. Requirements

B.B.A. students must satisfy the following minimum common requirements or approved equivalents. For approved equivalents, consult the college's Undergraduate Program Office.

GENERAL EDUCATION REQUIREMENTS

Rhetoric	4 s.h.
Interpretation of Literature	3 s.h.
World Languages	0-10 s.h.
Natural Sciences	3 s.h.
Social Sciences, excluding ECON:1100 (06E:001) and ECON:1200 (06E:002)	3 s.h.
Historical Perspectives	3 s.h.
Values, Society, and Diversity	3 s.h.
International and Global Issues	3 s.h.

Tippie College of Business students may complete the World Languages requirement using one of two options. One year of high school language study is generally equivalent to one semester of college language study.

Option one: attain fourth-level proficiency in a single world language, usually by completing four years of that language in high school or four semesters in college or an equivalent combination of high school and college course work; or pass an achievement test or evaluation at fourth-level proficiency.

Option two: attain second-level proficiency in each of two world languages, usually by completing two years of each language in high school or two semesters of each language in college or an equivalent combination of high school and college course work; or pass achievement tests and/or evaluations at second-level proficiency in each language. Option two does not fulfill the World Languages requirement for the College of Liberal Arts and Sciences or qualify students to earn credit under the Furthering Language Incentive Program (FLIP).

Students may not count courses taken to fulfill General Education Program requirements toward other requirements for the B.B.A.

PREREQUISITES FOR ADMISSION TO THE COLLEGE

ACCT:2100 (06A:001) Introduction to Financial Accounting	3 s.h.
ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.

MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.

PREREQUISITES FOR THE BUSINESS CORE

ACCT:2200 (06A:002) Managerial Accounting	3 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
MSCI:1500 (06K:050) Business Computing Essentials	2 s.h.

BUSINESS CORE

BUS:3000 (06B:100) Business Communication and Protocol	3 s.h.
ECON:2800 (06E:071) Statistics for Strategy Problems	3 s.h.
FIN:3000 (06F:100) Introductory Financial Management	3 s.h.
MGMT:2000 (06J:047) Introduction to Law	3 s.h.
MGMT:2100 (06J:048) Introduction to Management	3 s.h.
MKTG:3000 (06M:100) Introduction to Marketing Strategy	3 s.h.
MSCI:3000 (06K:100) Operations Management	3 s.h.
MSCI:3005 (06K:105) Information Systems	3 s.h.

MAJOR STUDY AREA

All B.B.A. students must complete a major area of study. The college offers majors in accounting (p. 663), business analytics and information systems (p. 707), economics (p. 680), finance (p. 697), management (p. 702), and marketing (p. 711). The requirements for each major are established by the department that offers the major.

Students with Associate of Arts Degrees

Students who have been granted an Associate of Arts (A.A.) from a community college participating in the Iowa Community College/Regents Articulation Agreement are considered to have met all high school unit requirements for admission to the B.B.A. and all of the General Education Program requirements listed under "General Education Requirements" above, except the World Languages requirement. The program of study for which the student was awarded the A.A. must have included:

- a minimum of 60 s.h. (or 90 quarter hours) of credit acceptable toward graduation from The University of Iowa; mathematics courses comparable to MATH:0100 (22M:001) Basic Algebra I and MATH:0300 (22M:003) Basic Geometry are not accepted toward graduation;
- completion of the agreed-upon group of courses at the community college; and
- a g.p.a. of at least 2.00.

Completion of an Associate of Arts does not guarantee admission to the Tippie College of Business. See "Admission" later in this section for a complete list of requirements for admission to the B.B.A.

Students who use the provisions of the articulation agreement are granted a maximum of 60 s.h. of transferable credit from two-year colleges toward the 120 s.h. required for a B.B.A. Credit earned for the A.A. beyond the 60 s.h. transferable maximum is used in computing

the student's grade-point average, and it may be used to satisfy course requirements, but it does not count toward the B.B.A. Transfer credit for business courses taken during the first and second years is counted toward the B.B.A. only if such courses are usually offered as lower-division courses at The University of Iowa.

Transfer Courses

Students who have taken courses at another institution that are similar to those approved for the common business requirements at Iowa may request that these courses be evaluated for transfer credit. Students who transfer fewer hours than needed to meet a common business requirement may use only approved courses to complete the remainder of the requirement. Only third- and fourth-year-level courses taken at accredited four-year institutions may be used to satisfy common business course requirements numbered 3000 or above. Students must complete a minimum of 24 s.h. of business course work and at least two-thirds of the course work in the major at The University of Iowa. They also must meet the 30 s.h. residency requirement of the Tippie College of Business. Credit earned through Guided Independent Study may be counted toward all requirements for graduation, subject to approval by the student's major department.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Note: The following checkpoints are designed for students who enter the University as direct admission or pre-business students. In order to stay on the plan, pre-business students must maintain the grade-point averages required for admission to the Tippie College of Business and must apply for admission to the college by the established deadline. The Four-Year Graduation Plan is not available to students who choose to pursue a double major in the college or to those enrolled in a joint degree program.

Students must take BUS:3000 (06B:100) Business Communication and Protocol during their first year after admission to the Tippie College of Business, except direct admission students, who take the course during their second year.

Before the third semester begins: ECON:1100 (06E:001) Principles of Microeconomics or ECON:1200 (06E:002) Principles of Macroeconomics, MATH:1380 (22M:017) Calculus and Matrix Algebra for Business, and STAT:1030 (22S:008) Statistics for Business, or equivalents; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: ACCT:2100 (06A:001) Introduction to Financial Accounting, ACCT:2100 (06A:001) Introduction to Financial Accounting, and ECON:1100 (06E:001) Principles of Microeconomics or ECON:1200 (06E:002) Principles of Macroeconomics (whichever has not already been taken), or equivalents; all General Education requirements; and at least half of the semester hours required for graduation

Before the seventh semester begins: business core requirements, approximately half of the course work in

the major (varies by major), and three-quarters of the semester hours required for graduation

Before the eighth semester begins: approximately three-quarters of course work in the major (varies by major)

During the eighth semester: all remaining course work in the major, and a sufficient number of semester hours to graduate

Honors in Business

The Tippie College of Business Honors Program offers outstanding students the opportunity to undertake independent study and to work closely with faculty members and other honors students. To graduate with honors in business, students must complete BUS:3999 (06B:194) Honors Seminar during the spring of their third year or fall of their fourth year. During the following semester, they must complete an honors thesis in one of the college's departments, registering for the appropriate course from the following list.

ACCT:4999 (06A:195) Honors Thesis in Accounting	3 s.h.
ECON:4999 (06E:195) Honors Thesis in Economics	3 s.h.
FIN:4999 (06F:195) Honors Thesis in Finance	3 s.h.
MGMT:4999 (06J:195) Honors Thesis in Management and Organizations	3 s.h.
MKTG:4999 (06M:195) Honors Thesis in Marketing	3 s.h.
MSCI:4999 (06K:195) Honors Thesis in Management Sciences	3 s.h.

Students must have a g.p.a. of at least 3.50 to enter the Tippie Honors Program. To earn the B.B.A. with honors, students must successfully complete all college and honors program requirements with a g.p.a. of at least 3.50 in all courses taken at Iowa, all business courses taken at Iowa, all courses taken (including transfer courses), and all business courses taken (including transfer courses).

See Tippie College of Business Honors Program to learn more.

Pre-business students interested in honors study are encouraged to participate in the University of Iowa Honors Program until they are admitted to the business college. Visit Honors at Iowa to learn about the University's honors program.

Double Majors in Business

Students may earn the B.B.A. degree with more than one major. Students may officially declare a maximum of four programs on the student information system. Majors, minors, and certificates are considered programs. Additional programs must be declared in the Undergraduate Program Office by an advisor. The Four-Year Graduation Plan is not available to students earning more than one major. Students have access to degree audits for all of the programs they have officially declared. They also have access to all sets of program courses, with some limitations, during early registration. Students may not change programs in order to have priority registration for more than two majors at one time. A student must be in good academic standing in order to declare more than one major. See Double Majors—Policies and Procedures.

Joint Degrees

Undergraduate students may earn joint undergraduate degrees from the Tippie College of Business and the College of Liberal Arts and Sciences or the College of Engineering. The following rules apply to all students in joint degree programs.

To enter a joint degree program, students must have approval from the Tippie College of Business and must be admitted to both colleges. Interested students should see an advisor in the college's Undergraduate Program Office.

Students in joint degree programs are allowed a combined maximum of three second-grade-only options.

All students in joint programs must meet all requirements for both degrees, including all General Education Program requirements.

Students are assigned two advisors (one for each major).

Students in joint degree programs are assessed tuition only for the primary (first) major.

First-year students in joint degree programs who are direct admission students in the Tippie College of Business must enroll in BUS:1200 (06B:020) Tippie College Direct Admit Seminar during their first semester at the University.

JOINT B.B.A./LIBERAL ARTS AND SCIENCES DEGREE

The Tippie College of Business and the College of Liberal Arts and Sciences offer a joint degree program in which students earn two University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the Tippie College of Business and a Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), or Bachelor of Music (B.M.) from the College of Liberal Arts and Sciences.

Students in the joint business/liberal arts and sciences degree program must declare the Tippie College of Business program of study as their primary (first) major.

To learn about liberal arts and sciences majors, see "Index: Academic Programs" in the College of Liberal Arts and Sciences section of the Catalog.

JOINT B.B.A./B.S.E.

The Tippie College of Business and the College of Engineering offer a joint degree program in which students earn two University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the Tippie College of Business and a Bachelor of Science (B.S.E.) from the College of Engineering. Students in the joint business/engineering degree program must declare the Tippie College of Business program of study as their primary (first) major.

Students in the joint business/engineering degree program must enroll in appropriate mathematics and engineering courses early during their course of study in order to complete the program in a timely way. Because courses in natural sciences, mathematics, humanities, and social sciences count toward the B.B.A. and the B.S.E., students may be able to count certain courses toward both degrees.

B.B.A./B.S.E. students usually meet the degree requirements of both colleges in about five years; time required depends on the student's choice of major study areas.

For information about engineering majors, see Bachelor of Science in Engineering (p. 861) (College of Engineering) in the Catalog. To learn more about requirements for the joint business/engineering degree, consult the Undergraduate Program Office in the Tippie College of Business and Engineering Student Services in the College of Engineering.

Minors

Bachelor of Business Administration students may earn minors in a number of disciplines. For example, students interested in international business might choose to earn a minor in a second language. For a list of minors and links to the departments and programs that offer them, see Undergraduate Minors (p. 11) in the Catalog.

Students may declare a minor on ISIS. To have the minor recorded on their transcripts, they must complete the "minor" section on the B.B.A. Application for Degree before submitting the form to the Office of the Registrar early in their final semester, or when they apply for the degree using ISIS.

Certificates

Bachelor of Business Administration students may earn certificates offered by the Tippie College of Business as well as by other colleges at the University. The business college offers the Certificates in Entrepreneurial Management (p. 693) and in Risk Management and Insurance (p. 721). In addition, it partners with the College of Engineering to offer the Certificate in Technological Entrepreneurship (p. 937) and with the College of Liberal Arts and Sciences to offer the Certificates in International Business (p. 420) and in Performing Arts Entrepreneurship (p. 512).

The College of Liberal Arts and Sciences, the College of Public Health, and University College offer a wide range of certificates open to all undergraduates. Many pair exceptionally well with a business major. See Undergraduate Certificates (p. 10) in the Catalog for a complete list of certificates and links to their Catalog sections.

Study Abroad

The Consortium of Universities for International Studies (CUIS) offers semester and summer programs at Paderno del Grappa, Italy, for undergraduate students and at Asolo, Italy, for graduate students. Both campuses are located northwest of Venice. Students and faculty in the programs come from a variety of public and private universities in the United States. The program's rigorous, high-quality courses emphasize current international events and are taught in English. Students are encouraged to study the Italian language and to participate in executive lectures, plant tours, and unique personal development opportunities.

The University's Office for Study Abroad offers a wide variety of study abroad programs in more than 40 countries. Students may choose from summer, semester, academic year, and winter session programs that complement their areas of study. See Study Abroad (p. 1288) (University College) in the Catalog for a list of programs.

Admission

Students enter the Tippie College of Business in one of two ways: direct admission or standard admission. All students admitted to the College of Business must follow the Tippie College Undergraduate Honor Code. Students who meet the admission requirements may be denied admission upon evidence of postsecondary academic misconduct or other violations of the honor code. Students are required to meet with the associate dean, undergraduate program, to discuss incidents of academic misconduct.

Admission standards are set by the Undergraduate Program Committee. All admission appeals are reviewed by the Undergraduate Program Office. Prospective students must submit acceptance of admission offers and all transcripts showing course work that satisfies the Tippie College of Business admission requirements to the University's Office of Admissions by the appropriate deadline. Letters of recommendation are not accepted. For more information about application and admission, contact the Undergraduate Program Office.

Direct Admission

Direct admission is designed to enable highly qualified high school students to enter the college directly after high school. Applicants must have a composite ACT score of 27 or higher (SAT critical reading and math score of 1210 or higher) and a high school g.p.a. of 3.70 or higher (on a 4.00 scale) to qualify. Applicants who do not meet these criteria but who present a strong academic record are considered carefully.

Incoming high school students who are admitted to the College of Liberal Arts and Sciences as prebusiness students may inquire about their admission decision by contacting the assistant dean and director of admission in the Tippie College of Business Undergraduate Program Office. For more information about admission requirements, see Admission Policies on the Tippie College of Business web site.

Additional requirements for declaring a major in accounting include a University of Iowa g.p.a. of at least 3.00 and a cumulative g.p.a. of at least 3.00; a g.p.a. of at least 2.67 (B-minus average) in ACCT:2100 (06A:001) Introduction to Financial Accounting and ACCT:2200 (06A:002) Managerial Accounting; and a passing score on the Department of Accounting writing assessment.

Students granted direct admission to the college are eligible to apply for scholarships through the Tippie Scholars scholarship program. The application process is highly competitive and is based on high school record and an application essay. Application deadline is March 1.

Standard Admission

University of Iowa students are eligible to apply to the Tippie College of Business through standard admission if they have completed at least 12 s.h. of course work; have completed the four prerequisite courses listed under "Common B.B.A. Requirements" above with grades of C or higher; have a g.p.a. of at least 2.75 on the prerequisite courses, on all college course work completed, and on all University of Iowa course work; and earn a passing score on their admission essay and résumé. Transfer students who meet these requirements also may apply through standard admission.

Requirements for declaring a major include completion of ACCT:2200 (06A:002) Managerial Accounting, ECON:1200 (06E:002) Principles of Macroeconomics, and MSCI:1500 (06K:050) Business Computing Essentials; see "Common B.B.A. Requirements" above. Additional requirements for declaring a major in accounting include a University of Iowa g.p.a. of at least 3.00 and a cumulative g.p.a. of at least 3.00; a g.p.a. of at least 2.67 (B-minus average) in ACCT:2100 (06A:001) Introduction to Financial Accounting and ACCT:2200 (06A:002) Managerial Accounting; and a passing score on the Department of Accounting writing assessment.

Applications for standard admission must be submitted online. Application deadlines are March 1 for fall admission and October 1 for spring admission; applicants should meet all admission requirements by the end of the semester in which they apply. Admission is not granted for the summer session or the three-week winter session. Applicants transferring from another college or university are held to the application deadlines. Grades from the three-week winter session do not count toward admission for the following spring semester, and grades from a summer session do not count toward admission for the following fall semester. Students who are denied admission may file an Appeal for Denial of Admission to Business if they can provide documentation of extenuating circumstances that affected their academic performance.

Nondegree Admission

Students visiting from another institution who wish to enroll in undergraduate courses in order to earn credit that they can transfer to their home institution may be granted admission as undergraduate nondegree students. Nondegree students are not guaranteed access to specific courses; they must have the approval of the undergraduate program staff in the Tippie College of Business and may earn no more than 9 s.h. on nondegree status.

Reentry Policy

All students who have been enrolled in another college or university since leaving The University of Iowa are required to submit official transcripts along with an application for reentry. Completed application materials must be received at least two weeks before the opening of classes. Reentry students are held to the requirements that are published in The University of Iowa General Catalog for the session in which they reenter.

Absent for 12 months or more—in good standing: Students absent from The University of Iowa for 12 months or more who left in good standing must apply to the UI Office of Admissions as returning students and must contact the Tippie College of Business Undergraduate Program Office for advising before registration. Good standing is defined as not on probation and not dismissed for any reason.

Absent for 12 months or more—not in good standing: Students absent from The University of Iowa for 12 months or more who were not in good standing when they left the University must file a petition with the Tippie College of Business Undergraduate Program Office to be reinstated. If the petition is approved, the student must apply to the UI Office of Admissions as a returning student; the Undergraduate Program notifies the Office of Admissions that the student's petition for reinstatement has been approved. The student also must

schedule an appointment to see an advisor in the Tippie College of Business for advising before registration. Not in good standing is defined as being on probation or having been dismissed from the Tippie College of Business due to unsatisfactory scholarship, academic misconduct at The University of Iowa or at another institution, or a violation of the Tippie College Undergraduate Honor Code. Students who have been officially dismissed follow the procedures for reinstatement.

Absent for less than 12 months—in good standing: Students absent for less than 12 months are not required to file an application for reentry. Students who were in good standing when they left the University should contact the Tippie College of Business Undergraduate Program Office for advising before registration. Reentry is approved regardless of any admission requirement changes.

Absent for less than 12 months—not in good standing: Students absent for less than 12 months are not required to file an application for reentry. Students who were not in good standing when they left the University must consult with an advisor in the Tippie College of Business; the student may be readmitted on probation. Readmitted students should contact the Tippie College of Business Undergraduate Program Office for advising before registration. Reentry is approved regardless of any admission requirement changes. Not in good standing is defined as being on probation or having been dismissed from the Tippie College of Business due to unsatisfactory scholarship, academic misconduct at The University of Iowa or at another institution, or a violation of the Tippie College Undergraduate Honor Code. Students who have been officially dismissed follow the procedures for reinstatement.

Academic Rules and Procedures

Academic Recognition

DEAN'S LIST

Undergraduate students in the Tippie College of Business who achieve a g.p.a. of 3.50 or higher on 12 s.h. or more of University of Iowa graded course work during a given semester or summer session and who have no semester hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the Dean's List for that semester.

PRESIDENT'S LIST

Undergraduate students in the Tippie College of Business who achieve a g.p.a. of 4.00 on 12 s.h. or more of University of Iowa graded course work and who have no semester hours of I (incomplete) or O (no grade reported) for two consecutive semesters (excluding summer sessions) are recognized by inclusion on the President's List.

GRADUATION WITH HONORS

Graduation with honors recognizes high scholastic achievement based on grades and on completion of academic work beyond the requirements of the student's major. To graduate with honors, students must maintain a cumulative, University of Iowa, business, and UI business g.p.a. of at least 3.50 and must successfully complete an honors project under the supervision of a faculty member. See "Honors" earlier in this Catalog section.

GRADUATION WITH DISTINCTION

Graduation with distinction recognizes high scholastic achievement based on grades. The Office of the Registrar certifies to the Tippie College of Business associate dean the names of students eligible to graduate with distinction. The college awards degrees "with highest distinction" to students in the highest two percent of the graduating class, "with high distinction" to students in the next highest three percent, and "with distinction" to the next highest five percent. Ranking is based on students' grade-point averages for all college-level study undertaken before their final registration.

To be eligible to be considered for graduation with distinction, a student must complete 60 s.h. in residence as an undergraduate at The University of Iowa; 45 s.h. of that must be completed before the final registration.

Credit and Grading

CREDIT BY EXAMINATION

Students may earn up to 30 s.h. of credit by examination by taking selected tests from the College-Level Examination Program (CLEP) and the Advanced Placement (AP) program of the College Board or the International Baccalaureate Program (IB). For information about when and how to take the CLEP and AP examinations, contact the University's Evaluation and Examination Service. The Tippie College of Business Undergraduate Program Office has information on scores, credit, and course duplicates for all CLEP, Advanced Placement, and IB tests accepted by the college.

MAXIMUM SCHEDULE

During early registration, students admitted to the Tippie College of Business may register for a maximum of 16 s.h. Course schedules that exceed 16 s.h. require approval from the Undergraduate Program Office. After early registration, students may register for a maximum of 18 s.h. Course schedules of more than 18 s.h. for a fall or spring semester, more than 12 s.h. for the summer session require approval from the Undergraduate Program Office.

ADDING AND DROPPING COURSES

Students may drop courses, except College of Law courses, any time before the deadline published in the University's academic deadline calendar. Deadlines are different for regular and off-cycle courses. See Academic Deadlines for The University of Iowa on the Office of the Registrar web site (<http://www.registrar.uiowa.edu>).

Students must obtain approval from the college that offers the course in order to request permission to add or drop a course after these deadlines.

ADMINISTRATIVE DROPS FOR LACK OF PREREQUISITES

Students are responsible for making sure that they have satisfied all prerequisites for any course for which they register. Instructors and departments have the option to drop a student from a course if the student has not satisfied the required prerequisites. Administrative drops must be processed by the first eight calendar days of the semester; the first two calendar days of the winter session, each summer session, or the start of an off-cycle course. Administrative drops are made without assignment of a W (withdrawn). Students who are dropped from courses are notified. Students should not assume that they have

been dropped from a course because they do not have the prerequisites.

ADMINISTRATIVE DROPS FOR NONATTENDANCE

Instructors have the option to drop a student who has missed the first two class periods of a course, unless the student has offered an acceptable reason for beginning the course late. Administrative drops must be processed by the first eight calendar days of the semester or the first two calendar days of the winter session, each summer session, or the start of an off-cycle course. Administrative drops are made without assignment of a W (withdrawn). Students who are dropped from courses are notified. Students should not assume that they have been dropped from a course because they have not attended it.

PASS/NONPASS

Up to 15 s.h. of course work required for the B.B.A. may be taken pass/nonpass with the consent of an advisor and the instructor. Students must be in good academic standing to be eligible for the pass/nonpass option. A maximum of two pass/nonpass courses may be taken in one semester. Courses taken pass/nonpass may not be used to satisfy general education, core, or major business requirements; major business requirements include any course that fulfills a major course requirement or is offered by the major department. Pass/nonpass registration must be completed during the first 10 days of a fall or spring semester or the first one-and-one-half weeks of a summer session, and it requires the approval of the advisor and the instructor. For courses taken pass/nonpass, an earned grade of C-minus or higher is recorded as a P; an earned grade of D-plus or lower is recorded as an N. Pass/nonpass credit is not included in grade-point-average calculations.

SATISFACTORY/FAIL, SATISFACTORY/UNSATISFACTORY

Certain courses are offered satisfactory/fail (S/F) or satisfactory/unsatisfactory (S/U). All students registered for these courses receive one of these marks.

Special forms are not necessary to register for S/F or S/U courses, since all students enrolled in such courses automatically receive an S, an F, or a U.

Semester hours of S or U graded course work are not used in computing grade-point averages, but hours of F graded course work are used.

Semester hours of S graded course work are counted as semester hours earned toward graduation; semester hours of F or U graded course work do not count as semester hours earned toward graduation.

A maximum of 15 s.h. of S credit from The University of Iowa is accepted toward a bachelor's degree.

SECOND-GRADE-ONLY OPTION FOR PRE-BUSINESS STUDENTS

Prebusiness students must follow the rules established by the College of Liberal Arts and Sciences (CLAS). Contact the CLAS Academic Programs & Student Development office or consult the CLAS Academic Policies Handbook for more information.

SECOND-GRADE-ONLY OPTION FOR STUDENTS ADMITTED TO BUSINESS

Students admitted to the Tippie College of Business may use the second-grade-only option on any course except

business courses numbered above 3005 with the prefix ACCT, BUS, ECON, FIN, MSCI, MGMT, MKTG, or ENTR (in the old numbering system, courses numbered above 105 with the prefix 06A, 06B, 06E, 06F, 06K, 06J, 06M, or 06T).

Students may apply the second-grade-only option to a maximum of three different courses while they are enrolled at The University of Iowa; any second-grade-only options used before entry to the Tippie College of Business counts toward the maximum of three second-grade-only options allowed.

Students in joint degree programs are allowed a combined maximum of three second-grade-only options.

The second-grade-only option may be used only once per course. Once placed on the record, the option may not be retracted.

A course taken at another college or university may not be repeated at The University of Iowa under the second-grade-only option.

A University of Iowa course may not be repeated at another institution under the UI second-grade-only option.

If the course was taken for a grade the first time, it must be taken for a grade the second time.

If the course was taken pass/nonpass the first time, the student may choose to take the course for a grade or as pass/nonpass the second time.

Any University of Iowa course taken in any mode of delivery—during a regular semester, a summer session, an intensive session, or through distance learning and the Division of Continuing Education—may be repeated in the same mode of delivery or in any other mode of delivery.

Students who have been awarded a degree from The University of Iowa may not use the second-grade-only option on a course taken before the degree was awarded.

Graduate or professional colleges may recalculate grade-point averages using all grades visible on the permanent record.

Students must register as usual for the course that is to be repeated.

After the session in which the course is being repeated has begun, students must request the second-grade-only option by completing the Second-Grade-Only Option Request Form.

The permanent record is adjusted by placing a pound symbol (#) next to the first grade to indicate that it is no longer being included in the grade-point-average calculation, and only the semester hours from the second registration have been counted as semester hours earned.

INCOMPLETE GRADES

Instructors may report a mark of I (incomplete) only if the unfinished part of the student's work in a course other than research, thesis, or independent study is small; if the work is unfinished for reasons acceptable to the instructor; and if the student's standing in the course is satisfactory.

Students should not re-enroll in a course for which they have an incomplete. Incomplete grades must be removed by completing the unfinished part of the work. Faculty and students are encouraged to state clearly in a written agreement how the incomplete is to be completed. Both

the faculty member and the student should keep a record of the written agreement.

Failure to remove the incomplete before the end of the next full semester, excluding summer and winter sessions, results in replacement of the I with a grade of F, regardless of whether the student is enrolled during that semester. A grade change may be submitted to convert a grade of F to another letter grade, with the instructor's approval.

GUIDED INDEPENDENT STUDY

University of Iowa Guided Independent Study is counted as resident credit and may be applied to all requirements for graduation, subject to approval by the student's major department. Guided Independent Study courses can be taken any semester, up to four courses at a time.

Students eligible for the second-grade-only option may retake the course through Guided Independent Study for the second-grade-only option. Likewise, students eligible for the second-grade-only option in a Guided Independent Study course may retake the course on campus for the second-grade-only option.

PROBATION AND DISMISSAL

Students are placed on academic probation when their grade-point average in any of the following categories falls below 2.00: all course work taken, all course work taken at The University of Iowa, all business course work taken, all business course work taken at The University of Iowa, all course work taken to satisfy requirements for the major(s), and all course work taken at The University of Iowa to satisfy requirements for the major(s). In probation decisions, a 3 s.h. minimum is used to calculate the grade-point average for all course work taken to satisfy requirements for the major(s), and all course work taken at The University of Iowa to satisfy requirements for the major(s).

When all of the above grade-point averages equal or surpass 2.00, students are removed from probation. Students usually are allowed only one session to return to good academic standing. They are required to meet with an academic advisor. Students on academic probation who withdraw registration after the deadline for dropping courses may be dismissed.

Students may be dismissed from the college at any time for unsatisfactory scholarship. While some probationary period usually precedes a dismissal, students in good academic standing who complete a term with extremely unsatisfactory grades may be placed on academic probation or dismissed immediately. Students dropped from the college for poor scholarship may petition for permission to reregister, but usually only after one year following the end of the term in which they were dismissed.

REINSTATEMENT

Students dismissed for unsatisfactory scholarship for the first time are not permitted to register again for one year. Students dismissed for the second time may or may not be granted a second reinstatement. Requests for reinstatement must be made in writing and should be addressed to the Associate Dean, Undergraduate Program Office. Arrangements for a reinstatement interview must be made with the Undergraduate Program Office in the Tippie College of Business. The interview must take place between March 1 and July 1 for reinstatement for fall semester, or between October 1 and December 1

for reinstatement to spring semester. Late requests are deferred to the following semester. Students who are permitted to register following dismissal are registered on academic probation and ordinarily are allowed two semesters to achieve good standing. Most reinstatements include a limit on the number of semester hours the student may take upon reinstatement. Very poor academic work in the first semester of a reinstatement, however, may result in dismissal at the close of that semester.

Returning for Baccalaureate Degrees

RETURNING FOR A SECOND BUSINESS MAJOR

Individuals who already hold a B.B.A. degree from The University of Iowa may complete the requirements for another business major, except accounting. Those interested in earning a degree in accounting must apply for admission to the Graduate College in order to earn the Master of Accountancy degree. Students who return to The University of Iowa to complete another business major must meet the requirements for that major; they do not have to meet the residence requirement. It is their responsibility to notify the Office of the Registrar once they complete the requirements for the second major so that a notation can be placed on their permanent record. Returning students are held to the requirements that are published in The University of Iowa General Catalog for the session in which they reenter.

RETURNING FOR AN ADDITIONAL BACHELOR'S DEGREE

Individuals who hold a bachelor's degree from another college at The University of Iowa may return to earn the B.B.A. degree from the Tippie College of Business. They must satisfy all requirements for undergraduate admission to the business college. Once admitted, they must satisfy all requirements for the B.B.A. in their chosen major. Returning students are held to the requirements that are published in The University of Iowa General Catalog for the session in which they reenter.

RETURNING FOR AN ADDITIONAL BACHELOR'S DEGREE IN ACCOUNTING

Individuals who hold a bachelor's degree in a nonbusiness discipline from The University of Iowa or from another college or university may be considered for admission to the Tippie College of Business to earn the B.B.A. with a major in accounting. Individuals interested in this option should consult with the Department of Accounting about the B.B.A. program in accounting (undergraduate) and the Master of Accountancy graduate program. Those who already hold a B.B.A. from The University of Iowa or any business degree from another institution may not earn a major in accounting at Iowa.

Business Analytics

Director

- Nick Street

Affiliated faculty

- Kurt M. Anstreicher (Management Sciences/Mechanical and Industrial Engineering/Computer Science), Samuel Burer (Management Sciences), Ann M. Campbell (Management Sciences), Michael W. Colbert (Management Sciences), Renato E. de Matta (Management Sciences), Kevin L. Felker (Management Sciences), Yvonne L. Galusha (Management Sciences), Philip C. Jones (Management Sciences), Johannes Ledolter (Management Sciences/Statistics and Actuarial Science), Qihang Lin (Management Sciences), Timothy J. Lowe (Management Sciences), Jeffrey W. Ohlmann (Management Sciences), Gautam Pant (Management Sciences), Padmini Srinivasan (Computer Science/Nursing), Nick Street (Computer Science/Nursing/Management Sciences), Barrett W. Thomas (Management Sciences), Kang Zhao (Management Sciences)

Graduate certificate: business analytics

Web site: <http://tippie.uiowa.edu/business-analytics/>

The Certificate in Business Analytics is administered by the Department of Management Sciences (p. 707). The Graduate College grants the certificate.

Graduate Program of Study

- Certificate in Business Analytics

Analytics—broadly defined as the scientific process of transforming data into insight for making better decisions—plays an increasingly critical role in business. Companies must be able to access and analyze this data intelligently. As the recognition of analytics has grown, so has the demand for analytics education.

The focus on business analytics entails a specific approach targeting the core business disciplines of business, including operations, IT, finance, marketing, accounting, and human resources, among others.

The Certificate in Business Analytics is administered by the Department of Management Sciences (p. 707). The Graduate College grants the certificate.

Certificate

The certificate program is open to students who have earned an undergraduate degree. A minimum undergraduate or graduate g.p.a. of 2.50 is required for admission.

The Certificate in Business Analytics requires 15 s.h. of graduate credit, of which 9 s.h. must be unique to the certificate and cannot be counted toward the student's major. Students may be allowed to apply up to 6 s.h. of course work from another institution toward the certificate with approval by petition to the director of the certificate program.

A cumulative g.p.a. of at least 2.75 is required in order to complete the certificate. All courses are offered in Cedar Rapids.

Completion of the certificate is noted on the student's transcript. A certificate is mailed to students who complete the program.

The Certificate in Business Analytics requires the following course work.

All of these:

MBA:8150 (06N:216) Business Analytics	3 s.h.
MSCI:9110 (06K:217) Advanced Analytics	3 s.h.
MSCI:9210 (06K:227) Introduction to Modeling with VBA	3 s.h.
MSCI:9230 (06K:230) Database Systems	3 s.h.
An approved data science course	3 s.h.

Doctor of Philosophy

Graduate degree: Ph.D. in business administration

Web site: <http://tippie.uiowa.edu/phd/>

Graduate Program of Study

- Doctor of Philosophy in business administration

The Doctor of Philosophy in business administration is an interdepartmental degree open to students in several Tippie College of Business departments. Basic requirements for the degree are detailed below. For additional information, see "Graduate Programs" in the Accounting (p. 663), Finance (p. 697), Management and Organizations (p. 702), Management Sciences (p. 707), and Marketing (p. 711) sections of the Catalog.

The Tippie College of Business also offers a Doctor of Philosophy in economics; see Economics (p. 680) in the Catalog.

Doctor of Philosophy

The Doctor of Philosophy in business administration requires a minimum of 72 s.h., including approved transfer credit. The program prepares students for research positions in business and government or for research and teaching positions at academic institutions. It is flexible, permitting students to choose a specialization area according to their interests. Course work and related experience enable students to achieve competence in economic theory, statistical methods, and behavioral science as well as expertise in a major and minor study area. Students also have opportunities to develop research and teaching skills.

Ph.D. course work consists of prerequisites (as necessary), the Ph.D. core, major and minor study areas, and dissertation research, described in brief below. For more detailed information about Ph.D. requirements, contact the individual Tippie College of Business departments or visit their web sites.

CORE COURSES

Core courses develop research competence and provide background for specialized study. Doctoral students consult with their advisors to develop a study plan that reflects the individual student's background and interests and satisfies core requirements.

MAJOR STUDY AREA

At least 12 s.h. of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resource management, management information systems, marketing, operations management, organizational behavior, or quantitative methods.

MINOR STUDY AREA

Students must complete a minimum of 9 s.h. of doctoral-level courses beyond the Ph.D. core course requirements in one of the major study areas listed above or in a concentration outside the Tippie College of Business.

COMPREHENSIVE EXAMINATIONS

Students must satisfactorily complete a comprehensive examination, consisting of written or oral parts or both, at the discretion of their major department.

DISSERTATION

Students must present a dissertation proposal at a forum attended by dissertation committee members and open to interested faculty members and graduate students, as established by the student's major department. Researching and writing the dissertation typically require two years of full-time effort.

FINAL EXAMINATION

Ph.D. candidates defend the dissertation in an oral examination attended by dissertation committee members and open to interested faculty members and graduate students.

Admission

Applicants to the Ph.D. program in business administration must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants must take the Graduate Record Examination (GRE) General Test or the Graduate Management Admission Test (GMAT) and have their scores sent to the University in order to be considered for admission. The Departments of Finance, Management and Organizations, Management Sciences, and Marketing accept test scores for either the GRE or GMAT. The Department of Accounting accepts only GMAT scores. Required scores on these tests and their weight in admission decisions vary by department.

International applicants who do not hold a baccalaureate or a more advanced degree from an accredited university in the United States, the United Kingdom, Canada (except French language institutions in Quebec), English-speaking Africa, Australia, or New Zealand must take the Internet-based Test of English as a Foreign Language (TOEFL) or the International English Testing System (IELTS) test and have their scores sent to The University of Iowa. An IELTS total score of at least 7.0 with no subscore below 6.0 satisfies the English language requirement. Applicants who use the IELTS test are required to take the on-campus English Proficiency Evaluation.

Admission is for fall entry. Completed applications should be submitted as early as possible and no later than the following deadlines.

Accounting: January 15

Finance: January 15

Management and Organizations: January 5

Management Sciences: January 15

Marketing: January 15

Visit Ph.D. Programs on the Tippie College of Business web site to learn more.

Economics

Chair

- John L. Solow

Professors

- Rabah Amir (J. Edward Lundy Professor), John W. Fuller, Forrest D. Nelson (Henry B. Tippie Research Fellow), George R. Neumann (George Daly Professor of Economics), Raymond G. Riezman (C. Woody Thompson Professor), John L. Solow (Justice International Business Research Fellow), Anne Villamil (Henry B. Tippie Research Fellow), Nicholas Yannelis (Henry B. Tippie Research Professor of Economics)

Associate professors

- Luciano I. de Castro Jr., Antonio F. Galvao Jr. (Henry B. Tippie Research Fellow), Martin Gervais (Henry B. Tippie Research Fellow)

Assistant professors

- Michael Yu-Fai Choi, David E. Frisvold, Kyungmin "Teddy" Kim, Alexandre Poirier, Alice Schoonbroodt, Nicolas L. Ziebarth

Lecturers

- Stacey L. Brook, Jennifer L. Fuhrman, Alexandra Nica, Blake Whitten

Professors emeriti

- William P. Albrecht, Carol C. Fethke, Gary C. Fethke, Robert Forsythe, John F. Geweke, Hyman Joseph, Gerald L. Nordquist, Thomas F. Pogue, N. Eugene Savin, Larry G. Sgontz, Calvin D. Siebert, Charles H. Whiteman, Shih-Yen Wu

Undergraduate major: economics (B.A., B.S., B.B.A.)

Undergraduate minor: economics

Graduate degrees: M.A. in economics; Ph.D. in economics

Web site: <http://tippie.uiowa.edu/economics/>

Economics is the study of how societies allocate limited resources to achieve competing ends. Using both empirical and deductive methods, economics analyzes incentives, constraints, organizational forms, and market forces to understand patterns of production, exchange, and consumption of goods and services. It treats diverse issues such as wealth and poverty, government expenditures and taxation, prosperity and depression, inflation and unemployment, relations between management and labor, economic growth, environmental protection, health care delivery, the war on drug abuse, free trade versus protectionism, U.S. competitiveness in international markets, and the quality of American education.

The Department of Economics offers degree programs for undergraduates and for graduate students. It also partners with the Departments of Philosophy, Political Science, and Sociology to offer the undergraduate major in ethics and public policy, an interdisciplinary program administered by the Department of Philosophy (College of Liberal Arts and Sciences); see Ethics and Public Policy (p. 297) in the Catalog.

Undergraduate Programs of Study

- Major in economics (Bachelor of Arts, Bachelor of Science, Bachelor of Business Administration)
- Minor in economics

The Tippie College of Business and the College of Liberal Arts and Sciences offer the major in economics. Students may complete the major with their choice of three degrees. The Bachelor of Arts and Bachelor of Science are awarded by the College of Liberal Arts and Sciences; the Bachelor of Business Administration is awarded by the Tippie College of Business.

The B.A. in economics is designed to achieve a balance of economic theory, mathematical tools, and field applications. The B.S. maintains a similar balance but emphasizes development of analytical tools; it prepares students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management.

Each program provides an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics also provides excellent preparation for the study of law and for graduate study in fields such as business management, public administration, hospital and health administration, urban and regional planning, transportation, journalism, political science, and statistics.

All students majoring in economics choose one of three tracks: business economics, policy economics, or analytical economics. They complete three sets of requirements for the major: mathematics and statistics courses that provide the skills needed for understanding economic theory and data; economic theory courses that provide the tools needed for analyzing economic issues; and field courses that apply economic tools to business, social, or specialized analytical issues. The applied field course requirement varies, depending on the student's choice of track.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts with a major in economics requires a minimum of 120 s.h., including 31-32 s.h. of work for the major. The Bachelor of Science with a major in economics requires a minimum of 120 s.h., including 33-35 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The B.A. and B.S. programs focus on economic theory, mathematical tools, and field applications; the B.S. program also includes an emphasis on developing skill using analytic tools. Both programs offer good educational background for a variety of positions in business and government as well as for the study of law and for graduate study.

The economics major for the B.A. and B.S. requires a set of courses in mathematics and statistics (10-11 s.h. for B.A. students, 15-17 s.h. for B.S. students) and a set of courses in economic theory (6 s.h. for B.A. and B.S. students). It also requires a set of applied field courses (15 s.h. for B.A. students, 12 s.h. for B.S. students) in one of three tracks: business economics, policy economics, or analytical economics.

The analytical economics track is for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue technical and/or analytical work in the public or private sector. The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector.

Students may be able to count a limited amount of transfer credit toward the major, but they must complete the following courses at The University of Iowa: ECON:3100 (06E:104) Microeconomic Theory or ECON:3140 (06E:106) Advanced Microeconomics, ECON:3150 (06E:105) Macroeconomics, and three of the applied field courses required for their track.

Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others; see "Prerequisites" below. For help in developing a study plan, visit the Department of Economics web site.

The economics major (B.A. or B.S.) requires the following course work.

MATHEMATICS AND STATISTICS COURSES (B.A.)

Students earning a B.A. complete the following mathematics and statistics course work.

Both of these:

ECON:2800 (06E:071) Statistics for Strategy Problems	3 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.

One of these:

STAT:1020 (22S:025) Elementary Statistics and Inference	3 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.

MATHEMATICS AND STATISTICS COURSES (B.S.)

Students earning a B.S. complete the following mathematics and statistics course work.

All of these:

ECON:4800 (06E:184) Introduction to Econometrics	3 s.h.
MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.

One of these:

STAT:3100 (22S:130)-STAT:3101 (22S:131) Introduction to Mathematical Statistics I-II	6 s.h.
STAT:3120 (22S:120) Probability and Statistics	4 s.h.

The department recommends that students planning to pursue a graduate degree in economics take STAT:3100 (22S:130)-STAT:3101 (22S:131) rather than STAT:3120

(22S:120). It also recommends that they take additional courses in mathematics, including MATH:2700 (22M:027) Introduction to Linear Algebra, MATH:2850 (22M:028) Calculus III, and MATH:3600 (22M:100) Introduction to Ordinary Differential Equations.

ECONOMIC THEORY COURSES (B.A. AND B.S.)

B.A. and B.S. students complete the following economic theory course work.

One of these:

ECON:3100 (06E:104) Microeconomic Theory	3 s.h.
ECON:3140 (06E:106) Advanced Microeconomics	3 s.h.

And:

ECON:3150 (06E:105) Macroeconomics	3 s.h.
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APPLIED FIELD COURSES (B.A. AND B.S.)

B.A. students complete a total of five applied field courses (15 s.h.) in their track; B.S. students complete a total of four applied field courses (12 s.h.) in their track.

Analytical Economics Track (B.A. and B.S.)

Four (B.A. students) or three (B.S. students) of these:

ECON:4090 (06E:183) Natural Resource Economics	3 s.h.
ECON:4110 (06E:173) International Economics	3 s.h.
ECON:4140 (06E:175) Labor Economics	3 s.h.
ECON:4160 (06E:176) Public Sector Economics	3 s.h.
ECON:4170 (06E:174) Monetary Economics	3 s.h.
ECON:4180 (06E:177) Industrial Organization	3 s.h.
ECON:4190 (06E:187) Mathematical Economics	3 s.h.
ECON:4200 (06E:188) Game Theory	3 s.h.
ECON:4700 (06E:189) Topics in Analytical Economics	arr.

And (B.A. and B.S. students):

One additional economics course numbered from ECON:3250 (06E:158) through ECON:4700 (06E:189), excluding these five courses ECON:3870 (06E:190), ECON:3871 (06E:191), ECON:3872 (06E:192), ECON:3999 (06E:194), and ECON:4050 (06E:196)	3 s.h.
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Business Economics Track (B.A. and B.S.)

Five (B.A. students) or four (B.S. students) of these:

ECON:3325 (06E:111) Personnel Economics	3 s.h.
ECON:3335 (06E:117) Money, Banking, and Financial Markets	3 s.h.
ECON:3345 (06E:125) Global Economics and Business	3 s.h.
ECON:3350 (06E:141) Industry Analysis	3 s.h.
ECON:3355 (06E:143) Economic and Business Forecasting	3 s.h.
ECON:3370 (06E:160) Household Finance	3 s.h.
ACCT:2200 (06A:002) Managerial Accounting	3 s.h.
MGMT:2100 (06J:048) Introduction to Management	3 s.h.

Policy Economics Track (B.A. and B.S.)

Four (B.A. students) or three (B.S. students) of these:

ECON:3345 (06E:125) Global Economics and Business	3 s.h.
ECON:3620 (06E:129) Economic Growth and Development	3 s.h.
ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
ECON:3640 (06E:135) Regional and Urban Economics	3 s.h.
ECON:3650 (06E:119) Policy Analysis	3 s.h.
ECON:3690 (06E:165) Sports Economics	3 s.h.
ECON:3750 (06E:145) Transportation Economics	3 s.h.
ECON:3760 (06E:113) Health Economics	3 s.h.
ECON:3790 (06E:171) Antitrust Economics	3 s.h.
ECON:3800 (06E:172) Law and Economics	3 s.h.
ECON:3875 (06E:169) Topics in Policy Economics	arr.

And (B.A. and B.S. students):

One additional economics course numbered from ECON:3250 (06E:158) through ECON:4700 (06E:189), excluding these five courses ECON:3870 (06E:190), ECON:3871 (06E:191), ECON:3872 (06E:192), ECON:3999 (06E:194), and ECON:4050 (06E:196)	3 s.h.
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Prerequisites (B.A.)

Students must complete all of a course's prerequisites before they may register for the course.

Prerequisites for ECON:2800 (06E:071) Statistics for Strategy Problems:
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business, and STAT:1020 (22S:025) Elementary Statistics and Inference or STAT:1030 (22S:008) Statistics for Business

Prerequisites for most upper-level undergraduate courses in economics:

ECON:1100 (06E:001) Principles of Microeconomics and ECON:1200 (06E:002) Principles of Macroeconomics

Prerequisites for ECON:3100 (06E:104) Microeconomic Theory and ECON:3140 (06E:106) Advanced Microeconomics:

ECON:1100 (06E:001) Principles of Microeconomics and MATH:1380 (22M:017) Calculus and Matrix Algebra for Business

Prerequisites for ECON:3150 (06E:105) Macroeconomics: ECON:1200 (06E:002) Principles of Macroeconomics and MATH:1380 (22M:017) Calculus and Matrix Algebra for Business

Prerequisite for ECON:3355 (06E:143) Economic and Business Forecasting:
ECON:2800 (06E:071) Statistics for Strategy Problems

Prerequisites for courses numbered ECON:3790 (06E:171) or above:

ECON:3100 (06E:104) Microeconomic Theory or ECON:3150 (06E:105) Macroeconomics, or both, depending on the course

Prerequisite for ECON:4200 (06E:188) Game Theory:

MATH:1380 (22M:017) Calculus and Matrix Algebra for Business

Prerequisites (B.S.)

Students must complete all of a course's prerequisites before they may register for the course.

Prerequisites for most upper-level undergraduate courses in economics:

ECON:1100 (06E:001) Principles of Microeconomics and ECON:1200 (06E:002) Principles of Macroeconomics

Prerequisites for ECON:3100 (06E:104) Microeconomic Theory and ECON:3140 (06E:106) Advanced Microeconomics: ECON:1100 (06E:001) Principles of Microeconomics and MATH:1850 (22M:025) Calculus I

Prerequisites for ECON:3150 (06E:105) Macroeconomics: ECON:1200 (06E:002) Principles of Macroeconomics and MATH:1850 (22M:025) Calculus I

Prerequisite for ECON:3355 (06E:143) Economic and Business Forecasting:

ECON:2800 (06E:071) Statistics for Strategy Problems

Prerequisites for courses numbered ECON:3790 (06E:171) or above:

ECON:3100 (06E:104) Microeconomic Theory or ECON:3150 (06E:105) Macroeconomics, or both, depending on the course

Prerequisite for ECON:4200 (06E:188) Game Theory:
MATH:1850 (22M:025) Calculus I

Prerequisite for ECON:4800 (06E:184) Introduction to Econometrics: STAT:3101 (22S:131) Introduction to Mathematical Statistics II or STAT:3120 (22S:120) Probability and Statistics

Prerequisite for MATH:1860 (22M:026) Calculus II:
MATH:1850 (22M:025) Calculus I

Prerequisite for STAT:3100 (22S:130) Introduction to Mathematical Statistics I: MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus or MATH:1860 (22M:026) Calculus II

Prerequisite for STAT:3101 (22S:131) Introduction to Mathematical Statistics II:

STAT:3100 (22S:130) Introduction to Mathematical Statistics I

Prerequisite for STAT:3120 (22S:120) Probability and Statistics: MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus or MATH:1860 (22M:026) Calculus II

Bachelor of Business Administration

The Bachelor of Business Administration with a major in economics requires a minimum of 120 s.h., including 18 s.h. of work for the major. The program emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management. It provides good educational background for a variety of positions in business and government as well as for the study of law and for graduate study.

All students must complete the B.B.A. common requirements: the General Education courses, the prerequisites to the business core, and the business core;

see "Common Requirements" in the Bachelor of Business Administration (p. 670) section of the Catalog.

The economics major for the B.B.A. requires a set of courses in mathematics and statistics, which students take as part of the B.B.A. common requirements, and a set of courses in economic theory (6 s.h.). It also requires a set of applied field courses (12 s.h.) in one of three tracks: business economics, policy economics, or analytical economics.

The analytical economics track is for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue technical and/or analytical work in the public or private sector. The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector.

Students may request permission to apply a limited amount of transfer credit or correspondence credit toward the major, but they should take the following courses at The University of Iowa: ECON:3100 (06E:104) Microeconomic Theory or ECON:3140 (06E:106) Advanced Microeconomics, and ECON:3150 (06E:105) Macroeconomics.

Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others; see "Prerequisites" below. For help in developing a study plan, visit the Department of Economics web site.

The economics major for the B.B.A. requires the following course work.

MATHEMATICS AND STATISTICS COURSES (B.B.A.)

Students take these courses as part of the B.B.A. common requirements.

ECON:2800 (06E:071) Statistics for Strategy Problems	3 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
STAT:1030 (22S:008) Statistics for Business	4 s.h.

ECONOMIC THEORY COURSES (B.B.A.)

One of these:

ECON:3100 (06E:104) Microeconomic Theory	3 s.h.
ECON:3140 (06E:106) Advanced Microeconomics	3 s.h.

And:

ECON:3150 (06E:105) Macroeconomics	3 s.h.
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APPLIED FIELD COURSES (B.B.A.)

Students earning a B.B.A. complete a total of four applied field courses (12 s.h.) in their track.

Analytical Economics Track (B.B.A.)

Three of these:

ECON:4090 (06E:183) Natural Resource Economics	3 s.h.
ECON:4110 (06E:173) International Economics	3 s.h.
ECON:4140 (06E:175) Labor Economics	3 s.h.

ECON:4160 (06E:176) Public Sector Economics	3 s.h.
ECON:4170 (06E:174) Monetary Economics	3 s.h.
ECON:4180 (06E:177) Industrial Organization	3 s.h.
ECON:4190 (06E:187) Mathematical Economics	3 s.h.
ECON:4200 (06E:188) Game Theory	3 s.h.
ECON:4700 (06E:189) Topics in Analytical Economics	arr.

And:

One additional economics course numbered from ECON:3250 (06E:158) through ECON:4700 (06E:189), excluding these five courses ECON:3870 (06E:190), ECON:3871 (06E:191), ECON:3872 (06E:192), ECON:3999 (06E:194), and ECON:4050 (06E:196)	3 s.h.
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Business Economics Track (B.B.A.)

Four of these:

ECON:3325 (06E:111) Personnel Economics	3 s.h.
ECON:3335 (06E:117) Money, Banking, and Financial Markets	3 s.h.
ECON:3345 (06E:125) Global Economics and Business	3 s.h.
ECON:3350 (06E:141) Industry Analysis	3 s.h.
ECON:3355 (06E:143) Economic and Business Forecasting	3 s.h.
ECON:3370 (06E:160) Household Finance	3 s.h.

Policy Economics Track (B.B.A.)

Three of these:

ECON:3345 (06E:125) Global Economics and Business	3 s.h.
ECON:3620 (06E:129) Economic Growth and Development	3 s.h.
ECON:3625 (06E:133) Environmental and Natural Resource Economics	3 s.h.
ECON:3640 (06E:135) Regional and Urban Economics	3 s.h.
ECON:3650 (06E:119) Policy Analysis	3 s.h.
ECON:3690 (06E:165) Sports Economics	3 s.h.
ECON:3750 (06E:145) Transportation Economics	3 s.h.
ECON:3760 (06E:113) Health Economics	3 s.h.
ECON:3790 (06E:171) Antitrust Economics	3 s.h.
ECON:3800 (06E:172) Law and Economics	3 s.h.
ECON:3875 (06E:169) Topics in Policy Economics	arr.

And:

One additional economics course numbered from ECON:3250 (06E:158) through ECON:4700 (06E:189), excluding these five courses ECON:3870 (06E:190), ECON:3871 (06E:191), ECON:3872 (06E:192), ECON:3999 (06E:194), and ECON:4050 (06E:196)	3 s.h.
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Prerequisites (B.B.A.)

Students must complete all of a course's prerequisites before they may register for the course.

Prerequisites for most upper-level undergraduate courses in economics:

ECON:1100 (06E:001) Principles of Microeconomics and
ECON:1200 (06E:002) Principles of Macroeconomics

Prerequisites for ECON:3100 (06E:104) Microeconomic Theory:

ECON:1100 (06E:001) Principles of Microeconomics and
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business

Prerequisites for ECON:3150 (06E:105) Macroeconomics:
ECON:1200 (06E:002) Principles of Macroeconomics and
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business

Prerequisite for ECON:2800 (06E:071) Statistics for Strategy Problems:
STAT:1030 (22S:008) Statistics for Business

Prerequisites for courses numbered ECON:3790 (06E:171) and above:

ECON:3100 (06E:104) Microeconomic Theory or
ECON:3150 (06E:105) Macroeconomics, or both, depending on the course

B.A. or B.S. with Teacher Licensure

Economics majors in the College of Liberal Arts and Sciences (B.A. and B.S. students) who are interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts, Bachelor of Science

Before the fifth semester begins: ECON:1100 (06E:001) Principles of Microeconomics, ECON:1200 (06E:002) Principles of Macroeconomics, and the math component of quantitative courses required for major

Before the seventh semester begins: ECON:3100 (06E:104) Microeconomic Theory, ECON:3150 (06E:105) Macroeconomics, one economics course numbered 3000 or above, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: three economics courses numbered 3000 or above and the statistics component of the quantitative course requirement

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Business Administration

The following checkpoints are designed for students who enter the University as first-year pre-business students. In order to stay on the plan, students must maintain the grade-point average required for guaranteed admission to the Tippie College of Business and must apply for admission to the college by the established deadline.

Pre-business students must take BUS:3000 (06B:100) Business Communication and Protocol during their first semester after admission to the Tippie College of Business. Students admitted to the Tippie College of Business directly from high school must take BUS:3000 (06B:100) during their second year.

Before the third semester begins: ECON:1100 (06E:001) Principles of Microeconomics or ECON:1200 (06E:002) Principles of Macroeconomics, MATH:1380 (22M:017) Calculus and Matrix Algebra for Business, and STAT:1030 (22S:008) Statistics for Business, or equivalent courses

Before the fifth semester begins: ACCT:2100 (06A:001) Introduction to Financial Accounting, ACCT:2200 (06A:002) Managerial Accounting, and ECON:1100 (06E:001) Principles of Microeconomics or ECON:1200 (06E:002) Principles of Macroeconomics (whichever has not already been taken), or equivalent courses; and all General Education requirements

Before the seventh semester begins: all business core requirements, approximately half of the course work in the major (varies by major), and at least 90 s.h. earned toward the degree

During the eighth semester: all remaining course work in the major and a sufficient number of semester hours to graduate

Honors in the Major (B.A. and B.S.)

College of Liberal Arts and Sciences students majoring in economics have the opportunity to graduate with honors in the major. Departmental honors students must complete ECON:3100 (06E:104) Microeconomic Theory and ECON:3150 (06E:105) Macroeconomics before the senior year. Interested students should consult the department's honors advisor by the second semester of their junior year.

Honors students in economics typically register for ECON:3999 (06E:194) Honors Seminar in the fall of the senior year. To graduate with honors in the major, they define and complete a research project under the guidance of a supervising faculty member, earning up to 6 s.h. in ECON:4999 (06E:195) Honors Thesis in Economics. They present the thesis orally to a committee of three faculty members, typically the undergraduate honors advisor, the student's research supervisor, and a third faculty member agreed upon by the student and the honors advisor.

Departmental honors students must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University's honors program.

Honors in Business (B.B.A.)

Qualified B.B.A. students have the opportunity to pursue honors study in the Tippie College of Business. For more information, see "Honors in Business" in the Bachelor of Business Administration (p. 670) section of the Catalog and visit the Tippie College of Business Honors Program web site.

Minor

The minor in economics requires a minimum of 15 s.h. in economics courses, including 12 s.h. taken at The University of Iowa in Department of Economics courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass.

Courses for Nonmajors

Students in the College of Liberal Arts and Sciences may wish to use economics courses as part of other majors or the General Education Program (p. 323). The introductory courses ECON:1100 (06E:001) Principles of Microeconomics and ECON:1200 (06E:002) Principles of Macroeconomics are approved for the Social Sciences area of General Education; they introduce the field of economics and the specialized topics of upper-division courses. The intermediate theory courses ECON:3100 (06E:104) Microeconomic Theory and ECON:3150 (06E:105) Macroeconomics provide a deeper foundation in the core theories and methods of the discipline. They serve as preparation for upper-division field courses or as terminal courses in an economics study plan.

Course work in economics relates to majors in many other fields. For example, political science majors could elect ECON:3650 (06E:119) Policy Analysis; international studies majors, ECON:3345 (06E:125) Global Economics and Business; environmental planning and policy majors, ECON:3625 (06E:133) Environmental and Natural Resource Economics; pre-law students, ECON:3790 (06E:171) Antitrust Economics and ECON:3800 (06E:172) Law and Economics; mathematics and engineering majors, ECON:3100 (06E:104) Microeconomic Theory and ECON:4190 (06E:187) Mathematical Economics; and statistics majors, ECON:4800 (06E:184) Introduction to Econometrics.

Undergraduate Economics Forum

Students are invited to join the undergraduate Economics Forum. The group sponsors programs to help students plan for careers or graduate study and holds social events, special lectures, and round-table discussions. It provides opportunities for students to meet other economics majors and department faculty members.

Graduate Programs of Study

- Master of Arts in economics
- Doctor of Philosophy in economics

The department partners with the College of Law to offer a joint degree program; see "Joint Ph.D./J.D." later in this section. It also participates in the M.B.A. program, which is offered by the Tippie School of Management; see Master of Business Administration Program (p. 715) in the Catalog.

Master of Arts

The Master of Arts is offered only to students working toward a Ph.D. in economics.

Doctor of Philosophy

The Doctor of Philosophy program in economics requires a minimum of 72 s.h. of graduate credit. The program provides rigorous training in economic theory, econometrics, and applied economics. It has six components: a coordinated sequence of core courses, a qualifying examination, a research paper, a set of major field courses, a dissertation proposal and comprehensive examination, and a dissertation. Requirements are as follows.

CORE SEQUENCE

First semester:

ECON:5000 (06E:200) Economic Analysis I	3 s.h.
ECON:5100 (06E:203) Microeconomics I	3 s.h.
ECON:5200 (06E:204) Macroeconomics I	3 s.h.

Second semester:

ECON:5010 (06E:201) Economic Analysis II	3 s.h.
ECON:5110 (06E:205) Microeconomics II	3 s.h.
ECON:5210 (06E:206) Macroeconomics II	3 s.h.

Third semester:

ECON:5800 (06E:221) Econometrics	3 s.h.
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Fourth semester:

ECON:5810 (06E:222) Applied Econometrics	3 s.h.
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QUALIFYING EXAMINATION

The qualifying examination is normally taken the summer after the first year.

RESEARCH PAPER

The research paper is normally completed the summer after the second year.

MAJOR FIELD COURSES

Each student chooses a major study area in addition to the core courses. The requirement for the major area is a minimum of 24 s.h. of intensive study in a field and in courses that enable students to understand the relationship between their specialty and related fields.

DISSERTATION PROPOSAL AND COMPREHENSIVE EXAMINATION

Students must defend a dissertation proposal in a comprehensive examination within one year of completing the research paper requirement.

DISSERTATION

Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College

section of the Catalog. Application deadline for admission and financial support is January 15 for fall semester entry.

Applicants must take the Graduate Record Examination (GRE) General Test and have their scores sent to the University. Those whose first language is not English and who do not hold a baccalaureate or advanced degree from an accredited college or university in the United States must take the Test of English as a Foreign Language (TOEFL) and have their scores sent to the University.

Applicants must submit a completed Application for Graduate Admission, official transcripts from all institutions they have attended, and all official test scores to the University of Iowa Office of Admissions. They must upload unofficial transcripts, statements of purpose, a résumé, and reference information to the Tippie College of Business Ph.D. applicant portal.

Joint Ph.D./J.D.

The Department of Economics and the College of Law offer a joint Doctor of Philosophy/Juris Doctor program; for information about the J.D. degree, see "Juris Doctor" in the College of Law (p. 1005) section of the Catalog. Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the joint degree program.

Special Seminar

Each year the department offers a seminar program that brings eminent economists from other universities and from government agencies to The University of Iowa campus. Presentations by Department of Economics faculty members and students also are featured.

Courses

Lower-Level Undergraduate

Students may take ECON:1100 (06E:001) Principles of Microeconomics and ECON:1200 (06E:002) Principles of Macroeconomics in either order or simultaneously. They are approved for the Social Sciences area of the College of Liberal Arts and Sciences General Education Program.

ECON:1100 (06E:001) Principles of Microeconomics 4 s.h.

Organization, workings of modern economic systems; role of markets, prices, competition in efficient allocation of resources and promotion of economic welfare; alternative systems; international trade. Requirements: B.B.A. students cannot use this course for General Education social sciences. GE: Social Sciences.

ECON:1200 (06E:002) Principles of Macroeconomics 4 s.h.

National income and output, employment and inflation; money, credit; government finance; monetary, fiscal policy; economic growth, development; international finance. Requirements: B.B.A. students cannot use this course for General Education social sciences. GE: Social Sciences.

ECON:1300 (06E:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

ECON:2800 (06E:071) Statistics for Strategy Problems 3 s.h.

Continuation of STAT:1030 (22S:008); working knowledge of statistical techniques, scientific data-based approach to problem formulation and solution, statistical techniques in the context of real data analysis, assessment of defects in statistical analyses, using data for making business decisions, choosing appropriate statistical procedures, developing skill in communicating statistical results to audiences without knowledge of statistics. Prerequisites: MATH:1380 (22M:017) and STAT:1030 (22S:008).

Upper-Level Undergraduate and Graduate

ECON:3100 (06E:104) Microeconomic Theory 3 s.h.

Economic theory of the behavior of consumers, producers, and other economic agents; role of markets in coordinating economic activity, conditions that markets require for efficient allocation of resources; market imperfections; strategic behavior of economic actors. Prerequisites: ECON:1100 (06E:001) and MATH:1380 (22M:017).

ECON:3140 (06E:106) Advanced Microeconomics 3 s.h.

Mathematical treatment of the economic theory of the behavior of consumers, producers, and other economic agents; the role of markets in coordinating economic activity and the conditions required by those markets for an efficient allocation of resources; market imperfections; and the strategic behavior of economic actors. Prerequisites: ECON:1100 (06E:001), and MATH:1380 (22M:017) or MATH:1850 (22M:025). Recommendations: MATH:1850 (22M:025).

ECON:3150 (06E:105) Macroeconomics 3 s.h.

Measurement of macroeconomic indicators; economic growth and business cycles; use of macroeconomic models to study the role of government fiscal and monetary policies. Prerequisites: ECON:1200 (06E:002) and MATH:1380 (22M:017).

ECON:3250 (06E:158) American Economic History 3 s.h.

Requirements: ECON:1100 (06E:001) and ECON:1200 (06E:002) for economics majors; ECON:1100 (06E:001) and HIST:2261 (16A:061) for nonmajors. Same as HIST:3360 (16A:144).

ECON:3325 (06E:111) Personnel Economics 3 s.h.

Microeconomic analysis of labor markets, related institutions; labor supply decisions made by workers, labor demand decisions made by firms, market equilibrium; economic analysis of unions; returns to education; family decisions. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).

- ECON:3335 (06E:117) Money, Banking, and Financial Markets** 3 s.h.
Role of money, institutions in determination of income, employment, prices in domestic and world economy. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).
- ECON:3345 (06E:125) Global Economics and Business** 3 s.h.
Modern theories of international trade and investment; role of tariffs and other restrictions of international trade; foreign exchange markets, international monetary arrangements, international economic policy. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).
- ECON:3350 (06E:141) Industry Analysis** 3 s.h.
Structural evolution; imperfect competition, resource allocation; development of public policy on monopoly; selected industries. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).
- ECON:3355 (06E:143) Economic and Business Forecasting** 3 s.h.
How to develop and utilize forecasts; emphasis on modern statistical methods and software applied to quantitative forecasting problems; specific applications to business and economics include forecasting sales, market prices, inventory, macroeconomic factors (interest rates, exchange rates, levels of employment). Prerequisites: ECON:1100 (06E:001), ECON:1200 (06E:002), and ECON:2800 (06E:071).
- ECON:3370 (06E:160) Household Finance** 3 s.h.
Micro- and macroeconomic theory applied to economic decisions of families, households; practical and theoretical issues in income generation, spending and saving decisions, risk management and asset allocation, investments, and intergenerational wealth transfers. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).
- ECON:3610 (06E:130) Development of Local and Regional Economies** 3 s.h.
Theories, methods, and public policy in regional economic development; business and industrial locations, theories of regional growth and development, tools for regional economic analysis, technology and knowledge economy, globalization and trade, economic development finance and policy. Recommendations: introductory microeconomics. Same as URP:3136 (102:136).
- ECON:3620 (06E:129) Economic Growth and Development** 3 s.h.
Determinants of rising living standards; accumulation of physical and human capital; predictions of economic growth models compared to observed changes in living standards. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).
- ECON:3625 (06E:133) Environmental and Natural Resource Economics** 3 s.h.
Environmental and resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002). Same as URP:3135 (102:135).
- ECON:3640 (06E:135) Regional and Urban Economics** 3 s.h.
Theory of location and regional development; central place theory; why cities exist and trade with one another; models of land use patterns, rents; empirical tests of models; policy applications. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002). Same as URP:3134 (102:134).
- ECON:3650 (06E:119) Policy Analysis** 3 s.h.
Economic functions of government in modern economies; economic decision making; budgetary processes; effects of government expenditures, taxation on allocation of resources, distribution of income, economic growth, stability. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).
- ECON:3690 (06E:165) Sports Economics** 3 s.h.
Theory and literature of economic issues in professional sports; issues such as relative advantages of large- and small-market teams, city subsidies for baseball and football stadiums, star players' true value to their teams; ideas from introductory economics (such as demand and cost curves) combined with additional economic theory, statistical evidence, and information about particular sports. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).
- ECON:3750 (06E:145) Transportation Economics** 3 s.h.
Overview of transportation markets—intercity, rural, urban; transportation modes—rail, highway, air, water, pipeline, transit; issues in finance, policy, planning, management, physical distribution, and environmental, economic, and safety regulation. Recommendations: ECON:1100 (06E:001) and ECON:1200 (06E:002). Same as GEOG:3940 (044:133), URP:3350 (102:133).
- ECON:3760 (06E:113) Health Economics** 3 s.h.
Structure of America's health care industry, economic analysis applied to its problems of production, pricing, distribution; cost-effectiveness, financing of medical costs, role of government. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).
- ECON:3790 (06E:171) Antitrust Economics** 3 s.h.
Topics in federal antitrust policy; merger policy, monopolization, predatory pricing, collusion, vertical restrictions, resale price maintenance, enforcement; case law, economics literature. Prerequisites: ECON:3100 (06E:104) or LAW:8146 (091:208).
- ECON:3800 (06E:172) Law and Economics** 3 s.h.
Law examined through analytic tools of microeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well-being. Prerequisites: ECON:1100 (06E:001).
- ECON:3870 (06E:190) Federal Reserve Challenge** 3 s.h.

Experience doing what Federal Reserve economists do every day: study the real U.S. economy, make forecasts and policy recommendations, defend their views to academic and professional economists; development of analytical skills, teamwork, how to build presentations. Prerequisites: ECON:3100 (06E:104) and ECON:3150 (06E:105).

ECON:3871 (06E:191) Federal Reserve Challenge II 0 s.h.

Participation in Federal Reserve Challenge after completion of ECON:3870 (06E:190). Prerequisites: ECON:3870 (06E:190).

ECON:3872 (06E:192) Individual Study in International Economics 1-3 s.h.

Basic economic theory used as foundation to examine international trade, macroeconomic policy, and financial market issues; focus on multinational firms that trade and/or produce across national borders and viewed within context of recent events.

ECON:3875 (06E:169) Topics in Policy Economics arr.

Topics vary. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002).

ECON:3999 (06E:194) Honors Seminar 1-3 s.h.

Research topics and methods in business. Requirements: honors standing. Same as BUS:3999 (06B:194).

ECON:4050 (06E:196) Readings and Independent Study in Economics arr.

ECON:4090 (06E:183) Natural Resource Economics 3 s.h.

Economics of natural resources; interaction between economic theory, empirical evidence, and public policy; land, water, fish, trees, minerals; externalities. Prerequisites: ECON:3100 (06E:104).

ECON:4110 (06E:173) International Economics 3 s.h.

Neoclassical model of international trade, imperfect competition and international trade and investment, role of trade barriers; regional trade agreements and the World Trade Organization. Requirements: ECON:3100 (06E:104) and ECON:3150 (06E:105), or graduate standing.

ECON:4140 (06E:175) Labor Economics 3 s.h.

Labor supply and demand; investments in human capital, compensating wage differentials, discrimination, long-term contracts, occupational choice, family decisions, unions, immigration. Prerequisites: ECON:3100 (06E:104).

ECON:4160 (06E:176) Public Sector Economics 3 s.h.

Economic functions of government; budgetary processes; effects of government expenditures, taxation on resource allocation, income distribution, economic growth and stability. Prerequisites: ECON:3100 (06E:104) and ECON:3150 (06E:105).

ECON:4170 (06E:174) Monetary Economics 3 s.h.

Demand for and supply of money; money's role in economy; empirical studies of money's impact; problems with monetary control. Prerequisites: ECON:3100 (06E:104) and ECON:3150 (06E:105).

ECON:4180 (06E:177) Industrial Organization 3 s.h.

Market structure; effects of business practices, informational problems on market structure; appraisal of antitrust policies, government regulation of business. Prerequisites: ECON:3100 (06E:104).

ECON:4190 (06E:187) Mathematical Economics 3 s.h.

Mathematical structure of economic principles, problems, systems; may include constrained optimization, choice under uncertainty, general equilibrium and welfare economics, dynamical systems and control theory, game theory. Prerequisites: ECON:3100 (06E:104) and ECON:3150 (06E:105).

ECON:4200 (06E:188) Game Theory 3 s.h.

Basic concepts of game theory including dominance, backward induction, Nash equilibrium, evolutionary stability, commitment, credibility, asymmetric information, adverse selection, signaling; provides students with a working understanding of game theory; examples drawn from economics and politics. Prerequisites: ECON:3100 (06E:104), ECON:3150 (06E:105), and MATH:1380 (22M:017).

ECON:4700 (06E:189) Topics in Analytical Economics arr.

Topics vary. Prerequisites: ECON:3100 (06E:104) and ECON:3150 (06E:105).

ECON:4800 (06E:184) Introduction to Econometrics 3 s.h.

Single equation linear statistical models, estimation and hypothesis testing; serial correlation, heteroscedasticity, generalized least squares estimation; specification analysis; errors in variables; emphasis on interpretation, application of econometric models, methods, use of computers. Prerequisites: STAT:3120 (22S:120).

ECON:4900 (06E:199) Academic Internship arr.

Participation in approved internship program (e.g., Washington Center Internships).

ECON:4999 (06E:195) Honors Thesis in Economics 3 s.h.

Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: ECON:3999 (06E:194) or BUS:3999 (06B:194). Requirements: admission to the Tippie College of Business honors program.

Graduate

Qualified undergraduates may enroll in graduate-level courses with consent of the department chair.

ECON:5000 (06E:200) Economic Analysis I 3 s.h. Basic metric topology, convex analysis, function spaces, measure theory and integration.	ECON:6900 (06E:299) Contemporary Topics in Economics 3 s.h. Topics not offered in other courses.
ECON:5010 (06E:201) Economic Analysis II 3 s.h. Behavior under uncertainty, macroeconomic models; dynamic programming, asset pricing, saving, consumption.	ECON:7000 (06E:310) Seminar in Economic Theory arr.
ECON:5100 (06E:203) Microeconomics I 3 s.h. Consumer choice theory, producer theory, choice under uncertainty, basic game theory. Offered fall semesters.	ECON:7010 (06E:311) Seminar in Economic Theory II arr.
ECON:5110 (06E:205) Microeconomics II 3 s.h. General equilibrium and welfare analysis, adverse selection, the principal-agent problem, social choice, mechanism design. Offered spring semesters. Prerequisites: ECON:5100 (06E:203).	ECON:7870 (06E:321) Workshop in Microeconomics 1 s.h.
ECON:5200 (06E:204) Macroeconomics I 3 s.h. Economic growth, business cycles, money and inflation. Offered fall semesters.	ECON:7880 (06E:322) Workshop in Macro and Monetary Economics 1 s.h.
ECON:5210 (06E:206) Macroeconomics II 3 s.h. Dynamic macroeconomic models; stochastic macroeconomics; time consistency equilibrium business cycle theory. Offered spring semesters. Prerequisites: ECON:5200 (06E:204).	ECON:7950 (06E:300) Readings in Economics arr.
ECON:5800 (06E:221) Econometrics 3 s.h. Statistical inference in single and multiple equation stochastic models, models with nonindependent or nonidentically distributed error structure, dynamic models; OLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests. Prerequisites: STAT:4101 (22S:154).	ECON:7975 (06E:301) Thesis in Economics arr.
ECON:5810 (06E:222) Applied Econometrics 3 s.h. Empirical problems; multiple linear regression, nonlinear regression, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisites: ECON:5800 (06E:221).	
ECON:6310 (06E:271) Industrial Organization 3 s.h. The firm, monopolistic competition, oligopoly and workable competition; industrial organization, nature of equilibrium under uncertainty. Prerequisites: ECON:5110 (06E:205).	
ECON:6420 (06E:241) Macroeconomics III 3 s.h. Current research in macroeconomics; development of research topics with emphasis on theoretical and empirical analysis. Prerequisites: ECON:5110 (06E:205) and ECON:5800 (06E:221).	
ECON:6500 (06E:235) International Trade Theory 3 s.h. The theory of international trade, including basic models of international trade; capital and labor mobility and trade; protection of international trade; the political economy of international trade; empirical applications of international trade.	

Enterprise Leadership

Director

- David K. Hensley

Undergraduate major: enterprise leadership (B.A.)
The enterprise leadership major provides an option for students who want to focus on business leadership. The major presents a unique blend of skills, theory, and content, encouraging students to apply their knowledge and skills to entrepreneurial concepts and ventures. The program offers a combination of business and liberal arts approaches and allows students to hone their skills in communication and critical thinking.

Undergraduate Program of Study

- Major in enterprise leadership (Bachelor of Arts)

The major in enterprise leadership is offered jointly by the College of Liberal Arts and Sciences and the John Pappajohn Center for Entrepreneurial Management in the Tippie College of Business. The degree is awarded by the College of Liberal Arts and Sciences.

Bachelor of Arts

The Bachelor of Arts with a major in enterprise leadership requires a minimum of 120 s.h., including 47-51 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Students may earn the major in enterprise leadership or the Certificate in Entrepreneurial Management, but not both.

The enterprise leadership major requires the following course work.

FOUNDATION

Foundation courses introduce students to the basic skills, tools, and concepts they will need for the major. Students must earn at least 15 s.h. in the following courses.

Mathematics

One of these:

MATH:1340 (22M:013) Mathematics for Business	4 s.h.
MATH:1020 (22M:009) Elementary Functions	4 s.h.
MATH:1380 (22M:017) Calculus and Matrix Algebra for Business	4 s.h.
MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.
MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.

Economics

One of these:

ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
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ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
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Statistics

One of these:

STAT:1030 (22S:008) Statistics for Business	4 s.h.
STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.

Sociology

This course:

SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
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CORE

The core supports students' understanding of the essence and operation of entrepreneurial enterprise. Students must earn at least 14-18 s.h. in the following courses.

ENTR:1350 (06T:050) Foundations in Entrepreneurship	2 s.h.
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or

ACCT:2100 (06A:001) & MKTG:3000 (06M:100) Introduction to Financial Accounting - Introduction to Marketing Strategy	6 s.h.
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All of these:

ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.
ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.

One of these:

ENTR:4400 (06T:150) Managing the Growth Business	3 s.h.
MGMT:2100 (06J:048) Introduction to Management	3 s.h.

LEADERSHIP

Personal Leadership

These courses help students reflect on the importance of leadership while developing their own leadership style and skills.

At least 3 s.h. from these:

LS:1020 (421:020) Introduction to Leadership	3 s.h.
LS:1024 (421:024) Alternative Break Service Learning	1-3 s.h.
LS:2000 (421:106) Career Leadership Academy—Phase 1	2 s.h.
LS:2001 (421:107) Career Leadership Academy—Phase 2	2 s.h.
LS:2010 (421:072) Perspectives on Leadership: Principles and Practices	3 s.h.
LS:3010 (421:071) Global Leadership Initiative	1 s.h.

Or this one:

LS:2002 (421:076) Career Leadership Academy—Phase 1 and 2	3 s.h.
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Social Context of Leadership

Courses introduce students to the impact of social constructs on leadership and organizational effectiveness, such as economic class and cultural and social differences.

One of these (3 s.h.):

SOC:3610 (034:164) Organizations and Modern Society	3 s.h.
SOC:3880 (034:170) Social Networks	3 s.h.
SOC:4210 (034:125) Small Group Analysis	3 s.h.
SOC:4225 (034:123) The Social Psychology of Leadership	3 s.h.
SOC:4230 (034:124) Sociology of Self-Improvement	3 s.h.

U.S. CULTURAL DIVERSITY

The following courses provide an overview of the complexity of diversity in the United States, and a comprehensive introduction to related issues.

One of these (3 s.h.):

AFAM:1020 (129:061)/AMST:1030 (045:030) Introduction to African American Culture	3 s.h.
AFAM:1030 (129:060) Introduction to African American Society	3 s.h.
AFAM:2079 (129:079)/SPST:2079 (028:079) Race and Ethnicity in Sport	3 s.h.
AFAM:2265 (129:065)/HIST:2265 (16A:065) Introduction to African American History	3 s.h.
AFAM:3500 (129:108)/RELS:3808 (032:108) Malcolm X, King, and Human Rights	3 s.h.
AMST:2025 (045:025) Diversity and American Identities	3 s.h.
ANTH:2165 (113:110)/AINS:2165 (149:110)/AMST:2165 (045:105) Native Peoples of North America	3 s.h.
GWSS:1001 (131:010) Introduction to Gender, Women's, and Sexuality Studies	3 s.h.
GWSS:1002 (131:055) Diversity and Power in the U.S.	3 s.h.
HIST:1010 (016:015) Issues in Human History: Gender in Historical Perspective	3 s.h.
HIST:1040 (016:040) Perspectives: Diversity in American History	3 s.h.
SOC:2810 (034:066) Social Inequality	3 s.h.
SPST:1074 (028:074)/AMST:1074 (045:074)/GWSS:1074 (131:074) Inequality in American Sport	3 s.h.

COMMUNICATION

The following courses help students develop an understanding of contemporary communication theory and how it is applied.

Communication Theory

At least 3 s.h. from these:

COMM:1112 (036:012) Interpersonal Communication	3 s.h.
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COMM:1117 (036:017) Theory and Practice of Argument	4 s.h.
COMM:1130 (036:030) The Art of Persuading Others	3 s.h.
COMM:1170 (036:070) Communication Theory in Everyday Life	3 s.h.
COMM:1174 (036:074) Media and Society	3 s.h.
JMC:1100 (019:090) Media Uses and Effects	3 s.h.
JMC:1200 (019:091) Media History and Culture	3 s.h.
JMC:1500 (019:050) Social Media Today	3 s.h.
JMC:3110 (019:150) Visual Communication	3 s.h.
JMC:3155 (019:161) Law, Media, and Current Issues	3 s.h.

Applied Communication

At least 3 s.h. from these:

BUS:3800 (06B:140) Business Writing	3 s.h.
CNW:3640 (08N:113) Writing for Business and Industry	3 s.h.
CNW:4642 (08N:133) Team Writing for Business	3 s.h.
CW:3001 (08C:101)/INTD:3001 (145:101) Creative Writing for Business	3 s.h.
CW:3218 (08C:108)/INTD:3200 (145:108) Creative Writing for New Media	3 s.h.
RHET:2055 (010:055) Practices of Rhetoric and Persuasion	3 s.h.
RHET:2065 (010:065) Persuading Different Audiences	3 s.h.
RHET:2085 (010:085) Speaking Skills	3 s.h.
RHET:2990 (010:090) The Art of Marketing Ideas Online	3 s.h.

CAPSTONE EXPERIENCE

Students engage in an entrepreneurial experience and apply their knowledge and skills by planning a business, working for a business, or consulting with a business. Students also may choose an approved experiential learning course from a College of Liberal Arts and Sciences major, such as an internship in another major area, with approval.

One of these:

ENTR:4200 (06T:192) Entrepreneurship: Business Consulting	3 s.h.
ENTR:4300 (06T:194) Entrepreneurship: Advanced Business Planning	3 s.h.
ENTR:4900 (06T:199) Academic Internship	3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the fifth semester begins: six courses in the major

Before the seventh semester begins: four more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: four more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Entrepreneurial Management

Executive director

- David K. Hensley

Director

- Lynn Allendorf

Affiliated faculty

- Matthew J. Adam (Management and Organizations), Keith M. Chiavetta (Management and Organizations), Lee D. Eilers (Management and Organizations), Joseph P. George (Management and Organizations), Robert E. Gettemy (Management and Organizations), Kimm M. Harris (Management and Organizations), Scott R. Hauser (Management and Organizations), Kurt F. Heiar (Management and Organizations), Kirk S. Hiland (Management and Organizations), Robert N. Holland (Management and Organizations), Dennis E. Jordan (Management and Organizations), Kevin W. Krause (Management and Organizations), Richard C. McCarty (Management and Organizations), Jeffrey B. Nock (Management and Organizations), Brian E. Rolland (Management and Organizations), Dennis M. Schrag (Management and Organizations), Joseph N. Sulentic (Management and Organizations), Alexander Taylor (Management and Organizations), Julie A. Zielinski (Management and Organizations)

Undergraduate certificate: entrepreneurial management

Web site: <http://www.iowajpec.org/>

The Tippie College of Business and the John Pappajohn Entrepreneurial Center offer the Certificate in Entrepreneurial Management. They also work with other units on campus to offer entrepreneurship programs. The college collaborates with the College of Engineering to offer the Certificate in Technological Entrepreneurship (p. 937). The center partners with the Department of Management and Organizations (p. 702) to offer the entrepreneurial management track for Bachelor of Business Administration students majoring in management, and it works with the College of Liberal Arts and Sciences to offer the Certificate in Performing Arts Entrepreneurship (p. 512).

The Pappajohn Entrepreneurial Center also offers a wide variety of professional experiences designed to foster the development of entrepreneurs and future organizational leaders.

Undergraduate entrepreneurship programs at The University of Iowa combine academic course work and experiential learning with a focus on teaching entrepreneurial leadership, innovation and creativity, opportunity recognition and assessment, and strategic business planning. Several of the programs are open to all University of Iowa undergraduates. To learn more, visit the John Pappajohn Entrepreneurial Center web site.

Undergraduate Program of Study

- Certificate in Entrepreneurial Management

Certificate

The Certificate in Entrepreneurial Management requires a minimum of 18 s.h. of credit. The certificate program

is open to all current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

The certificate program is designed to help students acquire the entrepreneurial mindset that will enable them to launch new ventures or manage growing companies. It focuses on qualities and skills essential for entrepreneurs and successful business leaders.

Entrepreneurial management students learn from a select team of faculty members and business executives distinguished by their ability to teach, model, and inspire the entrepreneurial process. They learn skills for:

- recognizing and evaluating business opportunities;
- preparing strategic business and operating plans;
- preparing financial forecasts and budgets and evaluating financial performance;
- leading, motivating, and managing teams and individuals;
- communicating and negotiating in business situations; and
- enhancing professional and interpersonal skills.

Undergraduate students must declare their intention to pursue the certificate. Business students should contact the Tippie College of Business Undergraduate Program Office. Liberal arts and sciences students should contact the Academic Programs & Student Development office.

Students earning the certificate in conjunction with the Bachelor of Applied Studies (p. 1245) (University College) or the Bachelor of Liberal Studies (p. 1248) (College of Liberal Arts and Sciences) may complete the certificate's course work by distance education.

Students may begin working toward the Certificate in Entrepreneurial Management during their sophomore year. They may count a maximum of 6 s.h. of transfer credit toward the certificate, with approval from the entrepreneurship program director. Credit earned in entrepreneurship courses (prefix ENTR) is counted as semester hours earned in business on the degree audit.

The Certificate in Entrepreneurial Management requires the following course work. Many certificate courses have prerequisites and other requirements for registration; students must complete a course's prerequisites and must meet its registration requirements before they may register for the course.

ENTREPRENEURSHIP CORE

One of these:

ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
ENTR:3520 (06T:125) New Ventures in the Arts	3 s.h.

Course ENTR:2000 (06T:120) requires concurrent registration in ENTR:1350 (06T:050); course ENTR:3520 (06T:125) requires concurrent registration in ENTR:1350 (06T:050), or in ACCT:2100 (06A:001) Introduction to Financial Accounting and MKTG:3000 (06M:100) Introduction to Marketing Strategy. Certificate students must complete the required concurrent courses.

All of these:

ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.
ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.
ENTR:4400 (06T:150) Managing the Growth Business	3 s.h.

ELECTIVES

Students earn an additional 6 s.h. in elective courses chosen from the following list. Students who wish to use a course not on the list must consult with the Pappajohn Entrepreneurial Center director.

ENTR:3000 (06T:191) Practicum in Entrepreneurship	1-3 s.h.
ENTR:3300 (06T:145) Legal Aspects of Entrepreneurship	3 s.h.
ENTR:3400 (06T:146) Strategic Management of Technology and Innovation	3 s.h.
ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.
ENTR:3595 (06T:144) Nonprofit Organizational Effectiveness I	3 s.h.
ENTR:3600 (06T:148) E-Commerce Strategies for Entrepreneurs	3 s.h.
ENTR:4000 (06T:190) Seminar in Entrepreneurship	3 s.h.
ENTR:4050 (06T:101) Directed Readings in Entrepreneurship	arr.
ENTR:4200 (06T:192) Entrepreneurship: Business Consulting	3 s.h.
ENTR:4300 (06T:194) Entrepreneurship: Advanced Business Planning	3 s.h.
ENTR:4450 (06T:151) Professional Sports Management	3 s.h.
ENTR:4460 (06T:152) Entrepreneurship and Global Trade	3 s.h.
ENTR:4510 (06T:155) Arts Leadership Seminar	3 s.h.
ENTR:4600 (06T:193) Advanced Venture Finance	3 s.h.
ENTR:4900 (06T:199) Academic Internship	3 s.h.
MGMT:4100 (06J:156) Dynamics of Negotiations	3 s.h.

Facilities and Resources

Entrepreneurial Management Institute

The Entrepreneurial Management Institute works with top entrepreneurial management track students in the B.B.A. management major and with Certificate in Entrepreneurial Management students to help them develop career advancement skills. Experienced business professionals and entrepreneurial leaders provide strategic career development training. Activities include seminars on developing professional résumés, creating extensive personal networks, networking with successful Iowa CEOs and business leaders, and making connections for internships and job placement.

Bedell Entrepreneurship Learning Laboratory

The Bedell Entrepreneurship Learning Laboratory is an applied learning environment for advanced entrepreneurship students creating a new business. The laboratory provides dedicated office space for individual

students and teams, enabling them to concentrate on developing their business concepts. Students at the laboratory receive intensive mentoring and other assistance from faculty and staff associated with the John Pappajohn Entrepreneurial Center (JPEC) and the Small Business Development Center. Contact JPEC for information about applying to the laboratory.

Courses

Lower-Level Undergraduate

ENTR:1300 (06T:029) First-Year Seminar	1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).	
ENTR:1350 (06T:050) Foundations in Entrepreneurship	2 s.h.
Basic core business concepts faced by entrepreneurial managers in small business accounting, marketing, and business planning. Recommendations: non-business major interested in studying entrepreneurship.	
ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
Integrated, cross-functional perspective on how organizations identify and evaluate opportunities and develop strategies to compete in a global marketplace; innovation and creativity, opportunity recognition, venture screening, characteristics of successful entrepreneurial leaders, feasibility analysis, strategic business planning; application of entrepreneurship practices for new business creation, corporate venturing, nonprofits. Duplicates ENTR:3520 (06T:125) and MGMT:3100 (06J:125). Corequisites: ENTR:1350 (06T:050).	

Upper-Level Undergraduate and Graduate

ENTR:3000 (06T:191) Practicum in Entrepreneurship	1-3 s.h.
Applied, experiential learning opportunities designed to foster development of entrepreneurial leadership skills; opportunity recognition and assessment, strategic business planning, innovation and creativity, team leadership, professional communication skills, strategy development and execution.	
ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.
Understanding financial aspects of new and growing ventures; focus on preparing financial projections, analyzing financial performance, managing cash flow, and determining financial feasibility; detailed overview of various sources of capital available for start-up and growing ventures. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125).	
ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.

Practical marketing concepts for evaluating the market potential for new products, services, or business opportunities; how to obtain and evaluate market data, determine customer demand, analyze the competition, design effective promotions, develop and implement effective sales strategies, and write a successful marketing plan. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125).

ENTR:3300 (06T:145) Legal Aspects of Entrepreneurship 3 s.h.

Areas of law significant to new and emerging businesses; business formation and structure, intellectual property, business agreements, legal processes. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125).

ENTR:3400 (06T:146) Strategic Management of Technology and Innovation 3 s.h.

New technology innovation and commercialization; technology innovation process, identification of commercialization strategies, feasibility analysis, intellectual property issues. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125).

ENTR:3500 (06T:147) Social Entrepreneurship 3 s.h.

Introduction to the growing field of social entrepreneurship; creation of ventures with dual missions of social benefit and return on investment; issues related to evaluating market opportunities; acquiring and managing scarce resources; sustainability; maximizing social and economic value. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125).

ENTR:3520 (06T:125) New Ventures in the Arts 3 s.h.

Arts administration principles and trends as applied to creation of an arts-related enterprise; case studies; students create business plan for a new arts organization. Duplicates ENTR:2000 (06T:120) and MGMT:3100 (06J:125). Corequisites: ENTR:1350 (06T:050), or ACCT:2100 (06A:001) and MKTG:3000 (06M:100). Same as THTR:3520 (049:111), INTD:3520 (145:111), DPA:3520 (188:111).

ENTR:3595 (06T:144) Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financial aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as MUSM:3500 (024:147), SSW:3500 (042:157), NURS:3595 (096:168), MGMT:3500 (06J:147), RELS:3700 (032:127).

ENTR:3600 (06T:148) E-Commerce Strategies for Entrepreneurs 3 s.h.

E-commerce opportunities and Internet business strategies for entrepreneurial ventures; how to develop effective web business strategies, latest technologies and trends in E-commerce, methods for maximizing traffic, impact of a company's web site. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125).

ENTR:4000 (06T:190) Seminar in Entrepreneurship 2-3 s.h.

Real estate and property issues facing the entrepreneurial venture; real estate development, legal and contractual issues, purchasing versus leasing, and basics of real estate financing and investing. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125).

ENTR:4050 (06T:101) Directed Readings in Entrepreneurship arr.

Independent study; topics and assignments approved by instructor.

ENTR:4200 (06T:192) Entrepreneurship: Business Consulting 3 s.h.

Students provide strategic business consulting services to start-up and early-stage companies; exploration of consulting process (proposal development, data collection and analysis, team dynamics, communications with clients, developing recommendations, final report preparation and presentation); projects involving market research and analysis, financial analysis and projections, and strategic business and operations planning. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125), ENTR:3100 (06T:133) or FIN:3000 (06F:100), and ENTR:3200 (06T:134) or MKTG:3000 (06M:100).

ENTR:4300 (06T:194) Entrepreneurship: Advanced Business Planning arr.

Creation and launch of a new venture; completion of a detailed business plan, creating an elevator pitch, and formal presentation of plan. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125), ENTR:3100 (06T:133) or FIN:3000 (06F:100), and ENTR:3200 (06T:134) or MKTG:3000 (06M:100).

ENTR:4400 (06T:150) Managing the Growth Business 3 s.h.

Preparation to effectively manage employees, customers, and suppliers; leadership for a growing entrepreneurial venture; opportunities to evaluate, practice, and refine critical professional management skills. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125). Requirements: 75 s.h. earned.

ENTR:4450 (06T:151) Professional Sports Management 3 s.h.

Detailed study of professional sports management and marketing; building and managing a front office, marketing sports properties, revenue generation models, developing media relationships, and capitalizing on new opportunities in the sports industry. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125).

ENTR:4460 (06T:152) Entrepreneurship and Global Trade 3 s.h.

Complex issues of business operations in a global economy; trade transactions related to importing and exporting, logistics, and ethical issues in international trade; global business management, global marketing, global supply chain management, and trade finance; preparation for work in global marketplace and for the Certified Global Business Professional certification exam offered by the North American Small Business International Trade Educators. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125).

ENTR:4510 (06T:155) Arts Leadership Seminar 3 s.h.

Performing arts management and administrative principles, practical applications, trends in arts leadership and advocacy. Requirements: for THTR:4510 (049:195) — THTR:3510 (049:109) or THTR:3520 (049:111) or graduate standing in an arts discipline. Same as THTR:4510 (049:195), INTD:4510 (145:195), DPA:4510 (188:195).

ENTR:4600 (06T:193) Advanced Venture Finance 3 s.h.

Examination of financing sources available to emerging and high potential ventures; special emphasis on angel investing and venture capital; preparation of pro forma financial statements, financial analysis, and determining valuations; how market, technology, and financial considerations impact capital formation; evaluation of real venture deals through experiential learning projects. Prerequisites: ENTR:2000 (06T:120) or ENTR:3520 (06T:125) or MGMT:3100 (06J:125), ENTR:3100 (06T:133) or FIN:3000 (06F:100), and ENTR:3200 (06T:134) or MKTG:3000 (06M:100).

ENTR:4900 (06T:199) Academic Internship arr.

Professional internship experience with academic credit (e.g., paper, course work).

Graduate

ENTR:6001 (06T:201) Introduction to Entrepreneurial Management 1 s.h.

The entrepreneurial process as it applies to new ventures and existing organizations; entrepreneurship and corporate entrepreneurship, attributes of successful entrepreneurial leaders, innovation and creativity, feasibility analysis.

ENTR:6002 (06T:202) Evaluating Entrepreneurial Opportunities 1 s.h.

Strategies to identify, assess, and capitalize on sustainable commercial opportunities; opportunity recognition, environmental analysis, intellectual property, strategic business planning.

ENTR:6003 (06T:203) Basics of Entrepreneurial Marketing 1 s.h.

Core marketing concepts facing entrepreneurial organizations; types of markets, product management, distribution, pricing, market research and analysis, market planning.

ENTR:6004 (06T:204) Basics of Entrepreneurial Finance 1 s.h.

Core financial concepts facing entrepreneurial organizations; accounting systems, financial statements, financial statement analysis, financial projections, sources of financing.

ENTR:9000 (06T:210) Developing Professional Service Business 2-3 s.h.

Use of professional skills and functional knowledge in creating a specialized service business. Same as CEE:5210 (053:210).

ENTR:9100 (06T:220) Entrepreneurship and Innovation 3 s.h.

The entrepreneurial process from conception to birth of a new venture; attributes of successful entrepreneurs, innovation and creativity, opportunity recognition, venture screening, identification of resources, feasibility analysis.

ENTR:9400 (06T:246) Evaluating Innovation Opportunities 3 s.h.

Integrated, cross-functional perspective of how organizations identify and evaluate opportunities and develop strategies to compete in a global marketplace; innovation and creativity, opportunity recognition, venture screening, identification of resources, and strategic business planning.

ENTR:9500 (06T:250) Managing the Growth Business 3 s.h.

Issues faced by new, rapidly growing businesses; adapting organizational structure as business expands, building a management team, hiring new employees, managing strategic growth of a business; case studies, particularly in technology sector.

ENTR:9550 (06T:256) Commercializing New Technology 3 s.h.

Hands-on experience with the process of technology commercialization; real-world opportunity in the form of a technology developed in an academic environment or in the private sector and creation of a plan to transfer that technology to the marketplace; identifying a specific application of that technology (the product); identifying and sizing relevant market segments; determining the appropriate business and financial model; designing a business plan; presentation of business plans/opportunities to simulated venture capitalists.

ENTR:9600 (06T:290) Seminar in Entrepreneurship 1-3 s.h.

Topics vary; franchising, business acquisition, real estate development, e-commerce, technology transfer.

ENTR:9700 (06T:292) Entrepreneurship: Business Consulting 3 s.h.

Experience on teams providing consulting services to start-up and early-stage companies; the consulting process—proposal development, data collection and analysis, final report preparation and presentation; projects—marketing studies, financial projections, strategic planning.

ENTR:9800 (06T:294) Entrepreneurship: Advanced Business Planning 3 s.h.

Mentoring for individuals in final stages of preparing to launch their own business.

Finance

Chair

- Erik Lie

Professors

- David S. Bates (Henry B. Tippie Research Professor of Finance), Jon A. Garfinkel (Henry B. Tippie Research Fellow), Erik Lie (Henry B. Tippie Research Professor of Finance), David C. Mauer (Henry B. Tippie Research Fellow), Thomas A. Rietz (Leonard A. Hadley Research Fellow), Jarjisu Sa-Aadu (Chester A. Phillips Professor of Business Finance and Real Estate), John H. Spitzer, Anand M. Vijn (Marvin and Rose Lee Pomerantz Chair in Finance)

Associate professors

- Artem A. Durnev (Henry B. Tippie Research Fellow), James T. Leverty (TRISTAR Risk Management Research Fellow), Yiming Qian (Henry B. Tippie Research Fellow), Gerry L. Suchanek, Ashish Tiwari (Henry B. Tippie Research Fellow), Tong Yao (Henry B. Tippie Research Fellow)

Assistant professors

- Wei Li, Amrita Nain, Shagun Pant

Lecturers

- Heidi J. Dybevik, John G. Gallo, Jeffrey R. Hart, Larry D. Hershberger, Todd I. Houge (Curt and Carol Lane Research Fellow), Brian D. Richman

Professors emeriti

- William C. "Curt" Hunter, Charles E. Marberry, Richard A. Stevenson, Paul A. Weller

Associate professor emeritus

- G. Carl Schweser

Undergraduate major: finance (B.B.A.)

Graduate degree: finance subprogram for the Ph.D. in business administration

Web site: <http://tippie.uiowa.edu/finance/>

The Department of Finance is committed to delivering undergraduate and graduate programs of study that integrate the technology and analytics of today's global financial community. The department's goal is to provide students with the technical skills they will need to enhance their managerial effectiveness, whether they work in large corporations, small organizations, or private consulting.

The department also partners with the Emmett J. Vaughan Institute of Risk Management and Insurance to offer the undergraduate Certificate in Risk Management and Insurance (p. 721).

Undergraduate Program of Study

- Major in finance (Bachelor of Business Administration)

Bachelor of Business Administration

The Bachelor of Business Administration with a major in finance requires a minimum of 120 s.h., including 20 s.h. of work for the major. The program provides a balance of theory, applications, and financial information technology

that facilitates students' transition from classroom to workplace. Through fundamental finance principles and state-of-the-art financial market information technologies, students develop analytical abilities to interpret financial market data, implement the latest trading and investment strategies, and make effective managerial decisions in national as well as international settings.

The program stresses learning by doing, partnership with industry, and internships, with the goal of enhancing students' career development. Students receive a balanced education consistent with the globalization of business and the explosion in financial markets and information technology.

Careers for students majoring in finance include corporate treasury operations, cash management, mergers and acquisitions, investment banking, sales and security trading, security analysis, commercial banking and financial services, credit analysis, mortgage lending, financial planning, consulting, public administration, and venture capital.

The major in finance requires the following course work. For B.B.A. common requirements, see Bachelor of Business Administration (p. 670) in the Catalog.

Required courses—all of these:

FIN:3100 (06F:110) Financial Information Technology	2 s.h.
FIN:3200 (06F:111) Investment Management	3 s.h.
FIN:3300 (06F:117) Corporate Finance	3 s.h.
ACCT:3020 (06A:120) Financial Accounting and Reporting	3 s.h.

Electives—a total of three courses chosen from the following two lists:

FIN:3400 (06F:102) Principles of Risk Management and Insurance	3 s.h.
FIN:4020 (06F:109) Topics in Finance	3 s.h.
FIN:4210 (06F:116) Futures and Options	3 s.h.
FIN:4220 (06F:113) Fixed Income Securities	3 s.h.
FIN:4230 (06F:126) Real Estate Process	3 s.h.
FIN:4240 (06F:130) International Finance	3 s.h.
FIN:4250 (06F:112) Applied Equity Valuation	3 s.h.
FIN:4310 (06F:118) Advanced Corporate Finance	3 s.h.
FIN:4320 (06F:114) Commercial Banking	3 s.h.
FIN:4330 (06F:115) Investment Banking	3 s.h.
FIN:4340 (06F:119) Wealth Management	3 s.h.

Students may include a maximum of one of these in their three electives:

FIN:4410 (06F:104) Corporate and Financial Risk Management	3 s.h.
FIN:4420 (06F:103) Property and Liability Insurance	3 s.h.
FIN:4430 (06F:105) Life and Health Insurance	3 s.h.
FIN:4440 (06F:106) Employee Benefit Plans	3 s.h.

Certificate in Risk Management and Insurance

The Department of Finance and the Emmett J. Vaughan Institute of Risk Management and Insurance offer the undergraduate certificate program in risk management

and insurance; see Risk Management and Insurance (p. 721) in the Catalog.

Graduate Program of Study

- Finance subprogram for the Doctor of Philosophy in business administration

In addition to offering a finance program for the Ph.D. in business administration, the department participates in the M.B.A. program, which is offered by the Tippie School of Management; see Master of Business Administration Program (p. 715) in the Catalog.

Doctor of Philosophy

Graduate students in finance may earn a Doctor of Philosophy in business administration. For a description of the Ph.D. program and requirements, see Doctor of Philosophy (p. 679) in the Catalog and visit the Department of Finance web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Courses

Lower-Level Undergraduate

FIN:1300 (06F:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

Upper-Level Undergraduate and Graduate

FIN:3000 (06F:100) Introductory Financial Management 3 s.h.

Financial management goals and decision making; valuation of bonds and stocks, risk and return analysis, portfolio diversification, market efficiency, asset pricing, cost of capital, agency theory, capital budgeting, financial planning. Prerequisites: ACCT:2100 (06A:001), ECON:1100 (06E:001), and ECON:1200 (06E:002). Requirements: 60 s.h. completed.

FIN:3100 (06F:110) Financial Information Technology 2 s.h.

Applications of commonly used financial software and data systems reviewed by student teams. Corequisites: FIN:3000 (06F:100).

FIN:3200 (06F:111) Investment Management 3 s.h.

Investment in marketable securities in domestic and international markets; financial markets, securities trading, evaluation of risk/return trade-off, formulation and implementation of investment strategies, efficient portfolio formation. Prerequisites: FIN:3000 (06F:100). Corequisites: FIN:3100 (06F:110).

FIN:3300 (06F:117) Corporate Finance 3 s.h.

Advanced managerial decision making; corporate financial policy, dividend policy, agency theory, corporate restructuring, capital structure strategies, mergers and acquisitions, option pricing fundamentals, convertible debt, callable debt, warrants. Prerequisites: FIN:3000 (06F:100). Corequisites: FIN:3100 (06F:110).

FIN:3400 (06F:102) Principles of Risk Management and Insurance 3 s.h.

Introduction to risk and insurance; risk identification and evaluation, demand for insurance, effects of limited liability, theory of moral hazard and adverse selection; business and personal risk; insurance as a risk management tool. Corequisites: FIN:3000 (06F:100).

FIN:3500 (06F:190) Hawkinson Scholar Seminar 1 s.h.

Advanced skill and understanding required for pursuit of investment banking, management consulting careers; specialized résumé and interview training, industry presentations, relevant case assignments.

FIN:3510 (06F:191) Hawkinson Scholar Seminar: Topics in Finance 0 s.h.

Subsectors in the financial services industry, including hedge funds, investment banking, commercial banking; valuation techniques used in real-world mergers, acquisitions, equity offerings, debt financing, and so forth.

FIN:4020 (06F:109) Topics in Finance 3 s.h.

Contemporary issues in finance. Prerequisites: FIN:3000 (06F:100).

FIN:4050 (06F:101) Directed Readings in Finance arr.

Individually guided readings in selected topics.

FIN:4210 (06F:116) Futures and Options 3 s.h.

Use of options, futures, and other derivative securities in financial management; understanding types of derivative securities, markets, trading technology; applications of risk management and speculation; pricing relations with underlying securities. Prerequisites: FIN:3200 (06F:111).

FIN:4220 (06F:113) Fixed Income Securities 3 s.h.

Theories of fixed income securities, term structure of interest rates; asset pricing models, valuation of fixed income securities and contingent claims, fixed income portfolio management, immunization strategies, yield curve analysis. Prerequisites: FIN:3000 (06F:100). Corequisites: FIN:3100 (06F:110).

FIN:4230 (06F:126) Real Estate Process 3 s.h.

Fundamentals of real estate finance and investments; economic base analysis, asset analysis, market analysis, mortgage markets, underwriting, alternative mortgages, mortgage-backed securities, real estate securitization, land development, valuation principles, investment analysis, tax consideration, portfolio management. Prerequisites: FIN:3000 (06F:100). Corequisites: FIN:3100 (06F:110).

- FIN:4240 (06F:130) International Finance** 3 s.h.
International monetary systems, exchange rate determination, use of currency derivative in hedging and risk management, currency swaps, foreign direct investment, international corporate finance, international capital budgeting, international portfolio investment, Third World debt, privatization, joint ventures. Prerequisites: FIN:3000 (06F:100). Corequisites: FIN:3100 (06F:110).
- FIN:4250 (06F:112) Applied Equity Valuation** 3 s.h.
Equity valuation and portfolio management techniques by investment professionals; economic forecasting, industry analysis, financial statement analysis, spreadsheet modeling, cost of capital estimation, equity valuation and portfolio construction; students manage The University of Iowa's Krause Fund (an endowed equity portfolio that blends academic rigor with real-world portfolio management experience). Prerequisites: FIN:3000 (06F:100). Requirements: UI cumulative g.p.a. of at least 2.80.
- FIN:4310 (06F:118) Advanced Corporate Finance** 3 s.h.
Issues relevant to financial management, payout policy, financial distress and bankruptcy, restructuring, market for corporate control; recent research and cases from the corporate arena; other topics (e.g., bankruptcy) to broaden application and understanding of finance theory. Prerequisites: FIN:3300 (06F:117).
- FIN:4320 (06F:114) Commercial Banking** 3 s.h.
Management of commercial banks and financial service firms; asset and liability management, credit policy, capital risk, liquidity planning, use of swaps and derivatives to hedge interest rate risk, global banking, investment strategies. Prerequisites: FIN:3000 (06F:100). Corequisites: FIN:3100 (06F:110).
- FIN:4330 (06F:115) Investment Banking** 3 s.h.
How investment banks fill critical roles in maintaining well-functioning financial markets and provide access to capital and strategic advice to companies and governments; recent global financial crisis; how banker's role as intermediary between companies and markets adds value and creates conflicts and risk. Prerequisites: FIN:3000 (06F:100) and FIN:3300 (06F:117).
- FIN:4340 (06F:119) Wealth Management** 3 s.h.
Financial services for client wealth management; how to make personal investment decisions and build diversified, comprehensive investment portfolios; investment theory; common behavioral biases that lead to investment pitfalls, mistakes; wealth management objectives, portfolio risk and reward, asset allocation, portfolio diversification, tax shield structures, retirement plans, wealth protection, risk management, behavioral finance, psychology of investing. Prerequisites: FIN:3000 (06F:100).
- FIN:4410 (06F:104) Corporate and Financial Risk Management** 3 s.h.
Analysis and treatment of pure and financial risks faced by business organizations; development and implementation of the risk management process, application of varied risk management techniques to identified exposures; how businesses manage risk and how insurance is used to manage the cost of risk; case studies. Prerequisites: FIN:3400 (06F:102). Corequisites: FIN:3100 (06F:110).
- FIN:4420 (06F:103) Property and Liability Insurance** 3 s.h.
Fundamentals of commercial property and liability insurance; commercial property and liability contracts, functions of property and liability insurers; regulation and financial analysis of property and liability insurers; marketing, underwriting, rate making, claim settlements. Prerequisites: FIN:3400 (06F:102).
- FIN:4430 (06F:105) Life and Health Insurance** 3 s.h.
Types of life insurance and annuity contracts and their uses; regulation of life and health insurers; development of financial plans using life insurance products; Social Security, group, and individual health insurance products, including major medical, disability income, long-term care policies; marketplace analysis; contractual provisions, determination of human life values, mathematics of life contingencies and pricing. Prerequisites: FIN:3400 (06F:102).
- FIN:4440 (06F:106) Employee Benefit Plans** 3 s.h.
Management of employee benefit plans (e.g., group life and health insurance, retirement programs); design, administration, and financing of employee benefits; federal administration of employee benefit plans; funding requirements, financial alternatives; funding and vesting of retirement annuities; design and management of health care plans, including "cafeteria" approach and nonqualified deferred compensation arrangements; economic effects and financing employee benefits and retirement plans in private and public sectors. Prerequisites: FIN:3400 (06F:102).
- FIN:4450 (06F:107) Risk Modeling** 3 s.h.
Theory used to solve real-life problems taken from a diverse set of risk management applications; varied areas where risk analysis has become important (i.e., finance, insurance, corporate risk management, personal financial planning); principles of probability theory, mathematical finance, and actuarial science developed for use in quantitative analysis of important risk management problems; spreadsheet-based course. Prerequisites: FIN:3000 (06F:100).
- FIN:4900 (06F:199) Academic Internship** 1-3 s.h.
Professional internship experience with associated academic content.
- FIN:4999 (06F:195) Honors Thesis in Finance** 3 s.h.

Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: BUS:3999 (06B:194) or ECON:3999 (06E:194). Requirements: admission to the Tippie College of Business honors program.

Graduate

FIN:7110 (06F:225) Finance Theory I 3 s.h.

Consumption-based models of asset pricing; arbitrage, contingent claims; market efficiency and information economics, behavioral models; emphasis on theory. Requirements: Ph.D. enrollment.

FIN:7120 (06F:226) Seminar in Corporate Finance 3 s.h.

Valuation (DCF and CAPM); valuation under certainty, uncertainty; financial structure, cost of capital; dividend policy; firm investment in perfect, imperfect capital markets. Requirements: Ph.D. enrollment.

FIN:7130 (06F:227) Finance Theory II 3 s.h.

Continuous time theories of financial markets, including connection between an arbitrage-free pricing system and martingales; pricing of contingent claims, general equilibrium and term structure theory. Requirements: Ph.D. enrollment.

FIN:7140 (06F:228) Advanced Empirical Finance 3 s.h.

Market efficiency and term structure theory tests; tests of asset pricing models, dividend policy and financial structure issues. Requirements: Ph.D. enrollment.

FIN:7850 (06F:229) Seminar in Finance 1 s.h.

Requirements: Ph.D. enrollment.

FIN:7950 (06F:288) Directed Reading in Finance-Ph.D. arr.

Requirements: Ph.D. enrollment.

FIN:7975 (06F:290) Thesis in Business arr.

FIN:9000 (06F:201) Directed Readings in Finance-M.B.A. arr.

FIN:9010 (06F:205) Contemporary Topics in Finance arr.

FIN:9150 (06F:206) Financial Modeling and Firm Valuation 3 s.h.

How to model firm value from a discounted cash flow perspective; identify a company's key value drivers, create spreadsheet valuation models; projected financial valuation integrates projected pro forma accounting statements; forecasting, free cash flow estimation, industry competitive analysis. Prerequisites: MBA:8180 (06N:225).

FIN:9200 (06F:212) Portfolio Management 3 s.h.

Introduction to fundamental elements of modern portfolio theory, application to investment analysis; investment environment, instruments, types of investors; concepts of risk and return, broad perspective on historical risk and return of various asset classes; asset allocation decision, risk and return dynamics of a multiple securities portfolio; varied asset pricing models, how capital markets work for investors and users of capital. Prerequisites: MBA:8180 (06N:225).

FIN:9210 (06F:213) Derivatives 3 s.h.

Examination of the wide range of derivative securities that cover the financial landscape; the market place, trading, and investors; different derivative securities in existence, their relationship with the underlying securities, and pricing; applications of derivative securities to risk management and speculation; application of principles to fixed income, international finance, real estate, and securitization. Prerequisites: MBA:8180 (06N:225).

FIN:9220 (06F:216) Fixed Income Securities 3 s.h.

Conceptual framework and tools to undertake the valuation of fixed income securities and the management of fixed income portfolios; varied fixed income instruments and the markets in which they trade; introduction to basic building blocks of fixed income analysis, including concepts of duration, convexity, and term structure of interest rates; application of concepts in bond portfolio immunization strategies; use of interest rate derivatives in portfolio hedging applications. Prerequisites: MBA:8180 (06N:225).

FIN:9230 (06F:214) Real Estate Finance and Investments 3 s.h.

In-depth understanding of concepts and techniques of real estate financial analysis, equity investment decision making; real estate investing from analysis of developments through the securitization of mortgages; mortgage markets and pricing, real estate finance and investments, mortgage-backed securities, development process, real estate valuation, tax effects, securitized real estate, real estate cycles, application of derivative instruments, strategic asset allocation. Prerequisites: MBA:8180 (06N:225).

FIN:9240 (06F:223) International Finance 3 s.h.

Introduction to structure and functioning of global financial markets; currency market, international equity markets; use of derivatives in currency risk management for corporate and investment needs; corporate investment decisions in an international context. Prerequisites: MBA:8180 (06N:225).

FIN:9250 (06F:221) Applied Securities Analysis - Henry Fund I 3 s.h.

Manage Henry Fund portfolio, learn legal environment in which the fund operates, analyze potential investments, implement controls to monitor the fund's performance; decisions and investment recommendations made by students; each student analyzes an economic sector and geographic region (i.e., utilities analyst and specialist in South East Asia); while the fund cannot currently invest directly in foreign listed stocks, it holds U.S. listed stocks with significant overseas interests and students are able to invest in a number of ADRs. Prerequisites: MBA:8180 (06N:225).

FIN:9260 (06F:222) Applied Securities Analysis - Henry Fund II 3 s.h.

Continuation of FIN:9250 (06F:221). Prerequisites: FIN:9250 (06F:221) and MBA:8180 (06N:225).

FIN:9270 (06F:224) Security Analysis 3 s.h.

Valuation of financial securities (primarily equities) using discounted cash flow model; industry, regulatory analysis; financial statement analysis; active portfolio management; value-based management techniques; valuation of firms outside the United States. Prerequisites: MBA:8180 (06N:225).

FIN:9280 (06F:208) Structured Finance-Securitization 3 s.h.

Design of debt, equity, and hybrid financing techniques to resolve issuer and investor problems that conventional methods cannot address; why and when corporations and financial institutions issue structured securities; how securities are designed and priced; how securities meet investors' needs; securitized assets, mortgages, asset-backed securities, collateralized debt obligations, credit risk, valuation, cost of capital; legal, tax, and regulatory issues; design and implementation of structured-financed products. Prerequisites: MBA:8180 (06N:225).

FIN:9290 (06F:217) Alternative Investments and Portfolio Strategies 3 s.h.

Continuation of FIN:9200 (06F:212); alternative investments, including hedge funds, private equity funds, and venture capital vehicles; purpose of alternative investments, including the risk/return profile of alternatives and correlations with traditional asset classes; specific hedge fund styles, strategies, risk profiles; portfolio strategy topics, including diversification benefits, management of downside risk, international diversification, behavioral finance, performance measures, and performance attribution analysis. Prerequisites: FIN:9200 (06F:212) and MBA:8180 (06N:225).

FIN:9300 (06F:215) Corporate Investment and Financing Decisions 3 s.h.

Underpinnings and optimization of corporations' investment and financing decisions; firm-wide and project-specific cost of capital, optimal capital structure decisions; in-depth capital budgeting methods, including real options techniques; corporate investment module of the class includes simulation analysis using Crystal Ball; cost of capital, valuation techniques, advanced capital budgeting, capital structure and dividend policy, option pricing models applied to corporate finance. Prerequisites: MBA:8180 (06N:225).

FIN:9310 (06F:218) Corporate Financial Strategy 3 s.h.

Major strategic decisions within the corporate form; risk management, including why firms engage in it, their methods for doing so, and exercises in the simulation of uncertainty; dividends and repurchases under the payout policy decision; corporate governance topics, including executive compensation, board structure, and institutional monitoring; merger and acquisitions analysis, including regulation, valuation, anti-takeover devices, payment method, and LBOs; divestitures and other restructuring topics, including corporate diversification, spin-offs, carve-outs, private workouts, and Chapter 11. Prerequisites: MBA:8180 (06N:225).

FIN:9350 (06F:207) Wealth Management 3 s.h.

Rapid growth of the field of wealth management over several decades, driven by general increase in personal wealth and increased responsibility for individuals to manage their own wealth; knowledge and tools to enter the financial services industry; financial planning industry, client characteristics, tax shield structures, insurance, asset allocation plans, estate planning, behavioral finance. Prerequisites: MBA:8180 (06N:225).

FIN:9390 (06F:230) Putting Finance into Practice 3 s.h.

Hands-on practical experience in corporate finance or investments; work in teams on a corporate finance project or an investment project for a corporate or institutional client; partner companies identify financial issues, challenges, and opportunities for students to help solve; students work with the companies and a faculty member to provide an analysis of the situation and proposals of actions to be taken. Prerequisites: MBA:8180 (06N:225).

Management and Organizations

Chair

- Amy L. Kristof-Brown

Professors

- Kenneth G. Brown (Henry B. Tippie Research Fellow), Jay J. Christensen-Szalanski, David K. Hensley, Maria L. Kraimer (Gary C. Fethke Research Fellow), Amy L. Kristof-Brown (Henry B. Tippie Research Professor of Management), Lon D. Moeller, Michael K. Mount (Henry B. Tippie Research Professor Management), Sara L. Rynes (John F. Murray Professor of Management), Greg L. Stewart (Henry B. Tippie Research Professor of Management)

Associate professors

- Terry L. Boles (Henry B. Tippie Research Fellow), Amy E. Colbert (Leonard A. Hadley Research Fellow), Scott E. Seibert (Henry B. Tippie Research Fellow)

Assistant professors

- Eean R. Crawford, Ning Li, Ernest H. O'Boyle

Lecturers

- Lee D. Eilers, Joseph George, Robert E. Gettemy, Richard C. McCarty, Dennis M. Schrag, Joseph N. Sulentic

Professors emeriti

- Nancy R. Hauserman, Norman F. Kallaus, Charles R. Klasson, Lola L. Lopes, Gerald L. Rose, Frank L. Schmidt, Peter P. Schoderbek, Duane E. Thompson, Jude P. West

Associate professor emeritus

- Terry L. Boles

Undergraduate major: management (B.B.A.)

Graduate degree: management subprogram for the Ph.D. in business administration

Web site: <http://tippie.uiowa.edu/management-organizations/>

The Department of Management and Organizations offers study of human resource management; individual, team, and organizational behavior; employment law and ethics; leadership and personal development; negotiations; training and development; and organizational design.

Undergraduate Program of Study

- Major in management (Bachelor of Business Administration)

The major in management has three tracks. One, the entrepreneurial management track, is offered by distance education as well as on campus. See "Bachelor of Business Administration" and "B.B.A. by Distance Education" below.

Bachelor of Business Administration

The Bachelor of Business Administration with a major in management requires a minimum of 120 s.h., including 21 s.h. of work for the major. The program is designed to give

students a thorough background in the department's study areas as well as an understanding of their application to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are blended to include both theoretical and pragmatic aspects of the field.

All B.B.A. students majoring in management choose one of three tracks: entrepreneurial management, human resource management, or leadership and management. The entrepreneurial management track is intended for students who plan to start their own business or work in a small business. The human resource management track covers business and employment law and prepares students to pursue careers in human resources or to earn a degree in law. The leadership and management track focuses on practical skills; it is best suited for students considering consulting or management careers. Each track provides a solid background in general management principles in addition to a specialized focus.

The major in management requires the following course work. For B.B.A. common requirements, see Bachelor of Business Administration (p. 670) in the Catalog.

COMMON REQUIRED COURSES

Students in all tracks must complete the following three courses.

MGMT:3200 (06J:130) Individuals, Teams, and Organizations	3 s.h.
MGMT:3300 (06J:131) Strategic Human Resource Management	3 s.h.
MGMT:4100 (06J:156) Dynamics of Negotiations	3 s.h.

ENTREPRENEURIAL MANAGEMENT TRACK

Students in the entrepreneurial management track complete all of these:

MGMT:3100 (06J:125) Entrepreneurial Strategy	3 s.h.
ENR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.
ENR:4400 (06T:150) Managing the Growth Business	3 s.h.

And 3 s.h. from these:

ENR:3000 (06T:191) Practicum in Entrepreneurship	3 s.h.
ENR:4200 (06T:192) Entrepreneurship: Business Consulting	3 s.h.
ENR:4300 (06T:194) Entrepreneurship: Advanced Business Planning	3 s.h.
ENR:4600 (06T:193) Advanced Venture Finance	3 s.h.
ENR:4900 (06T:199) Academic Internship	arr.

HUMAN RESOURCE MANAGEMENT TRACK

Students in the human resource management track complete all of these:

MGMT:3400 (06J:132) Employment Law	3 s.h.
MGMT:4200 (06J:160) Staffing and Talent Management	3 s.h.
MGMT:4350 (06J:171) Performance Management and Strategic Rewards	3 s.h.

And 3 s.h. from these:

MGMT:3450 (06J:146) International Business Environment	3 s.h.
MGMT:3900 (06J:145) Training and Developing Human Resources	3 s.h.
MGMT:4300 (06J:162) Leadership and Personal Development	3 s.h.
ENTR:4200 (06T:192) Entrepreneurship: Business Consulting	3 s.h.
ENTR:4400 (06T:150) Managing the Growth Business	3 s.h.

LEADERSHIP AND MANAGEMENT TRACK

Students in the leadership and management track complete all of these:

MGMT:3400 (06J:132) Employment Law	3 s.h.
MGMT:4300 (06J:162) Leadership and Personal Development	3 s.h.
MGMT:4325 (06J:167) Team and Project Management	3 s.h.

And 3 s.h. from these:

MGMT:3100 (06J:125) Entrepreneurial Strategy	3 s.h.
MGMT:3450 (06J:146) International Business Environment	3 s.h.
MGMT:3500 (06J:147) Nonprofit Organizational Effectiveness I	3 s.h.
MGMT:3900 (06J:145) Training and Developing Human Resources	3 s.h.
MGMT:4200 (06J:160) Staffing and Talent Management	3 s.h.
ENTR:4200 (06T:192) Entrepreneurship: Business Consulting	3 s.h.

B.B.A. by Distance Education

Students may earn the B.B.A. with a major in management, entrepreneurial management track, by distance education. The degree requires a minimum of 120 s.h. of credit. To be admitted to the program, individuals must have earned a minimum of 60 s.h. of college-level credit with a g.p.a. of at least 2.75, and they must have completed four prerequisite courses (business calculus, statistics, microeconomics, and financial accounting) with a g.p.a. of at least 2.75. Contact the Department of Management and Organizations and the Division of Continuing Education to learn more.

Graduate Program of Study

- Management subprogram for the Doctor of Philosophy in business administration

In addition to offering a management and organizations program for the Ph.D. in business administration, the department participates in the M.B.A. program, which is offered by the Tippie School of Management; see Master of Business Administration Program (p. 715) in the Catalog.

Doctor of Philosophy

Graduate students in management and organizations may earn a Doctor of Philosophy in business administration. For a description of the Ph.D. program and requirements, see Doctor of Philosophy (p. 679) in the Catalog and visit the Department of Management and Organizations web site.

Applicants must meet the admission requirements of the Graduate college; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Courses

Lower-Level Undergraduate

MGMT:1300 (06J:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

MGMT:2000 (06J:047) Introduction to Law 3 s.h.
General history, structure of law; law's action in guiding changing economic, social patterns. Requirements: sophomore standing.

MGMT:2100 (06J:048) Introduction to Management 3 s.h.
Principles of management, organizational structure, decision making, leadership, line-staff relationships, administration of organizations. Requirements: sophomore standing.

Upper-Level Undergraduate and Graduate

MGMT:3100 (06J:125) Entrepreneurial Strategy 3 s.h.
The synergistic effect of entrepreneurial attributes (e.g., innovation, creativity, opportunity recognition) and managerial attributes (e.g., strategic management, planning, budgeting) on profit and nonprofit organizations.

MGMT:3200 (06J:130) Individuals, Teams, and Organizations 3 s.h.
Theories of organizational behavior applied to current business trends for individuals, teams, organizations; personality, managing diversity, work-family conflict, self-managed teams, charismatic leadership, work motivation, managing conflict, organizational culture. Prerequisites: MGMT:2000 (06J:047) and MGMT:2100 (06J:048).

MGMT:3300 (06J:131) Strategic Human Resource Management 3 s.h.
People management activities, policies, and practices that promote effective organizations; how changes in technology, business restructuring, legal and social concerns, other issues affect human resource management. Prerequisites: MGMT:2000 (06J:047) and MGMT:2100 (06J:048).

MGMT:3400 (06J:132) Employment Law 3 s.h.
Laws affecting employers and employees, such as regulatory health and safety policies, unemployment and retirement benefits, and employment discrimination including hiring, termination, testing issues. Prerequisites: MGMT:2000 (06J:047) and MGMT:2100 (06J:048).

MGMT:3450 (06J:146) International Business Environment 3 s.h.

Differences in international and domestic business; cultural, legal, political factors for managers. Requirements: junior or higher standing.

MGMT:3500 (06J:147) Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financial aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as ENTR:3595 (06T:144), MUSM:3500 (024:147), SSW:3500 (042:157), NURS:3595 (096:168), RELS:3700 (032:127).

MGMT:3600 (06J:148) Nonprofit Organizational Effectiveness II 3 s.h.

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as MUSM:3600 (024:148), NURS:3600 (096:169), SSW:3600 (042:158), RELS:3701 (032:128).

MGMT:3900 (06J:145) Training and Developing Human Resources 3 s.h.

Concepts, practices in training and development; strategic issues affecting the design, implementation, and evaluation of training programs and of career management and organizational development activities. Prerequisites: MGMT:3200 (06J:130), MGMT:3300 (06J:131), and MGMT:3400 (06J:132).

MGMT:4000 (06J:168) Topics in Management 1-3 s.h.

Topics not regularly offered in other courses. Prerequisites: MGMT:2000 (06J:047) and MGMT:2100 (06J:048).

MGMT:4050 (06J:101) Directed Readings in Management and Organizations arr.

MGMT:4100 (06J:156) Dynamics of Negotiations 3 s.h.

Predictable aspects and dynamics of bargaining experiences; simulations, experiential exercises to foster skills needed for effective negotiation in almost any situation. Requirements: completion of 90 s.h.

MGMT:4200 (06J:160) Staffing and Talent Management 3 s.h.

Staffing processes; external influences such as labor markets, the legal environment; support activities such as job analysis, employment planning; staffing activities such as internal and external recruiting, selection. Prerequisites: MGMT:3200 (06J:130), MGMT:3300 (06J:131), and MGMT:3400 (06J:132).

MGMT:4300 (06J:162) Leadership and Personal Development 3 s.h.

Practical development and application of leadership and managerial skills to enhance individual and organizational effectiveness. Prerequisites: MGMT:3200 (06J:130) and MGMT:3300 (06J:131). Requirements: senior standing.

MGMT:4325 (06J:167) Team and Project Management 3 s.h.

Fundamentals of managing teams and group projects; emphasis on practical application, using case studies, and interactive and experiential exercises. Prerequisites: MGMT:3200 (06J:130), MGMT:3300 (06J:131), and MGMT:3400 (06J:132).

MGMT:4350 (06J:171) Performance Management and Strategic Rewards 3 s.h.

Role of pay and other rewards on organizational objectives; compensation's impact on employee behavior and performance; mix of pay and benefits in compensation systems; legal environment regulating pay and benefits; nonmonetary forms of reward. Prerequisites: MGMT:3200 (06J:130), MGMT:3300 (06J:131), and MGMT:3400 (06J:132).

MGMT:4900 (06J:199) Academic Internship arr.

Professional internship experience with associated academic content.

MGMT:4999 (06J:195) Honors Thesis in Management and Organizations 3 s.h.

Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: BUS:3999 (06B:194) or ECON:3999 (06E:194). Requirements: admission to the Tippie College of Business honors program.

Graduate

MGMT:7120 (06J:270) Methods for Field Research (Ph.D.) 2 s.h.

Field methods commonly used in behavioral research with emphasis on surveys; different types of field research designs; evaluation of advantages and disadvantages of different research approaches; practice generating research questions and hypotheses appropriate for field survey designs; issues related to levels of analysis; develop and administer surveys to maximize response rates; identify appropriate samples; brief introduction to statistical approaches for analyzing survey data.

MGMT:7124 (06J:265) Methods for Qualitative Research 2 s.h.

Qualitative methods available to researchers; role and contributions of qualitative methods in research; reasons why qualitative research papers get rejected by journals and strategies to avoiding them; work with qualitative data; philosophy of science, formulating research questions, sampling and gaining access, alternative qualitative data collection methods, ways of coding and analyzing qualitative data, building theory from qualitative data.

MGMT:7128 (06J:266) Methods for Experimental Research 2 s.h.

Nature of research and principles of experimental design, including laboratory and field experiments (quasi-experiments), event sampling, and methods of small-group research; analysis of variance (ANOVA), analysis of covariance (ANCOVA), multi-attribute analysis of variance (MANOVA); orthogonal, planned and unplanned comparisons, factorial experiments including repeated measures, nested-factors design, Latin square designs; analysis of data sets with SPSS.

MGMT:7140 (06J:269) Meta-Analysis in Behavioral Social Sciences (Ph.D.) 3 s.h.

Methods for quantitative integration of findings in behavioral and social sciences; overall effect size or correlation, whether conflicting findings documented in research literature are due to moderators (interactions) or statistical and measurement artifacts.

MGMT:7160 (06J:273) Measurement Theory and Methods in the Behavioral and Social Sciences (Ph.D.) 3 s.h.

Measurement and statistical methods needed for conduct of methodologically sound, publishable research; kinds and levels of measurement; role of measurement in theory development and cumulative research knowledge; theory of measurement error; types of reliability and their estimation; corrections for bias in research results due to measurement error; basic scaling methods; criterion-related, content, and construct validity; cross-validation and shrinkage formulas; factor analysis; statistical power in research studies; introduction to meta-analysis; item analysis and scale construction; structural equation modeling. Requirements: basic statistical methods course.

MGMT:7320 (06J:267) Organizational Theory Ph.D. 2 s.h.

Organizational theory; effect of changing environment and technological factors on organizational structure and effectiveness; resource dependency and power, conflict, interorganizational network, population ecology, economic theories of organization, institutional theory.

MGMT:7330 (06J:274) Staffing Organizations (Ph.D.) 3 s.h.

Aspects of selection, including professional and legal standards; job analysis techniques, validation strategies; criterion development; selection methods (e.g., psychological tests, interviews, biographical data, assessment centers); ethical issues.

MGMT:7340 (06J:275) Group Processes (Ph.D.) 2 s.h.

In-depth understanding of how work groups and teams can be made more effective in organizations; team design issues (i.e., task type, interdependence, leadership, member composition); process issues including power, influence, communications, conflict, collective memory, and intergroup relations.

MGMT:7350 (06J:276) Leadership (Ph.D.) 3 s.h.

Understanding and preparation for implementing leadership in organizations; focus on reading and analysis of basic research-related leadership theories; contrast "great person" theories, traditional behavioral and situational theories, and transformational leadership theory.

MGMT:7360 (06J:277) Motivation and Attitudes (Ph.D.) 3 s.h.

Motivational processes, attitudes, communication and interorganizational networks; emphasis on motivational antecedents and consequences, theoretical implications for models of work performance.

MGMT:7370 (06J:278) Reward Systems (Ph.D.) 2 s.h.

Compensation systems, government influences, equity in compensation and individual wage determination; research-based examination of performance evaluation and appraisal, theories of work performance.

MGMT:7375 (06J:271) Performance Management 2 s.h.

Theories and research pertaining to employee work performance and evaluation; conceptual definitions of work performance; theories concerning the determinants of work performance; theory and research explaining the effectiveness and biases of performance evaluation systems; theories and empirical research on performance feedback; areas for future theoretical and empirical investigation in performance management.

MGMT:7380 (06J:272) Training and Development (Ph.D.) 2 s.h.

Research-based examination of training and development programs; emphasis on processes of needs assessment, instructional design, and evaluation; integration of training with other human resource management functions; design of management development initiatives.

MGMT:7385 (06J:285) Social and Human Capital 2 s.h.

Theory, research, and methods for understanding social capital as a resource available to individuals resulting from the social structure which they are located; readings focus on application of social networks to various content areas at individual, team, and organizational units of analysis; examination of relationships among social and human capital on individual and team outcomes; emphasis on understanding existing theory and empirical findings; social network research in terms of study design and analysis through software programs including UCINET and R.

MGMT:7700 (06J:295) Mentored Research arr.

Management research conducted by doctoral students under faculty supervision; culminates in second-year research paper.

MGMT:7850 (06J:268) Seminar in Management 2-3 s.h.

Topics vary.

MGMT:7900 (06J:205) Contemporary Topics in Management and Organizations arr.

Research topics in human resources and organizational behavior.

MGMT:7950 (06J:201) Directed Readings in Management and Organizations arr.

MGMT:7975 (06J:290) Thesis in Management and Organizations arr.

Management research conducted by doctoral students under faculty supervision; culminates in dissertation.

MGMT:9110 (06J:256) Dynamics of Negotiations 3 s.h.

Predictable aspects and dynamics of bargaining experiences; simulations, experiential exercises to foster skills needed for effective negotiation in almost any situation. Requirements: M.B.A. enrollment.

MGMT:9120 (06J:262) Leadership and Personal Development 3 s.h.

Major theories; determinants of leader effectiveness, personal and career success; practical development of leadership, managerial skills to enhance individual, organizational effectiveness. Prerequisites: MBA:8120 (06N:212).

MGMT:9130 (06J:263) Strategic Management of Change 3 s.h.

How congruence in organizational strategy, structure and culture, job design, and employee characteristics produces effective organizations; emphasis on managing organizational change, implementing and working in teams, project management. Prerequisites: MBA:8120 (06N:212).

MGMT:9150 (06J:247) Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as SLIS:6430 (021:263), LAW:8751 (091:320), HMP:6360 (174:247), SSW:6247 (042:247), URP:6278 (102:278), MUSM:6010 (024:247), SPST:6010 (028:257), RELS:6070 (032:227).

MGMT:9160 (06J:248) Nonprofit Organizational Effectiveness II 3 s.h.

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Requirements: for LAW:8752 (091:322) — LAW:8751 (091:320); for HMP:6365 (174:248) — HMP:6360 (174:247) or MGMT:9150 (06J:247) or MUSM:6010 (024:247). Same as LAW:8752 (091:322), SLIS:6435 (021:265), SSW:6248 (042:248), HMP:6365 (174:248), URP:6279 (102:279), MUSM:6020 (024:248), SPST:6020 (028:258), RELS:6075 (032:228).

MGMT:9210 (06J:232) Law and Ethics 3 s.h.

Legal issues surrounding start-up and day-to-day management of a business; contract law, standard business formations, tort law, employment law, business ethics, alternative dispute resolution.

MGMT:9220 (06J:235) Maximizing Team Performance 3 s.h.

Current approaches to implementing effective teams within organizations; team selection and formation, group dynamics, facilitation skills, performance and obstacle management.

MGMT:9230 (06J:242) Managing and Preventing Conflict 3 s.h.

Skills for management of high-conflict situations in the workplace and for long-term business success and job satisfaction; experience developing mediation-based skills and communication techniques to prevent and resolve workplace conflicts.

MGMT:9250 (06J:244) Managing Employee Performance 3 s.h.

Concepts and practices to effectively manage, measure, and improve employee performance; establishing and communicating organizational expectations, the manager as coach and motivator, measurement methodologies, performance improvement methods. Requirements: MBA:8120 (06N:212) or previous course work in organizational behavior/development or management.

MGMT:9260 (06J:245) Strategic Employee Development 3 s.h.

Concepts, practices in training and development; strategic issues affecting the design, implementation, and evaluation of training programs and of career management and organizational development activities.

MGMT:9270 (06J:227) Human Resource Management 3 s.h.

Systematic approach to managing human resources through practices consistent with validated theories and empirical research; human resources practices and business strategies; human resources strategy, recruitment and selection, training and development, employment law, international human resources, career management, compensation.

Management Sciences

Chair

- Nick Street

Professors

- Kurt M. Anstreicher (Leonard A. Hadley Chair in Leadership), Samuel A. Burer (Henry B. Tippie Research Fellow), Philip C. Jones (Clement T. and Sylvia H. Hanson Chair in Manufacturing Productivity), Johannes Ledolter (C. Maxwell Stanley Professor of International Operations Management), Timothy J. Lowe (Chester A. Phillips Professor of Operations Management), Padmini Srinivasan, Nick Street (Henry B. Tippie Research Fellow)

Associate professors

- Ann M. Campbell (Henry B. Tippie Research Fellow), Renato E. de Matta (Larry and Lori Wright Fellow), Jeffrey W. Ohlmann (Huneke Research Fellow), Gautam Pant, Barrett W. Thomas (Leonard A. Hadley Research Fellow)

Assistant professors

- Qihang Lin, Kang Zhao

Lecturers

- Michael W. Colbert, Kevin L. Felker, Yvonne L. Galusha

Professors emeriti

- Colin E. Bell, Warren J. Boe, Gary C. Fethke, Raj Jagannathan, Kenneth O. Kortanek

Undergraduate major: business analytics and information systems (B.B.A.)

Graduate degree: management sciences subprogram for the Ph.D. in business administration

Web site: <http://tippie.uiowa.edu/management-sciences/>

The Department of Management Sciences specializes in using advanced computation and mathematical techniques to solve critical business problems. Its strengths in research and instruction include operations management, business analytics, information systems, and quantitative methods.

Undergraduate Program of Study

- Major in business analytics and information systems (Bachelor of Business Administration)

Bachelor of Business Administration

The Bachelor of Business Administration with a major in business analytics and information systems requires a minimum of 120 s.h., including 21 s.h. of work for the major. The program provides a variety of educational experiences that develop students' knowledge of managerial decision-making systems. Students acquire skill in applying this knowledge by constructing quantitative models, using computer technology, and creating database systems.

The major prepares students for career opportunities in both manufacturing and service organizations. Graduates find entry-level work as computer programmers, systems analysts, sales representatives with computer companies,

and management trainees. Entry-level work in operations management is found in materials management, line supervision, purchasing, and manufacturing systems.

All B.B.A. students majoring in business analytics and information systems choose one of two tracks: business analytics or information systems.

The major in business analytics and information systems requires the following course work. For B.B.A. common requirements, see Bachelor of Business Administration (p. 670) in the Catalog.

COMMON REQUIRED COURSES

Students in both tracks must complete these three courses.

MSCI:3030 (06K:193) Business Process Analysis	3 s.h.
MSCI:3200 (06K:182) Database Management	3 s.h.
MSCI:4250 (06K:185) BAIS Capstone Project	3 s.h.

BUSINESS ANALYTICS TRACK

Students in the business analytics track complete all of these:

MSCI:3025 (06K:127) Decision Support Systems	3 s.h.
MSCI:3500 (06K:175) Business Intelligence	3 s.h.
MSCI:3800 (06K:178) Optimization and Simulation Modeling	3 s.h.

INFORMATION SYSTEMS TRACK

Students in the information systems track complete all of these:

MSCI:3020 (06K:126) Business Programming	3 s.h.
MSCI:3300 (06K:183) Software Design and Development	3 s.h.
MSCI:3400 (06K:184) Data Communications	3 s.h.

ELECTIVES (BOTH TRACKS)

All students complete at least 3 s.h. from these:

MSCI:3100 (06K:180) Applied Information Systems	3 s.h.
MSCI:3920 (06K:192) Supply Chain Management	3 s.h.
MSCI:4220 (06K:186) Database Management II	3 s.h.
MSCI:4280 (06K:188) Computer Networks and Security	3 s.h.
CS:1210 (22C:016) Computer Science I: Fundamentals	4 s.h.
ECON:3355 (06E:143) Economic and Business Forecasting	3 s.h.
Any computer science course for which CS:1210 (22C:016) is a prerequisite	3-4 s.h.
Any course required for the nonselected track	3 s.h.

Graduate Program of Study

- Management sciences subprogram for the Doctor of Philosophy in business administration

In addition to offering a management sciences program for the Ph.D. in business administration, the department participates in the M.B.A. program, which is offered by

the Tippie School of Management; see Master of Business Administration Program (p. 715) in the Catalog.

Doctor of Philosophy

Graduate students in management sciences may earn a Doctor of Philosophy in business administration. For a description of the Ph.D. program and requirements, see Doctor of Philosophy (p. 679) in the Catalog and visit the Department of Management Sciences web site.

Applicants must meet the admission requirements of the Graduate College; see Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Courses

Lower-Level Undergraduate

MSCI:1300 (06K:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

MSCI:1500 (06K:050) Business Computing Essentials 2 s.h.
Basic proficiency with common business application software (word processing, spreadsheet, presentation software, database); simulation training to achieve requisite skills; additional support available via optional textbook or ebook; online, modular, self-taught course.

Upper-Level Undergraduate and Graduate

MSCI:3000 (06K:100) Operations Management 3 s.h.
Strategic, tactical, operational issues that arise in management of production and service operations; product and process design, facilities planning, quality management, materials management, operations planning and scheduling, emerging technologies in production and service management. Prerequisites: STAT:1030 (22S:008). Requirements: junior standing.

MSCI:3005 (06K:105) Information Systems 3 s.h.
Application of computing principles to solving business problems; information technology in modern organizations; focus on sound data analysis to support decision making; tools used for problem solving (spreadsheets, databases, web applications); role of information systems in organizations; components of information technology; Internet and network economy; basic data analysis and visualization; decision-making logic represented as algorithms; perform what-if analysis with data; emerging technologies. Prerequisites: MSCI:1500 (06K:050).

MSCI:3020 (06K:126) Business Programming 3 s.h.
Introduction to algorithms, data structures, and object-oriented programming constructs to solve business problems. Prerequisites: MSCI:3005 (06K:105).

MSCI:3025 (06K:127) Decision Support Systems 3 s.h.

Introduction to programming Visual Basic for Applications in Excel to develop spreadsheet-based decision-support systems. Prerequisites: MSCI:3005 (06K:105).

MSCI:3030 (06K:193) Business Process Analysis 3 s.h.

Design, management, and improvement of business processes; data-driven approach to map a value stream and analyze industrial and service-oriented business processes to identify improvement opportunities; discrete-event simulation tools utilized to model business processes and demonstrate effect of variability on process performance metrics; role of information systems to increase an organization's efficiency; project management skills with particular emphasis on understanding issues involved in designing an information system to successfully support a business operation. Prerequisites: MSCI:3000 (06K:100).

MSCI:3070 (06K:177) Management Sciences Topics arr.
Special topics in management sciences and information systems.

MSCI:3100 (06K:180) Applied Information Systems 3 s.h.
Application of computer technology to accounting and transaction processing systems; information systems infrastructure and trends; problem solving with microcomputer spreadsheets, databases; accounting cycle operations. Prerequisites: ACCT:2100 (06A:001), ACCT:2200 (06A:002), and MSCI:3005 (06K:105). Same as ACCT:3600 (06A:134).

MSCI:3200 (06K:182) Database Management 3 s.h.
Design and implementation of a database using relational DBMS; emphasis on issues of logical and physical design, database administration, concurrency control, maintenance. Prerequisites: MSCI:3005 (06K:105).

MSCI:3300 (06K:183) Software Design and Development 3 s.h.
Design and implementation of an information system; emphasis on programming and stages of software design life cycle, implemented using UML. Corequisites: MSCI:3020 (06K:126), MSCI:3030 (06K:193), and MSCI:3200 (06K:182); if not taken as prerequisites.

MSCI:3400 (06K:184) Data Communications 3 s.h.
Computer communications: computer-communication system, hardware, data transmission principles; examples of existing communication networks; related managerial issues. Prerequisites: MSCI:3005 (06K:105).

MSCI:3500 (06K:175) Business Intelligence 3 s.h.
Introduction to predictive analytics methods motivated by problems in operations, marketing, finance and accounting; data and text mining techniques, including classification, clustering, and association analysis. Prerequisites: ECON:2800 (06E:071).

MSCI:3800 (06K:178) Optimization and Simulation Modeling 3 s.h.

How to leverage data and apply spreadsheet optimization software and Monte Carlo simulation to form optimal decision policies. Prerequisites: ECON:2800 (06E:071).

MSCI:3920 (06K:192) Supply Chain Management 3 s.h.

Key issues in design and management of global supply chains; issues in integration of business processes across organizations that are concerned with movement of goods, delivery of services, and information flow along the supply chain in order to create value for the customer; issues in coordinating production and logistics within a firm and with outside suppliers and customers in the supply chain. Prerequisites: MSCI:3000 (06K:100).

MSCI:4050 (06K:101) Directed Readings arr.

MSCI:4220 (06K:186) Database Management II 3 s.h.

Advanced conceptual and logical design, in-depth SQL, DB administration, concurrency control, web database access; theory and practice. Prerequisites: MSCI:3200 (06K:182).

MSCI:4250 (06K:185) BAIS Capstone Project 3 s.h.

Individual or team senior project incorporating track-specific knowledge and skills from BAIS curriculum; projects from real-world customer, (e.g., software system, network design/implementation or data/process analysis); outcomes include written documentation, presentation, project report. Prerequisites: MSCI:3030 (06K:193), MSCI:3200 (06K:182), and MSCI:3300 (06K:183) or MSCI:3500 (06K:175). Requirements: 90 s.h. completed.

MSCI:4280 (06K:188) Computer Networks and Security 3 s.h.

Introduction to network management; emphasis on cost effective, reliable, and secure configuration and management of network switches, routers, clients, servers, and users in local and wide area network architectures; basic router and switch configuration options, routing protocols, VLANs, switch loop avoidance, access control lists, network access control mechanisms, encryption; Public Key Infrastructure and network user security; hands-on activities with routers and switches, Cisco networking simulators, and virtual machines using IPv4 and IPv6 protocols. Prerequisites: MSCI:3400 (06K:184).

MSCI:4900 (06K:199) Academic Internship arr.

Professional internship experience with associated academic content.

MSCI:4999 (06K:195) Honors Thesis in Management Sciences 3 s.h.

Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: BUS:3999 (06B:194) or ECON:3999 (06E:194). Requirements: admission to the Tippie College of Business honors program.

Graduate

MSCI:6190 (06K:234) Knowledge Management 3 s.h.

How organizations acquire, manage, and use information; knowledge management and competitive intelligence, information from inside and outside the organization; organization types, including library, corporate, and nonprofit. Same as SLIS:6190 (021:234).

MSCI:6200 (06K:272) Database Analysis and Design 3 s.h.

Advanced topics in database management systems.

MSCI:6300 (06K:270) Dynamic Programming 3 s.h.

Fundamentals of discrete sequential dynamic programming with special focus on situations in which outcomes are uncertain; formulation and analysis of deterministic and stochastic dynamic programs under several objective criteria; emphasis on rapidly expanding field of approximate dynamic programming; applications including inventory control, vehicle routing, and resource allocation.

MSCI:6421 (06K:275) Knowledge Discovery 3 s.h.

Knowledge discovery process, including data reduction, cleansing, transformation; advanced modeling techniques from classification, prediction, clustering, association; evaluation and integration. Same as CS:6421 (22C:141).

MSCI:6600 (06K:286) Linear Programming 3 s.h.

Mathematical programming models; linear and integer programming, transportation models, large-scale linear programming, network flow models, convex separable programming. Requirements: calculus and linear algebra. Same as IE:6600 (056:270).

MSCI:6700 (06K:287) Discrete Optimization 3 s.h.

Introduction to modeling and solving discrete optimization problems; integer programming, network flows, dynamic programming. Prerequisites: MSCI:6600 (06K:286).

MSCI:6800 (06K:278) Web Mining 3 s.h.

Techniques for mining the web and other unstructured or semistructured, hypertextual, distributed information repositories; crawling, indexing, ranking, filtering algorithms.

MSCI:7000 (06K:277) Management Sciences Topics 3 s.h.

MSCI:7850 (06K:297) Research Seminar in Management Sciences 1 s.h.

Current research topics. Requirements: Ph.D. enrollment.

MSCI:7900 (06K:299) Special Topics in Management Sciences arr.

MSCI:7950 (06K:201) Directed Readings arr.

MSCI:7975 (06K:290) Thesis in Management Sciences arr.

Requirements: Ph.D. enrollment.

- MSCI:9100 (06K:216) Business Analytics** 3 s.h.
Introduction to analytical techniques for making business decisions; utilizing Excel for application of descriptive and predictive analytical tools to solve practical business problems using real world data; dealing with uncertainty in decision making; formal probability concepts and statistical methods for describing variability (decision trees, random variables, hypothesis testing); application of techniques (linear regression, Monte Carlo simulation, linear optimization) to model, explain, and predict for operational, tactical, and strategic decisions.
- MSCI:9110 (06K:217) Advanced Analytics** 3 s.h.
Development of data-driven, problem-solving skills for prediction of uncertain outcomes and prescription of business solutions; linear and nonlinear regression, Monte Carlo simulation, forecasting, data mining, and optimization utilizing spreadsheets and dedicated software packages. Prerequisites: MBA:8150 (06N:216).
- MSCI:9120 (06K:292) Supply Chain Management** 3 s.h.
Design, operation, and management of a supply chain; supplier and customer contracting and partnering, inventory, transportation and logistics. Prerequisites: MBA:8190 (06N:229).
- MSCI:9130 (06K:293) Seminar in Lean Practices** 3 s.h.
Lean principles across the enterprise; real-world applications in manufacturing and service sectors; taught in conjunction with LAI Lean Academy. Prerequisites: MBA:8190 (06N:229).
- MSCI:9135 (06K:291) Strategy Deployment and Lean Enterprise** 3 s.h.
How organizations transform themselves into Lean enterprises that maximize customer value through the elimination of waste; focus on how manufacturing and service organizations successfully align their process improvement efforts to strategic goals of the organization (policy deployment); A3 thinking, strategic planning, balanced scorecard, Lean supply chain, employee engagement, and cultural transformation. Prerequisites: MBA:8190 (06N:229).
- MSCI:9140 (06K:294) Rapid Continuous Improvement** 3 s.h.
Hands-on experience working on rapid continuous improvement (RCI) teams sponsored by industrial affiliates of the business college involved in using RCI. Offered spring break.
- MSCI:9160 (06K:296) Supply Chain Analytics** 3 s.h.
Application of theory from classroom to real world; classroom learning from MSCI:9180 (06K:218) used to work on a company-sponsored Six Sigma style project to complete requirements for Six Sigma Green Belt certification. Prerequisites: MSCI:9180 (06K:218).
- MSCI:9180 (06K:218) Statistical Methods for Process Improvement** 3 s.h.
Strategies to improve quality of products, effectiveness of processes; managerial issues, statistical methods, quality, customer needs, customer satisfaction, quality measures and standards; understanding and reducing variability; builds on MBA:8150 (06N:216); data-based management, statistical process control, control charts, capability indexes, design of experiments. Prerequisites: MBA:8150 (06N:216).
- MSCI:9185 (06K:285) Project Management** 3 s.h.
Preparation for managing projects and project portfolios; project selection, project planning and budgeting, scheduling, resource allocation, project control; integration of project planning tools, including project management software.
- MSCI:9200 (06K:226) Business Programming** 3 s.h.
Introduction to algorithms, data structures, and object-oriented programming constructs to solve business problems. Corequisites: MSCI:3005 (06K:105).
- MSCI:9210 (06K:227) Introduction to Modeling with VBA** 3 s.h.
Introduction to programming Visual Basic for Applications in Excel; case studies in finance, marketing, operations, accounting. Prerequisites: MBA:8150 (06N:216).
- MSCI:9220 (06K:220) Introduction to Information Systems** 3 s.h.
Effective ways for business firms to harness the power of information technology for strategic purposes; conventional and emerging architectures of information systems; integrated perspective on structural relationships among IT components; emphasis on case studies.
- MSCI:9230 (06K:230) Database Systems** 3 s.h.
Theories and methodologies for semantic, logical, and physical database design; entity/relationship diagrams and their mapping to database schemas; normalization; languages for relational database systems, including relational algebra, Structured Query Language, query by example; query optimization and index selection; database and view creation, query and update processing; form and report design; practice with commercial DBMS products; integrity, security, concurrency control, transaction recovery.
- MSCI:9260 (06K:228) Web and Multimedia** 3 s.h.
How multimedia tech is accomplished; tools used with each tech and modifications for efficient function on the web; projects culminating in a web site.

Marketing

Chair

- Catherine A. Cole

Professors

- Catherine A. Cole (Henry B. Tippie Research Fellow), Gary J. Gaeth (Cedar Rapids Area Business Chair), Sarah Fisher Gardial (Henry B. Tippie Dean), Thomas S. Gruca (Henry B. Tippie Research Professor of Marketing), Gary J. Russell (Henry B. Tippie Research Professor of Marketing)

Associate professors

- John P. Murry, Dhananjay Nayakankuppam (Henry B. Tippie Research Fellow), Jing "Alice" Wang (Henry B. Tippie Research Fellow)

Assistant professors

- William M. Hedgcock (Daniel E. McLean Faculty Research Fellow), Sang Hak Lee, Qin Zhang

Lecturers

- Nancy J. Abram, David E. Collins, Peggy E. Rodriguez-Stover, Thomas Walsh

Professors emeriti

- Carol C. Fethke, Irwin P. Levin, Peter C. Riesz, Randall L. Schultz, Doyle L. Weiss

Undergraduate major: marketing (B.B.A.)

Graduate degree: marketing subprogram for the Ph.D. in business administration

Web site: <http://tippie.uiowa.edu/marketing/>

The Department of Marketing offers programs that follow business trends and lead business practice.

Undergraduate Program of Study

- Major in marketing (Bachelor of Business Administration)

Bachelor of Business Administration

The Bachelor of Business Administration with a major in marketing requires a minimum of 120 s.h., including 20 s.h. of work for the major. The program is designed to provide undergraduate students with an understanding of the business, social, and economic roles of marketing and to prepare them for marketing careers.

Several decades ago, the study of marketing dealt almost exclusively with business activities involved in the flow of goods from production to consumption. Today it includes principles that are more widely applicable; they are as relevant to the success of arts, sports, and social programs as they are to firms selling goods and services. A major in marketing includes study in the behavioral sciences, communications, statistical analysis, and computer methods as well as marketing decision making.

Graduates find employment opportunities as market analysts, merchandise managers, buyers, purchasing agents, advertising managers, brand managers, and sales representatives in a variety of for-profit and nonprofit organizations.

The major in marketing requires the following course work. For B.B.A. common requirements, see Bachelor of Business Administration (p. 670) in the Catalog.

All of these:

MKTG:3050 (06M:102) Professional Preparation in Marketing	2 s.h.
MKTG:3100 (06M:134) Marketing Research	3 s.h.
MKTG:3200 (06M:135) Consumer Behavior	3 s.h.
MKTG:4500 (06M:147) Marketing Management (must be taken in senior year)	3 s.h.

Three of these:

MKTG:3300 (06M:105) Web Business Strategy	3 s.h.
MKTG:3400 (06M:107) Retail Strategies	3 s.h.
MKTG:3500 (06M:125) Direct Marketing Strategies	3 s.h.
MKTG:3701 (06M:192) Marketing Institute Field Studies	3 s.h.
MKTG:4000 (06M:190) Contemporary Topics in Marketing (counts once toward the major)	3 s.h.
MKTG:4100 (06M:137) Advertising Theory	3 s.h.
MKTG:4200 (06M:139) Sales Management	3 s.h.
MKTG:4250 (06M:140) Marketing and Sustainability	3 s.h.
MKTG:4275 (06M:142) Social Media Marketing	3 s.h.
MKTG:4300 (06M:151) International Marketing	3 s.h.
MKTG:4800 (06M:197) Field Studies in Marketing	3 s.h.

Graduate Program of Study

- Marketing subprogram for the Doctor of Philosophy in business administration

In addition to offering a marketing program for the Ph.D. in business administration, the department participates in the M.B.A. program, which is offered by the Tippie School of Management; see Master of Business Administration Program (p. 715) in the Catalog.

Doctor of Philosophy

Graduate students in marketing may earn a Doctor of Philosophy in business administration. For a description of the Ph.D. program and requirements, see Doctor of Philosophy (p. 679) in the Catalog and visit the Department of Marketing web site.

Applicants must meet the admission requirements of the Graduate College; see Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Courses

Lower-Level Undergraduate

MKTG:1300 (06M:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

Upper-Level Undergraduate and Graduate

MKTG:3000 (06M:100) Introduction to Marketing Strategy 3 s.h.

Philosophy and activities of marketing; marketing environment of an organization; strategies with respect to marketing decisions, buyer behavior; spreadsheet analysis of marketing problems. Prerequisites: ECON:1100 (06E:001). Requirements: junior standing.

MKTG:3050 (06M:102) Professional Preparation in Marketing 2 s.h.

Overview of marketing careers; how marketing strategies are developed, evaluated, and implemented; how research on buyer behavior is used in marketing decisions; identification of research methodologies, analytical tools, and technologies for addressing marketing problems; marketing's relationship to other business and organizational functions and to the external environment. Prerequisites: MKTG:3000 (06M:100).

MKTG:3100 (06M:134) Marketing Research 3 s.h.

Marketing, research methods; role of marketing research information as a tool in management decision making. Prerequisites: ECON:2800 (06E:071) and MKTG:3000 (06M:100).

MKTG:3200 (06M:135) Consumer Behavior 3 s.h.

Behavioral and social aspects of marketing; research methods and findings from behavioral sciences, their relation to production, consumption, and marketing of products, services. Prerequisites: MKTG:3000 (06M:100).

MKTG:3300 (06M:105) Web Business Strategy 3 s.h.

Introduction to World Wide Web business and marketing; concepts, methods, and applications associated with doing business on the web; web page construction and design; case studies and/or entrepreneurial projects. Prerequisites: MKTG:3000 (06M:100).

MKTG:3400 (06M:107) Retail Strategies 3 s.h.

Strategies for retail site selection, store design, supply chain management, customer relationship management/customer service; merchandising management strategies for planning merchandise assortments, buying systems, buying merchandise, pricing, promotion. Prerequisites: MKTG:3000 (06M:100).

MKTG:3500 (06M:125) Direct Marketing Strategies 3 s.h.

Principles and processes of direct and database marketing; insight into the requirements for building a customer-based marketing strategy. Prerequisites: MKTG:3000 (06M:100).

MKTG:3700 (06M:191) Marketing Institute Seminar I 2 s.h.

Soft skills and professional expertise to succeed in marketing and consulting careers; resume and interview training, industry presentations, business case assignments, lectures. Prerequisites: MKTG:3000 (06M:100). Requirements: admission to the Marketing Institute.

MKTG:3701 (06M:192) Marketing Institute Field Studies 3 s.h.

Plan, design, carry out, and report on a marketing research project for a profit or nonprofit client organization; communicate with managers, apply knowledge of marketing research, meet deadlines, and convert research findings into actionable recommendations for management. Prerequisites: MKTG:3000 (06M:100) and MKTG:3700 (06M:191). Requirements: admission to the Marketing Institute.

MKTG:3702 (06M:193) Marketing Institute Seminar II 0 s.h.

Development of soft skills and professional expertise to succeed in marketing and consulting careers; résumé and interview training, industry presentations, business case assignments, lectures; mentor students in marketing institute seminar. Prerequisites: MKTG:3000 (06M:100), MKTG:3700 (06M:191), and MKTG:3701 (06M:192). Requirements: admission to the Marketing Institute.

MKTG:4000 (06M:190) Contemporary Topics in Marketing 3 s.h.

Topics not regularly offered in other courses. Prerequisites: MKTG:3000 (06M:100).

MKTG:4050 (06M:101) Directed Readings in Marketing arr.

MKTG:4100 (06M:137) Advertising Theory 3 s.h.

Advertising as a promotional force; emphasis on theory, planning, resulting strategic and tactical decisions made by advertising executives. Prerequisites: MKTG:3000 (06M:100).

MKTG:4200 (06M:139) Sales Management 3 s.h.

Personal selling, management of sales force; emphasis on recruitment, selection, training of sales representatives; problems in allocation of sales effort, supervision, control. Prerequisites: MKTG:3000 (06M:100).

MKTG:4250 (06M:140) Marketing and Sustainability 3 s.h.

Concepts for developing and implementing sustainable marketing strategies; developing more environmentally friendly products, more sustainable logistical systems, socially responsible pricing, and promoting sustainable products in a socially responsible way. Prerequisites: MKTG:3000 (06M:100).

MKTG:4275 (06M:142) Social Media Marketing 3 s.h.

Fundamentals of social media in a marketing context; establishing clear organizational goals, developing appropriate marketing strategies, and determining key campaign logistics (who, when, where); guest speakers and hands-on projects involving social media. Prerequisites: MKTG:3000 (06M:100).

MKTG:4300 (06M:151) International Marketing 3 s.h.

Differences in global environment: how cultural considerations, political, legal, and economic conditions affect market entry strategies and marketing mix decisions; development of marketing plan for non-U.S. environments. Prerequisites: MKTG:3000 (06M:100).

MKTG:4500 (06M:147) Marketing Management	3 s.h.	Topics not regularly offered in other courses. Prerequisites: MBA:8110 (06N:211).
Marketing problems of organizations; emphasis on marketing manager's role in developing, presenting goal-oriented marketing strategies; application of marketing concepts to real business situations. Prerequisites: MKTG:3000 (06M:100), MKTG:3100 (06M:134), and MKTG:3200 (06M:135). Requirements: one additional marketing elective, not including MKTG:3600, and completion of 90 s.h.		
MKTG:4800 (06M:197) Field Studies in Marketing	3 s.h.	MKTG:9015 (06M:215) Social Media Marketing for Business 3 s.h.
Experience in planning, designing, carrying out, reporting on a marketing research project for a profit or nonprofit client organization; communication with managers, application of marketing research, meeting deadlines, converting research findings into action recommendations for management. Prerequisites: MKTG:3000 (06M:100) and MKTG:3100 (06M:134).		Fundamentals of social media marketing; establishing clear organizational goals for engaging in social media to market a product or service, developing solid strategies for implementation, and determining other key campaign logistics. Prerequisites: MBA:8110 (06N:211).
MKTG:4900 (06M:199) Academic Internship	arr.	MKTG:9030 (06M:232) Buyer Behavior 3 s.h.
Professional internship experience with associated academic content.		Behavior of consumers and industrial buyers; research methods and findings from behavioral sciences applied to production, consumption, and marketing of products and services; application of consumer behavior concepts to managerial decision making. Prerequisites: MBA:8110 (06N:211).
MKTG:4999 (06M:195) Honors Thesis in Marketing	3 s.h.	MKTG:9110 (06M:227) Category Management 3 s.h.
Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: BUS:3999 (06B:194) or ECON:3999 (06E:194). Requirements: admission to the Tippie College of Business honors program.		Marketing strategy related to manufacturing product line interactions, retailer product assortment, consumer response; category definition, product line pricing and branding, cross-category promotions, channel coordination, efficient consumer response, loyalty programs, database marketing. Prerequisites: MBA:8110 (06N:211).
Graduate		MKTG:9115 (06M:228) Cases in Marketing Strategy 3 s.h.
MKTG:7800 (06M:243) Seminar in Consumer Behavior-Ph.D.	3 s.h.	Topics from marketing cases not covered in other marketing electives. Prerequisites: MBA:8110 (06N:211).
Key facets of consumer behavior—information processing, perception, memory, learning, attitude formation, attitude change, decision making, emotion; behavioral research methods.		MKTG:9120 (06M:229) Customer Relationship Management 3 s.h.
MKTG:7850 (06M:242) Seminar in Marketing Models-Ph.D.	3 s.h.	Analytical approaches to customer relationship management; issues, techniques and terminology associated with database marketing and data mining; analysis of customer databases; assessing lifetime valuation (LTV) of customers, identifying "high potential" customers, estimating return on marketing investment, building predictive models to estimate the probability of response to a marketing campaign. Prerequisites: MBA:8110 (06N:211).
Theoretical, operational models in marketing, with emphasis on recent advances; in-depth criticism of models, participation in model development project.		MKTG:9130 (06M:234) Product Management 3 s.h.
MKTG:7900 (06M:245) Seminar in Research Topics-Ph.D.	arr.	Techniques of new product development; idea generation, concept screening, product design, market testing, forecasting, brand management strategies within the firm. Prerequisites: MBA:8110 (06N:211) and MBA:8150 (06N:216).
Individual research topics.		MKTG:9140 (06M:236) Advertising and Promotion Strategy 3 s.h.
MKTG:7950 (06M:247) Directed Readings in Marketing-Ph.D.	arr.	Marketing communications as dialogue between producers and consumers, how promotional mix evolves; emphasis on advertising, sales promotion, branding. Prerequisites: MBA:8110 (06N:211).
MKTG:7975 (06M:290) Thesis in Marketing	arr.	MKTG:9150 (06M:223) Brand Management 3 s.h.
MKTG:9000 (06M:201) Directed Readings in Marketing	arr.	Strategies for building, leveraging, and defending brands; principles of consumer behavior, how they relate to building brand identity and equity; branding of consumer goods and services. Prerequisites: MBA:8110 (06N:211).
MKTG:9010 (06M:238) Contemporary Topics in Marketing	1-3 s.h.	

<p>MKTG:9160 (06M:233) Service Marketing 3 s.h. Production, consumption, and marketing of services; solutions to problems faced by service managers; development of an organizational marketing system for delivery of quality service. Prerequisites: MBA:8110 (06N:211).</p>	<p>MKTG:9310 (06M:251) Marketing Analytics 3 s.h. Quantitative tools to support marketing planning decisions, including forecasting, elasticity analysis, conjoint analysis, and customer LTV; analysis of syndicated data.</p>
<p>MKTG:9170 (06M:231) Business to Business Marketing 3 s.h. Industrial buyer behavior, buyer-seller relationships, interactive product policy and market segmentation, distribution and selling systems; skill development in market strategy formulation for industrial products and services, and in solving problems and making decisions about industrial marketing. Prerequisites: MBA:8110 (06N:211).</p>	<p>MKTG:9320 (06M:252) Strategic Brand Positioning 3 s.h. Define market boundaries; use customer and competitor analyses to create sustainable market positions; create and manage brand identities; brand architecture, brand equity measurement. Prerequisites: MBA:8110 (06N:211).</p>
<p>MKTG:9180 (06M:225) Direct Marketing Strategies 3 s.h. Principles and processes of direct and database marketing; insight into requirements for building a customer-based marketing strategy. Prerequisites: MBA:8110 (06N:211).</p>	<p>MKTG:9330 (06M:253) Product and Pricing Decisions 3 s.h. Create and capture value through product and service design, including stage-gate evaluation models; implement pricing strategy for new products and existing product lines. Prerequisites: MBA:8110 (06N:211).</p>
<p>MKTG:9190 (06M:235) International Marketing 3 s.h. Domestic versus international perspective; identification and evaluation of opportunities and risks in non-U.S. markets; research problems in global markets; effects of international organizations, foreign exchange, macroeconomic policies, local law, and cultural differences on consumer behavior and marketing decisions; multinational versus global marketing strategies (entry, product adaptation, channel logistics, pricing, promotion); emphasis on practical applications. Prerequisites: MBA:8110 (06N:211).</p>	<p>MKTG:9340 (06M:254) Customer Analysis 3 s.h. Use customer insights to support successful marketing programs; organizational, individual, and joint decision making; post sale satisfaction behaviors.</p>
<p>MKTG:9200 (06M:237) Field Studies in Marketing 3 s.h. Experience in planning, designing, carrying out, reporting on a marketing research project for a profit or nonprofit client organization; communication with managers, application of marketing research, meeting deadlines, converting research findings into action recommendations for management. Prerequisites: MBA:8110 (06N:211) and MBA:8150 (06N:216).</p>	<p>MKTG:9350 (06M:255) Marketing Communication and Promotions 3 s.h. Develop effective communication programs for business and consumer markets; manage agency relationships; integrate media/vehicle platforms; track and evaluate investments in communications and promotions. Prerequisites: MBA:8110 (06N:211).</p>
<p>MKTG:9210 (06M:205) Web Business Strategy 3 s.h. Introduction to World Wide Web business and marketing; concepts, methods, and applications associated with doing business on the web; web page construction and design; case studies and/or entrepreneurial projects. Prerequisites: MBA:8110 (06N:211).</p>	<p>MKTG:9360 (06M:256) Category Management 3 s.h. Manufacturer-retailer relationships, product line planning, efficient consumer response, cross-category marketing strategies, competition between national brands and store labels, retailer positioning, customer loyalty.</p>
<p>MKTG:9300 (06M:250) Applied Marketing Research 3 s.h. Research design, survey design, sampling, data analysis, qualitative research methods, research project management. Prerequisites: MBA:8110 (06N:211) and MBA:8150 (06N:216).</p>	

Master of Business Administration Program

Associate dean

- David W. Frasier

Assistant deans

- Colleen Downie, Jodi Schafer

Professional degree: M.B.A.

Web site: <http://tippie.uiowa.edu/mba/>

The Henry B. Tippie School of Management offers a Master of Business Administration (M.B.A.) program that provides students with a foundation for future growth and flexibility in professional management. The program, which is fully accredited by AACSB International—the Association to Advance Collegiate Schools of Business, enables students to build broad-based professional portfolios of analytical skills, knowledge, leadership, and applied experiences. The curriculum is rigorous, yet learning takes place in a collaborative environment that builds teamwork skills and encourages independent problem solving.

Students in Tippie M.B.A. programs come from every region of the United States and from countries worldwide. They represent a variety of backgrounds, undergraduate majors, and professional experience. The curriculum is designed for college graduates in any field; previous business course work is not required. However, full-time work experience is typically required for admission. Contact the Tippie School of Management for a brochure listing complete program requirements.

The Departments of Accounting, Economics, Finance, Management and Organizations, Management Sciences, and Marketing all contribute to the Master of Business Administration program through faculty participation and course work.

Professional Program of Study

- Master of Business Administration

The Tippie School of Management offers several M.B.A. programs: full-time M.B.A., M.B.A. for professionals and managers, executive M.B.A., M.B.A. in Hong Kong, and M.B.A. in Italy (CIMBA). Students in the full-time M.B.A. program have the opportunity to enroll in one of several joint degree programs, simultaneously earning an M.B.A. and a graduate or professional degree in law, medicine, or public health; see "Joint M.B.A./Graduate and Professional Degrees" below.

Full-time M.B.A.

The full-time M.B.A. program requires 67 s.h. of graduate credit, including 34 s.h. of required courses and 33 s.h. of career academy and elective course work. Students complete business foundation (core) courses during their first semester in the program (fall) and advanced core courses, career academy courses, and electives in the remaining three semesters. M.B.A. students must complete MBA:8100 (06N:201) Business Acumen and Career Development, a core course that provides training and experience in and outside the classroom in career advancement, functional development, and professionalism. It also offers skill-building activities for

the individual career academies. In addition, students take part in a required Global Learning Opportunity in an international location to increase their understanding of the global business environment and its implications for business conduct.

The program's career academies are the framework through which students become experts in a specific business field. Each career academy provides a unique set of curricular offerings as well as academic and professional experiences that include industry projects, interactions with the business community and with alumni, and skill-building activities designed to increase each student's marketability. Before the second semester (spring), students choose one of the following career academies and concentration tracks based on their career goals.

Finance Career Academy (two concentration tracks: corporate finance; investment management)

Marketing Career Academy (one concentration track: managing customers, products, and brands)

Strategic Innovation Career Academy (two concentration tracks: strategic management and innovation; supply chain and analytics)

The full-time M.B.A. program's study plan is as follows.

First Semester

MBA:8100 (06N:201) Business Acumen and Career Development	2 s.h.
MBA:8110 (06N:211) Marketing Management	2 s.h.
MBA:8120 (06N:212) Management in Organizations	2 s.h.
MBA:8130 (06N:204) Corporate Communications	2 s.h.
MBA:8140 (06N:215) Corporate Financial Reporting	2 s.h.
MBA:8150 (06N:216) Business Analytics	2 s.h.
MBA:8180 (06N:225) Managerial Finance	2 s.h.
MBA:8190 (06N:229) Operations Management	2 s.h.

Second Semester

MBA:8100 (06N:201) Business Acumen and Career Development	1 s.h.
MBA:8200 (06N:245) Strategic Business Consulting	3 s.h.
MBA:8230 (06N:243) Introduction to Leadership	1 s.h.
MBA:8300 (06N:240) Strategic Management and Policy	2 s.h.
Academy courses/electives	9 s.h.

Third Semester

MBA:8100 (06N:201) Business Acumen and Career Development	1 s.h.
MBA:8170 (06N:228) International Economic Environment of the Firm	2 s.h.
MBA:8220 (06N:242) Ethics and the Law	2 s.h.
MBA:8500 (06N:235) Seminar in International Business	3 s.h.
Academy courses/elective	9 s.h.

Fourth Semester

MBA:8100 (06N:201) Business Acumen and Career Development	1 s.h.
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MBA:8310 (06N:241) Business Integration	2 s.h.
Academy course/elective	15 s.h.

Admission

Applicants to the M.B.A. program must submit a complete application file, including the following:

- a completed Tippie School of Management application form and fee;
- official transcripts of all undergraduate and graduate course work, which must be submitted to the Office of Admissions by each institution attended;
- official scores on the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) General Test;
- the completed supplemental application form with essay responses, a résumé, and a cover letter; and
- the names of three people who can provide recommendations.

Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). In place of TOEFL, the program accepts International English Testing System (IELTS) scores. For information about registering for TOEFL or IELTS and reporting scores to the University, visit English Requirements for MBA Admission on the Office of Admissions web site.

The full-time M.B.A. program admits students only for fall entry. Application deadlines are as follows:

- International applicants: April 15
- U.S. citizens and permanent residents (priority deadline): April 15
- U.S. citizens and permanent residents: July 30

Applications received after April 15 are considered on a space-available basis.

Accelerated Professional Track

Highly qualified undergraduate students in the University of Iowa College of Liberal Arts and Sciences, the College of Engineering, or the Tippie College of Business may be admitted to the full-time M.B.A. program's Accelerated Professional Track (APT). These students begin taking M.B.A. core courses as electives during their undergraduate programs; this permits them to earn a bachelor's degree and an M.B.A. more quickly than they would if they pursued each degree separately. APT students must complete an internship in the program.

To enter the APT program, students must complete 90 s.h. of undergraduate work, have a g.p.a. of at least 3.50, have clearly defined career goals, and indicate their intent to pursue both degree programs on a full-time basis. Students also must have a professional background similar to that of students enrolled in the M.B.A. program.

Joint M.B.A./Graduate and Professional Degrees

Joint degree programs allow students to pursue two degrees simultaneously, earning both more quickly than they would if they pursued each degree separately. The Tippie School of Management collaborates with several other University of Iowa academic units to offer joint

professional or graduate degrees: an M.B.A./J.D. with the College of Law; (p. 1005) an M.B.A./M.D. with the Carver College of Medicine (p. 1038); and an M.B.A./M.H.A. with the College of Public Health (p. 1191).

Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the joint degree program.

M.B.A. for Professionals and Managers

The M.B.A. for Professionals and Managers (M.B.A.-PM) program requires 45 s.h. of graduate credit. The program is tailored for working professionals building on the synergies of concurrent work and learning. It prepares graduates to be effective managers and leaders in the global marketplace. The curriculum is designed for students with varied backgrounds, undergraduate majors, and professional experience. Previous course work in business is not required.

Courses are offered each semester during evening hours or weekends at three locations in Iowa: in Cedar Rapids at the Tippie College of Business Cedar Rapids Center, in Des Moines at the John and Mary Pappajohn Education Center (JMPEC), and in the Quad Cities at the Palmer College of Chiropractic; see Program Locations on the school's web site. M.B.A.-PM students also may enroll in full-time M.B.A. courses in Iowa City when space is available.

The M.B.A.-PM program requirements include a business core of nine courses plus six business electives. The core develops competency in general management skills and key functional business areas. The electives contribute to the development of an area of expertise and foster a deeper understanding of management and business practices. Electives are offered in marketing, finance, leadership and management, and entrepreneurship, with a smaller number offered in analytics, management information systems, and operations. Students may take part in several Global Learning Opportunities in international locations to increase their understanding of the global business environment and its implications for business conduct and decision making.

Students can earn the degree in as few as two and a half years, but they may have up to 10 years to complete it. Most students earn the M.B.A. in about three years, taking two courses each fall and each spring semester and one course during the summer. Course sequencing is flexible. A sample study plan follows.

FIRST YEAR

MBA:8110 (06N:211) Marketing Management	3 s.h.
MBA:8120 (06N:212) Management in Organizations	3 s.h.
MBA:8140 (06N:215) Corporate Financial Reporting	3 s.h.
MBA:8150 (06N:216) Business Analytics	3 s.h.
Business elective	3 s.h.

SECOND YEAR

MBA:8160 (06N:213) Managerial Economics	3 s.h.
MBA:8180 (06N:225) Managerial Finance	3 s.h.
MBA:8190 (06N:229) Operations Management	3 s.h.
Two business electives	6 s.h.

THIRD YEAR

MBA:8210 (06N:223) Global Business Strategy	3 s.h.
MBA:8300 (06N:240) Strategic Management and Policy	3 s.h.
Three business electives	12 s.h.

Admission

The M.B.A.-PM program admits students for summer, fall, or spring entry; applications are accepted throughout the year. Admission decisions are based on completed application materials, including quality of work experience, undergraduate grade-point average, scores on the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) General Test, and recommendations. Applicants should have at least one and one-half years of postbaccalaureate professional work experience before admission.

Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL) or must have a successful admission interview. In place of TOEFL, the program accepts International English Testing System (IELTS) scores. For information about registering for TOEFL or IELTS and reporting scores to the University, visit English Requirements for MBA Admission on the Office of Admissions web site.

Admission decisions are made before registration begins for completed applications received by the priority application deadline. Admitted applicants who have met the priority application deadline may request registration for classes on the first registration date. The University must receive completed application materials by the following application deadlines.

- Priority deadline for summer session (May): March 1
- General deadline for summer session (May): April 30
- Priority deadline for fall semester (August): May 1
- General deadline for fall semester (August): July 30
- Priority deadline for spring semester (January): October 1
- General deadline for spring semester (January): December 30

Enrollment in Courses Before Formal Admission

Individuals who have not yet been admitted to the program may request pre-M.B.A. status by submitting their résumé and transcript to the Tippie School of Management for approval; they should have at least one and one-half years of postbaccalaureate professional work experience. Those granted special pre-M.B.A. status may enroll in a maximum of three M.B.A.-PM courses over 12 months, with a maximum of two courses during each 10 or 12-week session and one course during shorter sessions.

Students must take one of the following courses as their first course in pre-M.B.A. status.

MBA:8140 (06N:215) Corporate Financial Reporting	2-3 s.h.
MBA:8150 (06N:216) Business Analytics	2-3 s.h.
MBA:8160 (06N:213) Managerial Economics	1-3 s.h.
MBA:8180 (06N:225) Managerial Finance	2-3 s.h.

Pre-M.B.A. students who begin with one course in their first semester must select that course from the list above. Those who take two courses their first semester must include one from the list above; for the second course, the program recommends a qualitative course such as MBA:8110 (06N:211) Marketing Management or MBA:8120 (06N:212) Management in Organizations.

Credit earned during pre-M.B.A. status is applied to the degree once the applicant is admitted to the program.

Executive M.B.A.

The Executive M.B.A. requires 51 s.h. of graduate credit. The Executive M.B.A. program is conducted at the Pomerantz Center on the University's Iowa City campus and at the Pappajohn Education Center in Des Moines, Iowa. The Executive Engineer Dual Master's Degree program is conducted at the Tippie College of Business Cedar Rapids Center. See Program Locations on the school's web site.

Course work for the Executive M.B.A. is presented over 21-24 months. The program begins in mid-August (Iowa City) or in mid-January (Des Moines) with a five-day residency. It continues with classes one day each week on alternating Fridays and Saturdays (Iowa City) or on Friday and Saturday every other week (Des Moines). A second five-day residency is held at the beginning of the second year. Students have a four-week winter break and summers off.

Each entering class progresses through the program as a group. The curriculum includes 16 core courses, an international business seminar (10-11 days during spring of the second year), and work in small study groups throughout the program.

Admission is limited to experienced managers and executives who want to broaden their management skills without interrupting their professional careers. Applicants typically have seven or more years of postgraduate managerial experience. Previous academic work in business is not required.

The Executive M.B.A. program requires the following course work.

FIRST YEAR

MBA:8110 (06N:211) Marketing Management	3 s.h.
MBA:8120 (06N:212) Management in Organizations	3 s.h.
MBA:8140 (06N:215) Corporate Financial Reporting	3 s.h.
MBA:8150 (06N:216) Business Analytics	3 s.h.
MBA:8160 (06N:213) Managerial Economics	3 s.h.
MBA:8170 (06N:228) International Economic Environment of the Firm	3 s.h.
MBA:8180 (06N:225) Managerial Finance	3 s.h.
MBA:8330 (06N:230) Seminar in Strategic Management I	1 s.h.
MGMT:9270 (06J:227) Human Resource Management	3 s.h.

SECOND YEAR

MBA:8190 (06N:229) Operations Management	3 s.h.
MBA:8300 (06N:240) Strategic Management and Policy	3 s.h.

MBA:8340 (06N:231) Seminar in Strategic Management II	1 s.h.
MBA:8500 (06N:235) Seminar in International Business	1 s.h.
ACCT:9020 (06A:235) Strategic Cost Analysis	3 s.h.
ACCT:9040 (06A:245) Financial Information and Capital Markets	3 s.h.
FIN:9300 (06F:215) Corporate Investment and Financing Decisions	3 s.h.
MGMT:9110 (06J:256) Dynamics of Negotiations	3 s.h.
MGMT:9130 (06J:263) Strategic Management of Change	3 s.h.
MGMT:9210 (06J:232) Law and Ethics	3 s.h.

M.B.A. in Hong Kong

The M.B.A. program in Hong Kong ("Hong Kong M.B.A.") requires 45 s.h. of graduate credit. The curriculum is designed for students with various backgrounds, experience, and academic majors who are living in or near Hong Kong or Taiwan. The program does not require previous course work in business.

Students complete the required courses in sequence; most complete the program in 16-20 months. Each course begins with two weeks of online course work followed by two consecutive weekends of classes in Hong Kong and an additional two weeks of online course work. Faculty from Iowa travel to Hong Kong to teach the weekend classes. Some courses offer a video conference option for students living in Taiwan. Students also have the opportunity to study on campus in Iowa City for up to one semester.

Students are admitted to the program year-round. Admission decisions are based on a completed application, which includes a résumé, academic qualifications, an essay, letters of recommendation, and interview. Applicants must have at least three years of professional-level work experience.

The M.B.A. program in Hong Kong requires the following course work.

MBA:8110 (06N:211) Marketing Management	3 s.h.
MBA:8120 (06N:212) Management in Organizations	3 s.h.
MBA:8140 (06N:215) Corporate Financial Reporting	3 s.h.
MBA:8150 (06N:216) Business Analytics	3 s.h.
MBA:8160 (06N:213) Managerial Economics	3 s.h.
MBA:8170 (06N:228) International Economic Environment of the Firm	3 s.h.
MBA:8180 (06N:225) Managerial Finance	3 s.h.
MBA:8190 (06N:229) Operations Management	3 s.h.
MBA:8300 (06N:240) Strategic Management and Policy	3 s.h.
Business electives	18 s.h.

M.B.A. in Italy

The M.B.A. program in Italy ("CIMBA M.B.A.") requires 52-58 s.h. of graduate credit. The 11-month program is held primarily at the Consortium Institute of Management and Business Analysis (CIMBA) campus in Paderno del Grappa, Italy, but the final course is completed on the University of Iowa campus in Iowa City. The program is

full time, but a part-time program is available for working professionals living in Italy.

The program focuses on personal leadership development and emphasizes strategic management, consulting, and international business. Students apply what they learn through consulting projects with local and international companies. In addition to the M.B.A. degree, students earn certificates in Kepner-Tregoe problem solving and in decision making and project management. The program draws its faculty from The University of Iowa and from institutions across the United States and Europe.

The program admits students only for fall semester entry. Admission decisions are based on an applicant's qualifications, including work experience, undergraduate grade-point average, essays, letters of recommendation, and scores on the Graduate Management Admission Test (GMAT) or Graduate Record Exam (GRE) General Test. Applicants must have at least two years of professional work experience.

The M.B.A. program in Italy requires the following course work.

MBA:8110 (06N:211) Marketing Management	3 s.h.
MBA:8120 (06N:212) Management in Organizations	3 s.h.
MBA:8140 (06N:215) Corporate Financial Reporting	3 s.h.
MBA:8150 (06N:216) Business Analytics	3 s.h.
MBA:8160 (06N:213) Managerial Economics	3 s.h.
MBA:8170 (06N:228) International Economic Environment of the Firm	2 s.h.
MBA:8180 (06N:225) Managerial Finance	3 s.h.
MBA:8190 (06N:229) Operations Management	3 s.h.
MBA:8300 (06N:240) Strategic Management and Policy	3 s.h.
ACCT:9020 (06A:235) Strategic Cost Analysis	3 s.h.
ENTR:9100 (06T:220) Entrepreneurship and Innovation	3 s.h.
FIN:9300 (06F:215) Corporate Investment and Financing Decisions	3 s.h.
MGMT:7850 (06J:268) Seminar in Management	2 s.h.
MGMT:9120 (06J:262) Leadership and Personal Development	3 s.h.
MSCI:9110 (06K:217) Advanced Analytics	3 s.h.
MSCI:9120 (06K:292) Supply Chain Management	3 s.h.
MSCI:9220 (06K:220) Introduction to Information Systems	3 s.h.
Electives	3-9 s.h.

Courses

See course lists in the individual Tippie College of Business departmental sections of the Catalog for descriptions of M.B.A. electives.

MBA:8000 (06N:200) Directed Readings-M.B.A.	1-3 s.h.
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- MBA:8010 (06N:205) M.B.A. IMPACT** 0 s.h.
Introduction to the Tippie M.B.A. program and its culture; activities accentuate themes of involvement, motivation, professionalism, achievement, and challenge; week-long immersion in collaborative team-building experiences.
- MBA:8100 (06N:201) Business Acumen and Career Development** 1-2 s.h.
Career service tools to effectively market self to employers and succeed in chosen career path, communicate personal brand and vision, succeed in job search process, demonstrate professionalism in various business venues, and grow a personal sphere of influence; academy experience to build depth within chosen career field/academic track through course work and outside-of-class academy activities, academic concepts applied to business world, and exposure to relevant information important to student's major that does not clearly fit into academic course work.
- MBA:8110 (06N:211) Marketing Management** 2-3 s.h.
Concepts, principles, models of marketing management; focus on strategic planning, management decision making, and implementation of marketing programs.
- MBA:8120 (06N:212) Management in Organizations** 2-3 s.h.
How to explain, predict, and influence behavior in organizations; decision making, leadership, communication, group skills in management positions; motivation, leadership, teams, organizational culture, organizational design, individual differences, organizational change.
- MBA:8130 (06N:204) Corporate Communications** 2 s.h.
Effective communication to become a successful business professional and leader; strengthen ability to speak and write confidently, competently, and effectively, regardless of venue; varied team and individual presentation coaching, applied exercises.
- MBA:8140 (06N:215) Corporate Financial Reporting** 2-3 s.h.
Contemporary financial reporting practices in the United States; how alternative accounting treatments affect the usefulness of financial information in applied decision settings.
- MBA:8150 (06N:216) Business Analytics** 2-3 s.h.
Introduction to analytical techniques for making business decisions; utilizing Excel to apply descriptive and predictive analytical tools to solve practical business problems using real world data; dealing with uncertainty in decision making; formal probability concepts and statistical methods for describing variability (decision trees, random variables, hypothesis testing); application of techniques (linear regression, Monte Carlo simulation, linear optimization) to model, explain, and predict for operational, tactical, and strategic decisions.
- MBA:8160 (06N:213) Managerial Economics** 1-3 s.h.
Models of consumer and firm behavior with applications; market equilibrium and structure; pricing decisions.
- MBA:8170 (06N:228) International Economic Environment of the Firm** 2-3 s.h.
Basic determinants of aggregate output, employment, wages, unemployment, consumption, investment, international trade flows, interest rates, exchange rates, prices and inflation in open economies; sources and nature of economic growth; effects of domestic and foreign monetary, fiscal policies; effects of trade, exchange rate policies.
- MBA:8180 (06N:225) Managerial Finance** 2-3 s.h.
Time value of money, applications of present value techniques; stock and bond valuation, capital budgeting, cost of capital calculation, portfolio formation and efficient market analysis, financial statement analysis, pro forma analysis, hedging financial risks. Requirements: MBA:8140 (06N:215) or an undergraduate-level course in financial accounting or finance.
- MBA:8190 (06N:229) Operations Management** 2-3 s.h.
Planning and decision-making activities for managing an organization's operations; trade-offs associated with operations management decisions, tools and techniques for helping operations managers implement decisions and reach goals; production and service delivery strategy, capacity planning, product and process design, total quality management, demand management, production and service planning, scheduling, materials control, emerging production and service technologies. Prerequisites: MBA:8150 (06N:216).
- MBA:8200 (06N:245) Strategic Business Consulting** 1-6 s.h.
Plan, schedule, and deliver strategic consulting services to commercial enterprises; project definition, preparation and presentation of deliverables, client relationship management.
- MBA:8210 (06N:223) Global Business Strategy** 3 s.h.
Strategic frameworks and skills critical for success in the global marketplace; content of an economic environment; cultural, ethical, and legal issues in the conduct of international business; how companies enter foreign markets and grow international subsidiaries, succeed in mergers and acquisitions, cooperate in joint ventures and strategic alliances. Prerequisites: MBA:8120 (06N:212).
- MBA:8220 (06N:242) Ethics and the Law** 1-2 s.h.
Legal and ethical issues surrounding startup and day-to-day management of a business; contract law, standard business formations, tort law, employment law, business ethics, alternative dispute resolution.
- MBA:8230 (06N:243) Introduction to Leadership** 1-2 s.h.
Major theories; practical development of leadership and managerial skills to enhance individual and organizational effectiveness.
- MBA:8300 (06N:240) Strategic Management and Policy** 2-3 s.h.

Firm's competitive strategy from a manager's perspective; key strategic frameworks; integration of concepts learned throughout M.B.A. program, previous work experience. Prerequisites: MBA:8110 (06N:211), MBA:8140 (06N:215), MBA:8180 (06N:225), and MBA:8190 (06N:229).

MBA:8309 (06N:244) Consulting Project Leadership 1-2 s.h.

Student Team Leads for the Business Solution Center engage in activities to support the launch of spring consulting projects; initial client interactions, project scope, project planning documents, project arrangement letters, and detailed work plans in consultation with their client and Business Solutions Center leadership; basics of leading a team of student consultants. Prerequisites: MBA:8110 (06N:211), MBA:8120 (06N:212), MBA:8140 (06N:215), MBA:8150 (06N:216), MBA:8180 (06N:225), MBA:8190 (06N:229), and MBA:8300 (06N:240). Requirements: full-time M.B.A. standing.

MBA:8310 (06N:241) Business Integration 1-3 s.h.

Student teams run an operational business simulation, conduct organizational/industry analysis, assess market opportunities, define strategic direction, compete for company profitability and market share. Prerequisites: MBA:8110 (06N:211), MBA:8140 (06N:215), MBA:8180 (06N:225), MBA:8190 (06N:229), and MBA:8300 (06N:240).

MBA:8330 (06N:230) Seminar in Strategic Management I 1-3 s.h.

Introduction to strategic management; the role of marketing, operations, and finance in strategic planning; case studies.

MBA:8340 (06N:231) Seminar in Strategic Management II 1-3 s.h.

Strategic management integrating all aspects of business; computer simulation, lectures, case studies, readings.

MBA:8400 (06N:000) M.B.A. Internship 0 s.h.

MBA:8410 (06N:203) Application in Organizational Leadership 0-1 s.h.

Opportunity to develop leadership skills necessary for managing student organizations; class discussion, workshops, guest speakers; for M.B.A. organization treasurers and presidents.

MBA:8420 (06N:202) M.B.A. Case Competition 1-3 s.h.

Students represent Tippie School of Management in a case competition; internal case work, presentation and case analysis training. Requirements: M.B.A. standing.

MBA:8500 (06N:235) Seminar in International Business 0-6 s.h.

Issues and challenges facing organizations doing business in international markets; social, economic, political factors, business policies and customs in the global environment; may include travel, study abroad. Requirements: M.B.A. enrollment.

MBA:8501 (06N:251) M.B.A. Coaches Program 1 s.h.

Development of coaching skills while leading a rigorous peer-to-peer mentoring program with first-year M.B.A. students; improve ability to communicate, motivate, influence, train, and develop others as well as develop high level competency in coaching in critical career development skills, such as business communications, crafting a personal brand pitch, interviewing preparation, and creating and leveraging a network; successful leaders are skilled coaches, so the benefits of this course to both coach and mentee, extend far beyond the classroom experience and time as a Tippie student.

MBA:9120 (06N:262) Introduction to Leadership 1 s.h.

Major theories; practical development of leadership and managerial skills to enhance individual and organizational effectiveness.

MBA:9210 (06N:232) Ethics II 1 s.h.

Organizational influences on ethical behavior.

Risk Management and Insurance

Director

- Larry Hershberger

Associate director

- Viana Rockel

Affiliated faculty

- Philip D. Brooks (Finance), Scott R. Fisher (Finance), Robert E. Fulwider (Finance), Donna L. Pearcy (Finance)

Undergraduate certificate: risk management and insurance

Web site: <http://tippie.uiowa.edu/vaughan/>

The Department of Finance and the Emmett J. Vaughan Institute of Risk Management and Insurance offer the Certificate in Risk Management and Insurance.

Undergraduate Program of Study

- Certificate in Risk Management and Insurance

Certificate

The Certificate in Risk Management and Insurance requires 12-24 s.h. of credit: 12 s.h. for B.B.A. students majoring in finance, 18 s.h. for B.B.A. students majoring in business analytics and information systems, and 24 s.h. for all other students. The program is designed to provide an understanding of the many aspects of risk management and insurance (RMI). It concentrates on value creation and asset protection, including pure insurance and risk management, as well as on corporate and financial risk management. It also addresses the financial and economic characteristics of potential exposures to loss that business organizations and individuals face, and the techniques available for hedging the risks and minimizing the costs associated with these exposures.

The certificate provides students in business and other majors—particularly actuarial science, mathematics, or statistics—with a foundation for careers in financial and credit analysis, corporate risk management, risk management consulting, employee benefits management and insurance consulting, insurance brokerage, and underwriting. It also may be of value to students seeking professional designations, such as Chartered Life Underwriter (CLU) and Chartered Property and Casualty Underwriter (CPCU). Students typically find employment as financial analysts, bank compliance officers, stock exchange traders, capital and asset managers, insurance and accounting auditors, actuaries, and personal bankers as well as underwriters, claims adjusters, and insurance producers.

The certificate program is open to students earning an undergraduate degree at The University of Iowa who have reached third-year standing (completion of 60 s.h.) and have a cumulative, prerequisite, and University of Iowa g.p.a. of at least 2.75. To be awarded the certificate, students must complete all certificate requirements.

Completion of the certificate is noted on the student's transcript. A certificate is mailed to students who complete

the program. Students should apply to receive the certificate when they submit their Application for Degree.

The Certificate in Risk Management and Insurance requires the following courses. Most of these courses have prerequisites or other registration requirements; students must complete prerequisites and meet registration requirements before they may register for a course. Some courses are offered only in fall or spring semesters; students should plan their course schedules carefully.

CORE COURSES AND COREQUISITES

Courses FIN:3000 (06F:100) and FIN:3400 (06F:102) are required for admission to the certificate program and are prerequisites for all other RMI courses. Students may take both courses during the same semester.

All certificate students must complete these (9 s.h.):

FIN:3000 (06F:100) Introductory Financial Management	3 s.h.
FIN:3400 (06F:102) Principles of Risk Management and Insurance (RMI core)	3 s.h.
FIN:4410 (06F:104) Corporate and Financial Risk Management (RMI core)	3 s.h.

Certificate students earning a B.B.A. with a major in business analytics and information systems also must complete these (additional 6 s.h.):

FIN:4450 (06F:107) Risk Modeling	3 s.h.
MSCI:3800 (06K:178) Optimization and Simulation Modeling	3 s.h.

ELECTIVES: STUDENTS IN BUSINESS ANALYTICS AND INFORMATION SYSTEMS

B.B.A. students majoring in business analytics and information systems complete one of these (3 s.h.):

FIN:4420 (06F:103) Property and Liability Insurance	3 s.h.
FIN:4430 (06F:105) Life and Health Insurance	3 s.h.
FIN:4440 (06F:106) Employee Benefit Plans	3 s.h.

ELECTIVES: STUDENTS IN FINANCE AND OTHER MAJORS

Students majoring in finance and those earning other majors choose two of these (6 s.h.):

FIN:4420 (06F:103) Property and Liability Insurance (offered spring)	3 s.h.
FIN:4430 (06F:105) Life and Health Insurance (offered fall)	3 s.h.
FIN:4440 (06F:106) Employee Benefit Plans (offered fall)	3 s.h.
FIN:4450 (06F:107) Risk Modeling (offered spring)	3 s.h.

Finance majors also choose three of these noninsurance electives (9 s.h.):

FIN:4210 (06F:116) Futures and Options	3 s.h.
FIN:4220 (06F:113) Fixed Income Securities	3 s.h.
FIN:4230 (06F:126) Real Estate Process	3 s.h.
FIN:4250 (06F:112) Applied Equity Valuation	3 s.h.
FIN:4320 (06F:114) Commercial Banking	3 s.h.
FIN:4340 (06F:119) Wealth Management	3 s.h.

MGMT:4100 (06J:156) Dynamics of Negotiations (available after early registration)	3 s.h.
MKTG:4200 (06M:139) Sales Management	3 s.h.
MSCI:3025 (06K:127) Decision Support Systems	3 s.h.

FIN:4440 (06F:106) Employee Benefit Plans	3 s.h.
FIN:4450 (06F:107) Risk Modeling	3 s.h.

Non-finance majors also choose three of these (9 s.h.):

ACCT:3020 (06A:120) Financial Accounting and Reporting	3 s.h.
ACCT:3200 (06A:131) Income Measurement and Asset Valuation (accounting majors take this instead of ACCT:3020)	3 s.h.
FIN:3200 (06F:111) Investment Management	3 s.h.
FIN:3300 (06F:117) Corporate Finance	3 s.h.
FIN:4210 (06F:116) Futures and Options	3 s.h.
FIN:4220 (06F:113) Fixed Income Securities	3 s.h.
FIN:4230 (06F:126) Real Estate Process	3 s.h.
FIN:4320 (06F:114) Commercial Banking	3 s.h.
MSCI:3025 (06K:127) Decision Support Systems	3 s.h.

Courses for Noncertificate Students

B.B.A. students majoring in finance may concentrate in risk management and insurance (RMI), or they may supplement their corporate finance and investment courses with one or more RMI courses. Students enrolled in other Tippie College of Business majors and College of Liberal Arts and Sciences students earning majors in statistics (p. 627), actuarial science (p. 627), or mathematics program C (p. 469) may take one or more of the RMI courses to enhance their understanding of financial services and learn about employment opportunities in the industry.

Other University of Iowa students may enroll in RMI courses after early registration if space is available and if they have completed ACCT:2200 (06A:002) Managerial Accounting, ECON:1100 (06E:001) Principles of Microeconomics, ECON:1200 (06E:002) Principles of Macroeconomics, FIN:3000 (06F:100) Introductory Financial Management, and FIN:3400 (06F:102) Principles of Risk Management and Insurance.

Students not admitted to the Tippie College of Business should meet with the associate director of the Emmett J. Vaughan Institute of Risk Management and Insurance for advising before they enroll in RMI courses.

Affiliated Courses

The Department of Finance offers six courses affiliated with the Emmett J. Vaughan Institute of Risk Management and Insurance that are included in the Certificate in Risk Management and Insurance curriculum. See Finance (p. 697) in the Catalog for course descriptions and prerequisites.

FIN:3400 (06F:102) Principles of Risk Management and Insurance	3 s.h.
FIN:4410 (06F:104) Corporate and Financial Risk Management	3 s.h.
FIN:4420 (06F:103) Property and Liability Insurance	3 s.h.
FIN:4430 (06F:105) Life and Health Insurance	3 s.h.

College of Dentistry

Dean

- David C. Johnsen

Executive associate dean

- Galen Schneider

Associate dean, education

- Lily Garcia

Associate dean, finance and facilities

- Scott Arneson

Associate dean, patient care

- Michael Kanellis

Associate dean, research

- Clark Stanford

Associate dean, student affairs

- Catherine Solow

Professional degree: D.D.S.

Graduate degrees: M.S.; Ph.D.

Web site: <http://www.dentistry.uiowa.edu/>

The College of Dentistry is an integral part of The University of Iowa and its health sciences campus. Its mission, which embraces the University's academic values as well as the ethical responsibilities implicit in educating future members of a profession, rests on a foundation representing every aspect of collegiate activity: education of students as general practitioners and specialists; research into all aspects of oral and dental disease and the delivery of health care; and service to the community, the state, and the profession.

Faculty members, D.D.S. students, and dental specialty residents provide oral health care to patients at clinics in the Dental Science Building, the Center for Disabilities and Development, and dentistry clinics at University of Iowa Hospitals and Clinics and Iowa City Veterans Affairs Medical Center. Faculty, staff, and students participate in interdisciplinary research and training activities involving the University's five health science colleges as well as other University colleges and departments.

Dentistry at The University of Iowa began in 1882 as a single department. In 1900 the University underwent general reorganization and the Dental Department became the College of Dentistry. Today the college is Iowa's only provider of dental education and ranks as a leader in dental education nationwide.

The college and its educational programs are accredited by the Commission on Dental Accreditation of the American Dental Association, an independent tripartite commission authorized and recognized by the Commission on Post-Secondary Education.

Programs offered by the college cover the full spectrum of dentistry and closely integrated fields. They include the Doctor of Dental Surgery program (D.D.S.), which prepares general dentists; advanced education programs in all dental specialties, each of which may lead to certification in a dental specialty; several advanced education programs in other areas of dentistry, including the oral science program, which offers M.S. and Ph.D. degrees; post-D.D.S. residency programs in general dentistry and

hospital-based dentistry; and a wide variety of continuing education programs for dental and allied professions.

Professional Program of Study (D.D.S.)

The Doctor of Dental Surgery program prepares students to practice general dentistry. It requires a minimum of three years of preprofessional study and four years of study in the College of Dentistry. See Doctor of Dental Surgery (p. 726) for a description of the program's curriculum and information about a joint bachelor's degree/D.D.S., the dentistry licensure examination, student organizations, expenses, admission, financial support, and academic rules and procedures.

Post-D.D.S. and Graduate Programs of Study

Several College of Dentistry departments offer professional certificate programs designed to prepare dentists for clinical specialty practice: Endodontics (p. 729); Operative Dentistry (p. 734); Oral Pathology, Radiology, and Medicine (p. 738); Orthodontics (p. 743); Pediatric Dentistry (p. 745); Periodontics (p. 747); and Prosthodontics (p. 752). Students who complete these programs satisfactorily are awarded a certificate. The Department of Oral and Maxillofacial Surgery (p. 736) offers a four-year residency program that culminates in a certificate. The college also offers the Certificate in Geriatric and Special Needs Dentistry (p. 732).

The College of Dentistry offers a Master of Science and a Doctor of Philosophy in oral science (p. 741). Students earning the Certificate in Endodontics or the Certificate in Prosthodontics may earn an M.S. or a Ph.D. in oral science concurrently with the certificate; those earning the Certificate in Operative Dentistry, Certificate in Oral and Maxillofacial Pathology or Certificate in Oral and Maxillofacial Radiology (Department of Oral Pathology, Radiology, and Medicine), or the Certificate in Periodontics may earn an M.S. in oral science concurrently with the certificate.

In addition, the Department of Orthodontics (p. 743) offers a Master of Science in orthodontics, and the Department of Preventive and Community Dentistry (p. 749) offers a Master of Science in Dental Public Health.

For information about post-D.D.S. and graduate programs of study, see the College of Dentistry department sections of the Catalog.

Faculty

Iowa's dental faculty is predominantly full-time. In addition, more than 100 part-time adjunct faculty members assist with clinical teaching in the D.D.S. and advanced residency programs. Approximately 88 percent of the college's faculty members hold D.D.S. or D.M.D. degrees and 12 percent represent other disciplines. The vast majority of faculty dentists have advanced education past the D.D.S., generally with master's degrees in specialty areas; about one-fifth hold a Ph.D.

The College of Dentistry is committed to the principle that diversity is essential to a strong educational environment—one that prepares new generations of dentists to provide

high-quality care to patients from many backgrounds. The college's full-time faculty reflects that commitment.

Facilities

The College of Dentistry is located in the Dental Science Building on the University of Iowa health sciences campus, in proximity to the Roy J. and Lucille A. Carver College of Medicine, College of Nursing, College of Pharmacy, College of Public Health, and University of Iowa Hospitals and Clinics. The Bowen Science Building and the Hardin Library for the Health Sciences also are nearby.

The south wing of the Dental Science Building is devoted to clinical teaching. There are 268 operatories in departmental clinics, student laboratories, clinical research space, and a cafeteria. The three clinical floors of the south wing are being remodeled in a sequenced four-year project that began in summer 2012. The north wing houses the simulation clinic and technique bench teaching laboratory, the electronic classroom, college administrative offices, educational media service, computer support services, the academic Department of Preventive and Community Dentistry, and the research laboratories and faculty offices of the Dows Institute for Dental Research.

A 33,000-square-foot addition that opened in fall 2011 features an ADA-compliant entrance, two floors of patient treatment areas, and one floor of space for students. The clinical spaces include 46 dental operatories in the Geriatric and Special Needs Clinic, the Endodontic Clinic, and the Center for Clinical Excellence. Student areas include a classroom that accommodates 80 people, small-group study rooms, a seminar room, a student lounge, lockers, and showers.

Dental Education and Patient Care

Patient care is integral to dental education. Students and faculty members deliver oral health care in clinics on the health sciences campus and at several off-campus sites, including nursing homes. More than 45,600 people receive oral health care yearly in the college's clinics. Patients from throughout Iowa as well as from western Illinois and northern Missouri account for most of the 167,300 patient visits each year.

Interdisciplinary Centers

Dows Institute for Dental Research

Established in 1976, the Dows Institute for Dental Research occupies the first and fourth floor of the Dental Science Building's north wing. Laboratories are equipped to support a wide variety of research projects reflecting the complex nature of modern health care needs. Research at the institute is coordinated by the College of Dentistry. Focus areas include oral soft tissue and oral cancer; cariology and microbiology; epidemiology, behavior, health policy, and outcomes; and biomaterials, bone, and tissue engineering. Clinical and translational research is carried out at the Craniofacial Clinical Research Center.

Although research is concentrated in these program areas, one of the unit's strengths has been the consistent level of interaction and collaboration among individuals and programs across the college and the University.

Craniofacial Clinical Research Center

For more than two decades, the Office of Clinical Research has offered outpatient research support for National Institutes of Health, Food and Drug Administration, and related federally supported research grants. The office's Craniofacial Clinical Research Center conducts protocol-based studies performed by faculty scientists and supported by oral health care industries. It also engages in translational research involving laboratory-to-clinical-research outcomes. The center is allied with the Carver College of Medicine's General Clinical Research Center and the University's Institute for Clinical and Translational Science.

Center for Oral and Maxillofacial Implants

Through integrated research, education, and clinical programs, the Center for Oral and Maxillofacial Implants facilitates the development of implants and their use as a therapeutic modality in dentistry. The center integrates basic and clinical research with technology transfer to the clinical setting, enhancing predoctoral, postgraduate, and continuing education and expanding treatment options available to patients served by the college. The center also provides vital coordination of dental specialties that participate in this treatment modality.

Courses

Most College of Dentistry courses are offered by the college's departments and programs. They are listed and described in the corresponding General Catalog sections; see the links under "Index: Academic Programs" on this page. The college also offers the following nondepartmental courses.

DENT:5701 (112:300) Geriatric Care— Postgraduate I/II	0,2 s.h.
Issues and problems related to oral health care in older adults, especially frail or functionally dependent.	
DENT:8000 (112:100) Transfer Credits Accepted	arr.
DENT:8100 (112:120) First-Year Continuing Session	arr.
DENT:8118 (112:118) Experiential Learning I	arr.
Problem-based learning, case studies, simulations, communication projects, small group seminars, ethics, research, and treatment planning activities integrating information addressed concurrently in the dental curriculum.	
DENT:8200 (112:150) Second-Year Continuing Session	arr.
DENT:8219 (112:119) Experiential Learning II	arr.
Continuation of DENT:8118 (112:118).	
DENT:8300 (112:170) Third-Year Continuing Session	arr.

- DENT:8355 (112:145) Introduction to Geriatric Dentistry** 2 s.h. Oral and Maxillofacial Surgery (p. 736)
Biological, psychological, and social aspects of aging; normal aging and disease processes associated with aging; pathological changes that affect oral health treatment of dental diseases and patient management. Requirements: D.D.S. enrollment or completion of dental hygiene program. Same as ASP:8355 (153:145).
Oral Pathology, Radiology, and Medicine (p. 738)
Oral Science (p. 741)
Orthodontics (p. 743)
Pediatric Dentistry (p. 745)
Periodontics (p. 747)
- DENT:8368 (112:168) Applied Dental Pharmacology** 2 s.h. Preventive and Community Dentistry (p. 749)
Patients' medications and their implications for dental treatment; clinical use of medications that dentists may prescribe; guidelines for dental prescribing. Prosthodontics (p. 752)
- DENT:8370 (112:155) Introduction to Comprehensive Care/Experiential Learning III** 1 s.h. **Certificate Programs**
Comprehensive dental diagnosis and treatment planning; small group discussion of students' own patient cases; communication exercises with standardized patients. Geriatric and Special Needs Dentistry (p. 732)
- DENT:8371 (112:167) Introduction to Quality Assurance** 2 s.h.
Patient management, record writing skills, quality assurance concepts; students coordinate treatment, patient relations, issues of quality assurance for a group of patients; ethical, moral dilemmas in relation to dental practice.
- DENT:8400 (112:180) Fourth-Year Lectures and Clinics** arr.
- DENT:8485 (112:185) Clinical Admissions Emergency** 1 s.h.
Clinical evaluation, diagnosis, and treatment of patients with dental emergencies; patient assessment and referral to appropriate department for treatment.
- DENT:8489 (112:189) Advanced Topics in Quality Assurance** 2 s.h.
Quality assurance from viewpoint of practicing dentist, dental educator, dental epidemiologist, court system; analysis of senior dental practice in relation to quality assurance criteria.
- DENT:8500 (112:190) Dental Student Research Honors Program** arr.
Experience in conducting research. Requirements: D.D.S. enrollment and approval of mentor and program director.
- DENT:9000 (112:199) Advanced Clinical Comprehensive Dentistry** 0 s.h.
Clinical experience for professional improvement. Requirements: dental degree.

Professional Degree

Doctor of Dental Surgery (p. 726)

Departments and Programs

Endodontics (p. 729)

Family Dentistry (p. 731)

Hospital General Dentistry (p. 733)

Operative Dentistry (p. 734)

Doctor of Dental Surgery

Professional degree: D.D.S.

Web site: <http://www.dentistry.uiowa.edu/>

Professional Program of Study

- Doctor of Dental Surgery

The Doctor of Dental Surgery program prepares students to practice general dentistry. The D.D.S. is a professional degree awarded by the College of Dentistry. Admission requirements include 90 s.h. of undergraduate credit, including specific required courses, completed at an accredited college; see "Admission" below. Students working toward a bachelor's degree in the University of Iowa College of Liberal Arts and Sciences before being admitted to the College of Dentistry may be able to complete their bachelor's degree during their first year in dentistry; see "Joint Bachelor's Degree/D.D.S." below.

Doctor of Dental Surgery

The Doctor of Dental Surgery requires a minimum of three years of preprofessional study and four years of study in the College of Dentistry.

Course work during the first and second years in the College of Dentistry integrates the biomedical sciences with preclinical and clinical disciplines. The biomedical sciences include gross anatomy, biochemistry, general histology, microbiology, pathology, pharmacology, and physiology. Students also study topics specific to dentistry, such as principles of occlusion, anesthesia and pain control, operative dentistry, periodontics, prosthodontics, cariology, and preventive dentistry. During the latter part of the first year, students are introduced to their first clinical patient treatment situation.

Second-year dental students continue their study of biomedical sciences, take preclinical courses, have additional patient treatment experiences in restorative and preventive dentistry, and are introduced to esthetic and implant dentistry.

Third-year dental students rotate through a series of clerkships that expose them to seven clinical disciplines: endodontics, operative dentistry, oral and maxillofacial surgery, oral pathology, pediatric dentistry, periodontics, prosthodontics, and radiology and medicine.

Fourth-year dental students deliver comprehensive dental care in conditions that closely approximate those in private dental practice. They also are exposed to varied community dentistry health programs throughout Iowa and other states that include hospitals, nursing homes, and the Special Care Clinic. They may choose to participate in the Colorado Migrant Worker Program, the Indian Health Service Program, or the Foreign Dental School Exchange Program. The community dentistry programs provide exposure to facets of dentistry usually not observable in an academic setting.

Biomedical Sciences in the Dental Curriculum

The following science courses are offered by University of Iowa departments outside the College of Dentistry and are a required part of the D.D.S. curriculum.

ACB:8120 (060:101) Human Gross Anatomy for Dental Students	6 s.h.
ACB:8121 (060:112) General Histology for Dental Students	4 s.h.
BIOC:8101 (099:161) Biochemistry for Dental Students	3 s.h.
MICR:8230 (061:113) Dental Microbiology	3 s.h.
MPB:8115 (072:152) Human Physiology for Dental Students	4 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.
PCOL:8240 (071:111) Basic Pharmacology for Dental Students	3 s.h.

Dentistry nondepartmental courses are listed in the College of Dentistry (p. 723) section of the Catalog. Courses offered by the college's departments are listed in each department's General Catalog section.

Joint Bachelor's Degree/D.D.S.

The College of Liberal Arts and Sciences (CLAS) allows its students to count 30 s.h. of elective credit earned in any other University of Iowa college toward graduation with a bachelor's degree. Under this policy, CLAS students who enroll in the College of Dentistry before completing their bachelor's degree may be able to complete their degree during their first year in dentistry. Students planning to take advantage of this plan must satisfy the CLAS residence requirement in order to enroll in the College of Dentistry. They also must fulfill all requirements for the bachelor's degree, including the General Education Program (p. 323) requirements and the requirements for a major. Contact the College of Liberal Arts and Sciences for more information.

Dentistry Licensure Examination

The State of Iowa accepts clinical examination results from the Central Regional Dental Testing Service and from the Western Regional Examination Board. Examinations are administered at several testing sites located at dental schools in the United States. A separate license application is then filed with the individual state board of dentistry.

For licensure, all states also require the National Boards, conducted by the American Dental Association. Many states, including Iowa, also require a jurisprudence examination.

Expenses

The College of Dentistry maintains the Supply-Instrument Management System (SIMS), which provides students with instruments and supplies necessary throughout their dental training. The SIMS usage fee for the D.D.S. is payable in installments over the four-year program.

A fee for expendable laboratory supplies is charged each of the first two years. A \$100 breakage fee also must be deposited; the deposit is refundable upon graduation or termination of enrollment.

Student Organizations

All dental students are members of the American Student Dental Association through its local chapter. The American Dental Education Association, the American Association of Dental Research (Student Research Group), the American Association of Women Dentists, the American Academy

of Pediatric Dentistry Student Chapter, the American Society for Geriatric Dentistry, the Student National Dental Association, and the Hispanic Dental Association also have local chapters.

Students who rank in the upper 12 percent of their senior class are eligible for election to Omicron Kappa Upsilon, a national scholastic honorary dental society.

The national dental professional fraternities Delta Sigma Delta and Psi Omega have chapters at Iowa. Both fraternities provide academic and social activities for students and their spouses.

Admission

Applicants must submit a completed AADSAS (Associated American Dental Schools Application Service) application form to the American Dental Education Association (ADEA). The AADSAS application must be completed online at the American Dental Education Association web site (<http://www.adea.org>).

Applications are accepted beginning June 1 of the year before the year of entry. Completed applications must be on file at ADEA by October 1. Applicants should apply as early as possible. Notifications of acceptance are sent beginning December 1.

Prospective dental students are encouraged to embark on an educational program that leads to a standard bachelor's degree. This ensures that students receive a well-rounded education.

Predental Studies

The basic academic requirement for admission to the College of Dentistry is completion of at least 90 s.h. of academic study at an accredited college. No more than 60 s.h. of credit is accepted from a junior college or two-year institution. The predental program of study should include the following.

English: satisfactory accomplishment in English composition, rhetoric, and speech commensurate with the academic requirements for a bachelor's degree at the college attended.

Physics: one year (equivalent to 8 s.h.), of which one-fourth must be laboratory work.

Chemistry: two years (equivalent to 16 s.h.), of which one year (equivalent to 8 s.h.) must be in organic chemistry; one-fourth of each year's study must be laboratory work.

Biochemistry: one semester (equivalent to 3 s.h.).

Biological science: one year (equivalent to 8 s.h.), which must include appropriate laboratory work; the requirement may be satisfied by a one-year course in principles of biology, with instruction in cell biology, metabolism, organismic biology, animal biology, genetics, development, ecology, and evolution. Preference is given to applicants who have completed more than 8 s.h. Courses in human anatomy and cell physiology are strongly recommended.

Gross anatomy: highly recommended.

Electives: sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, business, and mathematics to provide a well-rounded educational background.

Grade-Point Average Requirement

Applicants should have a cumulative g.p.a. of at least 3.25 on a 4.00 scale; a g.p.a. above 3.50 is preferred. The admissions committee gives special consideration to the quality of applicants' course work in the predental sciences, in addition to the cumulative grade-point average.

Interviews

Personal interviews are required of applicants for admission to the College of Dentistry. Applicants are contacted to arrange an interview, after a complete AADSAS application is received by the admissions office.

Required Dental Admission Test

All applicants must complete the Dental Admission Test (DAT) sponsored by the Council on Dental Education of the American Dental Association. A computerized DAT is available throughout the year at designated Prometric Centers.

Applicants should take the test by August 1, one year before entering dental school. Test application forms are available online or by mail from the American Dental Association, 211 East Chicago Avenue, Chicago, IL 60611.

Deposit by Accepted Applicants

Applicants accepted before February 1 are required to submit a \$500 deposit within 30 days after notification of admittance. Applicants admitted after February 1 must submit the deposit within two weeks after notification of admittance. This deposit is not refundable but is credited toward the first fee payment. Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

Additional Admission Considerations

Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. The admissions committee reviews applicants who meet the minimum requirements and selects those who appear best qualified for the study and practice of dentistry. The committee considers applicants' academic averages, science averages, DAT scores, letters of recommendation, the interview, and other factors.

Applicants who met the admission requirements five or more years before they applied to the College of Dentistry are considered by the admissions committee only under exceptional circumstances.

Early Admission

The College of Dentistry's Deferred Admit Program (DAP) allows academically motivated students who are residents of Iowa and are interested in a dental career to be conditionally admitted to the College of Dentistry as early as the end of their first year of undergraduate study. Students postpone matriculation to the College of Dentistry until they have earned the amount of credit required for their undergraduate degree. As undergraduates, they are engaged in a liberal arts and sciences curriculum that incorporates the dental prerequisite courses. Once selected for the program, students must maintain a specified level of academic achievement to assure matriculation to the College of Dentistry.

Financial Support

Financial assistance for dental students is based on need. Dental students who demonstrate need are eligible for Health Professions Loans, Perkins Loans, and Stafford/Ford Loans. Students applying for loans must submit the Free Application for Federal Student Aid (FAFSA). Interest on some of these loans may be deferred while the student is in school, and the loans are repayable over an extended period of time after the course of study is completed.

Short-term and long-term loans are available through the financial aid coordinator at the College of Dentistry.

Tuition scholarships are awarded each year to qualified entering dental students. The awards provide financial support up to \$15,000 per year for as many as four years, if the student maintains an appropriate level of performance.

Financial assistance (grants and loans) is available to disadvantaged students who qualify under The University of Iowa's Educational Opportunity Program and the Opportunity at Iowa Program.

Information on financial assistance for dental students is available from the University's Office of Student Financial Aid.

Academic Rules and Procedures

Promotions, Graduation

Student promotions and graduation are determined by the Collegiate Academic and Professional Performance Committee, which is made up of individuals appointed by the dean from the biomedical, preclinical, and clinical sciences and from other academic areas of the college. The performance committee may recommend to the executive associate dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unprepared to be promoted or to enter the dental profession.

Committee for Appeals

When a student has been asked to withdraw from the college or wants special consideration of problems concerning promotion or graduation, he or she may appeal to the dean. All appeals are heard by an ad hoc committee appointed by the dean. The ad hoc committee investigates new information that has not been available previously or that has not been discussed as fully as the student feels it should have been. The committee determines whether this new information, or important new insights that may have been gained, could have influenced the Collegiate Academic and Professional Performance Committee's decision. The recommendation of the appeals committee is submitted to the dean for final action.

Endodontics

Head

- Fabricio Teixeira

Professors

- David R. Drake, William T. Johnson, Fabricio Teixeira

Associate professors

- Bruce C. Justman, Anne E. Williamson

Assistant professor

- Manuel R. Gomez

Professor emeritus

- Richard E. Walton

Professional certificate: endodontics

Web site: <http://www.dentistry.uiowa.edu/endodontics>

The Department of Endodontics provides education and training to predoctoral students and to professional students, who may work toward a graduate degree along with their professional training. Some students participate with departmental faculty in research that contributes to the knowledge base of the specialty. Faculty and advanced students in the department also provide care to patients at the College of Dentistry.

D.D.S. Student Training

Course work and clinical experiences in endodontics are of vital importance in the overall education of Doctor of Dental Surgery students. Preclinical endodontics, taught during the sophomore year, includes a didactic and a laboratory component. In clinical endodontics, taught during the junior year, students study both normal and pathological conditions of the dental pulp and periapex. Diagnosis of pulpal and periradicular disease and various specialized aspects of endodontic treatment are emphasized. Students treat endodontic patients under direct supervision of faculty and staff.

Professional Program of Study

- Certificate in Endodontics

The Certificate in Endodontics is a clinical specialty program designed to provide qualified dentists with the scientific knowledge and clinical skills they will need to practice endodontics and/or pursue a career in dental education and research.

The program's goal is to develop competent diagnosticians and clinicians. Students learn the scientific and clinical basis of endodontics; develop clinical skills; gain knowledge of and experience in the educational process in order to function confidently as dental educators; and develop skills in designing, conducting, reporting, and publishing the results of original research.

Certificate

The Certificate in Endodontics requires a minimum of 24 months of full-time formal training. The curriculum includes clinical and didactic courses. Students complete an original research project in endodontics and write a scientific paper on their research for submission to a refereed journal.

The certificate program satisfies training requirements for eligibility for certification by the American Board of Endodontics. Students who complete the programs are encouraged to seek board certification. Various activities throughout the course of study prepare students for the board examination process.

Students must maintain a g.p.a. of at least 3.00 in order to receive the certificate. Students who fall below this average are allowed one semester to raise their g.p.a. to at least 3.00. The circumstances of the grade-point average deficiency receive careful consideration.

Once students enroll in the certificate program, they are not permitted to involve themselves in private dental practice enterprises outside the college. Failure to adhere to this policy may result in dismissal from the program.

Whenever possible, students should complete the certificate program without interruption. Students who demonstrate a need to discontinue the program temporarily should limit their time away to a maximum of one calendar year. Students must have permission from the endodontics graduate program director in order to interrupt their study.

Admission

Applicants to the endodontics certificate program must apply through the American Dental Education Association's Postdoctoral Application Support Services (ADEA PASS). Applicants must hold a D.D.S. or D.M.D. degree or a foreign equivalent and must meet the application requirements of the Graduate College. They should take the National Board Dental Examination, part one, and part two when it is available.

Applications should include official transcripts from all undergraduate and graduate institutions, an updated curriculum vitae, three letters of recommendation, a personal statement, and a photograph (two-inch head-and-shoulders view).

The certificate program begins in summer; ADEA PASS applications should be submitted no later than August 1 for admission the following summer. Finalists for admission are asked for a personal interview in September; admission decisions are made in October.

Graduate Study

Certificate students in the Department of Endodontics may work toward a Master of Science or a Doctor of Philosophy in oral science while earning the certificate. Both graduate degree programs provide students with in-depth knowledge in a scientific training discipline as preparation for careers in academia and research.

Students normally require three years of full-time study to complete the Certificate in Endodontics and the M.S. degree, or at least four years to complete the certificate and the Ph.D. degree. Both graduate degree programs require more didactic course work than the certificate program. The M.S. requires a thesis; the Ph.D. requires a dissertation. See Oral Science (p. 741) in the Catalog.

Other graduate programs are available to endodontics certificate students, such as master's degrees in other disciplines, or a certificate in combination with a Ph.D. in a basic science area. Such programs are available by special arrangement, depending on the candidate's experience

and goals. Consult the Department of Endodontics for more information.

Financial Support

Applicants to the certificate and graduate programs must be able to support themselves financially until they complete the programs. Prospective students should plan to pay living expenses, tuition, and costs for books, specialized equipment (e.g., surgical operating microscope, notebook computer, and ultrasonic system), instrument usage, and other expenses. Stipends are determined on a yearly basis and depend on availability of funding.

Courses

For D.D.S. Students

ENDO:8240 (083:140) Endodontics Preclinical Didactic 1 s.h.

Basic principles, concepts, technical procedures for treatment of pulpal problems.

ENDO:8241 (083:141) Endodontics Preclinical Laboratory 1 s.h.

Basic technical procedures for treatment of pulpal problems.

ENDO:8360 (083:160) Clinical Endodontic Practice arr.

Clinical experience in diagnosis and treatment of routine pulpal and periradicular pathology; emergency diagnosis; treatment of patients.

ENDO:8365 (083:165) Clinical Endodontic Seminar 1 s.h.

Tooth pain, anesthesia, pulpal and periradicular reactions, endodontic radiologic interpretation, trauma diagnosis and treatment, surgical endodontics, endodontic implants, bleaching, retreatment, apexification/apexigenesis.

For Certificate Students

Courses offered by the graduate programs in oral science are listed in the Oral Science (p. 741) section of the Catalog.

ENDO:5225 (083:225) Endodontic Literature Review I 2 s.h.

Current and historical research.

ENDO:5226 (083:226) Endodontic Literature Review II 2 s.h.

Continuation of ENDO:5225 (083:225).

ENDO:5260 (083:260) Current Literature in Endodontics 1 s.h.

Current literature relevant to endodontics, including diagnosis or treatment of endodontic cases; dental journals with endodontic-related content; landmark research.

ENDO:5700 (083:310) Endodontic Surgery Conference 0,2 s.h.

Attendance at Endodontic Surgery Conference.

ENDO:5701 (083:311) Advanced Clinical Endodontics 0,3 s.h.

Advanced study.

ENDO:5720 (083:312) Seminar in Endodontics I 0,2 s.h.

First in a series of lectures in endodontics.

ENDO:5721 (083:313) Seminar in Endodontics II 0,2 s.h.

Continuation of ENDO:5720 (083:312).

ENDO:6227 (083:227) Endodontic Literature Review III 2 s.h.

Continuation of ENDO:5226 (083:226).

ENDO:6228 (083:228) Endodontic Literature Review IV 2 s.h.

Continuation of ENDO:6227 (083:227).

ENDO:6701 (083:314) Seminar in Endodontics III 0,2 s.h.

Continuation of ENDO:5721 (083:313).

ENDO:6702 (083:315) Seminar in Endodontics IV 0,2 s.h.

Continuation of ENDO:6701 (083:314).

ENDO:9300 (083:300) Endodontic Certificate Program 0 s.h.

Advanced endodontic clinical and didactic education; nondegree program toward eligibility for board certification in endodontics.

Family Dentistry

Head

- David C. Holmes

Professors

- Ana M. Diaz-Arnold, David C. Holmes, Marcos A. Vargas

Associate professors

- Maria Marcela Hernandez, Larry J. Squire, Richard A. Williamson

Assistant professors

- Michael Murrell, Reed Parker, Michael L. Spector, Cheryl Straub-Morarend

Adjunct associate professors

- Robert E. Blew, Thomas H. Ervin, Gordon F. Goettsch, James M. Harris, Heather B. Heddens, Douglas J. Horton, Tracy M. Kittrell, Jack C. Liu, James E. Maas, Robert W. Marlin, Mark L. Marz, Steven B. Means, Timothy L. Michels, Gerald D. Monserud, John D. Morgan, Peter J. Pauly, Thomas Peek, Robert D. Pusey, Joseph W. Rauch, Arlyn K. Robinson, Dennis R. Rose, Joel P. Sardzinski, Michael S. Thomas

Adjunct assistant professors

- Steven P. Anderson, Salvador D. Atienza, Steven H. Cooper, Lonnie D. Easter, David A. Gimer, Richard R. Herzfeldt, Timothy R. Hinde, Merritt E. Jones, Chad B. Stevenson, Christopher M. Tyler

Adjunct instructors

- Christopher C. Glynn, Steven G. Rabedeaux, Ian K. Shaw, Sara E. Stuefen

Professors emeriti

- John V. Doering, Thomas V. Gardner, Charles B. Sabiston Jr., Vincent D. Williams

Web site: <http://www.dentistry.uiowa.edu/family-dentistry>

The Department of Family Dentistry reinforces and refines the comprehensive approach to managing patients' oral health care needs.

D.D.S. Student Training

The senior year of the Doctor of Dental Surgery program integrates basic science knowledge, clinical skills, and dental laboratory experiences acquired during the first three years of dental school into a systematic approach to providing patient care.

Students who complete their education in Family Dentistry should:

- conduct themselves in a professional and ethical manner;
- understand the principles of comprehensive dental treatment planning;
- know the medical, ethical, and legal issues involved in patient care;
- be able to recognize the need for specialty consultation;
- be competent in coordinating and sequencing patient treatments;

- be effective members of the dental team;
- be prepared to enter general practice;
- be educated and trained for licensure examination; and
- appreciate the importance and value of lifelong learning.

Students spend five days a week in a clinical setting, where they gain experience in total patient management and care. Their didactic course work builds on their previous education. All areas of clinical and didactic instruction, patient awareness, and sensitivity to patients' needs are stressed.

The department's practice management curriculum prepares students to evaluate practice locations and manage the business aspects of a dental practice.

Courses

FAMD:8484 (114:184) Dental Practice Management 2 s.h.

Principles of dental practice management; delivery of comprehensive dental treatment in a simulated group-practice clinical setting, with chairside dental assistants.

FAMD:8487 (114:187) Clinical Experiences: Comprehensive Care arr.

Clinical experiences in diagnosis, treatment planning, and delivery of integrated, comprehensive dental care.

FAMD:8488 (114:188) Clinical Competencies: Comprehensive Care arr.

Refinement of clinical skills, judgment, and critical self-evaluation in the delivery of integrated, comprehensive dental care.

FAMD:8494 (114:194) Topics in Family Dentistry 3 s.h.

Current techniques, findings; applications for general practitioner and graduate specialty programs.

FAMD:8495 (114:195) Treatment Planning and Sequencing 2 s.h.

Documentation of diagnostic procedures used in developing a treatment plan and sequence for selected clinical patients; student presentations.

Geriatric and Special Needs Dentistry

Coordinator

- Howard Cowen

Affiliated faculty

- Ritu Bansal (Preventive and Community Dentistry), Ann Broderick (Internal Medicine), Judith Crossett (Nursing/Psychiatry), Margo Schilling (Internal Medicine)

Professional certificate: geriatric and special needs dentistry

Web site: <http://www.dentistry.uiowa.edu/preventive-geriatric-special-needs-certificate-program>

The certificate program in geriatric and special needs dentistry prepares dentists to be leaders and teachers in this critical area of practice. The multidisciplinary program incorporates medicine and psychiatry and blends clinical and didactic experiences in varied settings, such as acute, palliative, rehabilitative, and long-term care. Its goal is to provide dental professionals with the knowledge and skills they will need to provide patient-centered, sound, and realistic treatment plans for their geriatric and special needs patients.

Professional Program of Study

- Certificate in Geriatric and Special Needs Dentistry

Certificate

The Certificate in Geriatric and Special Needs Dentistry requires a minimum of one year of full-time study. The program prepares dentists to evaluate and manage the oral health problems of older adults across the spectrum of geriatric health care services as well as adults with special needs. It also prepares professionals for scholastic positions in geriatric education. Successful graduates meet the educational requirements for eligibility to take the fellowship examination of the Special Care Dentistry Association.

Certificate students have opportunities to collaborate with medical residents and other allied health care professionals in providing a holistic approach to care of patients whose dental and medical needs are complex. They gain experience in the College of Dentistry's patient care clinics and Geriatric Mobile Dental Unit, at St. Luke's Hospital (Cedar Rapids, Iowa), and at University of Iowa Hospitals and Clinics.

Highlights of the curriculum include advanced clinical geriatric and special needs dentistry, interdisciplinary geriatric patient assessment, geriatric dentistry case studies, outreach, and teaching practicum.

Applicants must hold a D.D.S. or D.M.D. degree from an accredited dental school, be licensed dentists, and meet the admission requirements of the Graduate College. Contact the Geriatric and Special Needs Dentistry Program to learn more.

Courses

GSND:5700 (223:309) Advanced Clinical Geriatric Dentistry I	0,4 s.h.
Advanced clinical education in geriatric dentistry.	
GSND:5702 (223:310) Advanced Clinical Geriatric Dentistry II	0,4 s.h.
GSND:5703 (223:311) Advanced Clinical Geriatric Dentistry III	0,4 s.h.
GSND:5704 (223:312) Advanced Clinical Geriatric Dentistry IV	0,4 s.h.
GSND:5720 (223:314) Outreach/Advanced Clinical Geriatric Dentistry I	0,3 s.h.
GSND:5721 (223:315) Outreach/Advanced Clinical Geriatric Dentistry II	0,3 s.h.
GSND:5730 (223:316) Interdisciplinary Geriatric Patient Assessment I	0,2 s.h.
GSND:5731 (223:317) Interdisciplinary Geriatric Patient Assessment II	0,2 s.h.
GSND:5740 (223:318) Advanced Topics in Geriatric Dentistry and Special Needs I	0,2 s.h.
GSND:5742 (223:319) Advanced Topics in Geriatric Dentistry and Special Needs II	0,2 s.h.
GSND:5750 (223:320) Geriatric Dental Case Study Seminar I	0,2 s.h.
GSND:5751 (223:321) Geriatric Dental Case Study Seminar II	0,2 s.h.
GSND:5760 (223:322) Teaching Practicum in Geriatric Dentistry I	0,2 s.h.
GSND:5770 (223:324) Advanced Clinical Training for Developmentally Disabled Adults I	0,2 s.h.
GSND:5771 (223:325) Advanced Clinical Training for Developmentally Disabled Adults II	0,2 s.h.
GSND:9300 (223:300) Geriatric Special Needs Dentistry Certificate	0 s.h.
Advanced clinical and didactic education in geriatric special needs dentistry.	

Hospital General Dentistry

Head

- Kirk L. Fridrich

Division directors

- Kirk L. Fridrich (Oral and Maxillofacial Surgery), Robert L. Schneider (Prosthodontics)

Assistant professor

- Ryan W. Hill

Web site: <http://www.uihealthcare.org/dentistry/>

The College of Dentistry operates a hospital dentistry clinical service at University of Iowa Hospitals and Clinics. The service includes divisions of general dentistry, maxillofacial prosthodontics, and oral and maxillofacial surgery, and it interacts with the college's specialties of orthodontics, periodontics, pediatric dentistry, endodontics, diagnosis, oral pathology, and prosthodontics.

The Hospital Family Dentistry Program offers a one-year general practice residency.

Residency Program

The general practice residency program prepares dentists for a broader scope of private practice in general dentistry. The program combines clinical and didactic training on an individual basis and meets fundamental requirements of the Commission on Dental Accreditation of the American Dental Association (ADA).

The residency covers one year of hospital-based training. Through postdoctoral clinical, didactic, and hospital experience, residents prepare to meet the oral health needs of a wide range of ambulatory and nonambulatory patients. Rotations and patient experiences are divided between University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center.

Residency training includes use of hospital resources, management of ambulatory patients, inpatients, same-day surgery patients, and emergency medical and dental patients. Residents participate in consultations with other hospital services and are assigned to appropriate hospital services to fulfill the objectives of the training program. They are appointed to the hospital's house staff and have the same privileges and responsibilities as residents in other professional education programs.

Applicants must be U.S. citizens or permanent residents and must be graduates of a dental school accredited by the American Dental Association. They also must be eligible for licensure to practice dentistry in the United States. Application deadline is October 1 for the following July 1. See General Practice Residency Program for admission and application requirements.

Operative Dentistry

Head

- Steven Armstrong

Professors

- Steven Armstrong, Gerald Denehy

Associate professors

- Deborah Cobb, Sandra Guzmán-Armstrong, Justine Kolker, So Ran Kwon, Patricia Meredith, Erica Teixeira

Assistant professors

- Rodrigo Rocha Maia, Natalia Restrepo-Kennedy

Adjunct professor

- Robert Margeas

Adjunct associate professors

- Richard Grunder, Alan Swett, Jeremy Tu, Chadwin Wagener

Adjunct assistant professors

- Stephanie Barquist, Ed Fung, Kelly Huston, Ben Lloyd, Matt Miller, Terry Riley, Rob Thompson, Lori Veerman

Adjunct instructor

- Lynn Griebahn

Professors emeriti

- Murray Bouschlicher, Daniel Boyer, Yvonne Chalkley, James Fuller, Satish Khera, Devore Killip

Associate professor emeritus

- Thomas Schulein

Professional certificate: operative dentistry

Web site: <http://www.dentistry.uiowa.edu/operative>

The Department of Operative Dentistry provides training to predoctoral and postdoctoral students. It is a national leader in teaching, research, service, and patient care.

D.D.S. Student Training

Course work and clinical experiences in operative dentistry are fundamental to the overall education of Doctor of Dental Surgery students. The operative dentistry curriculum is designed so that didactic material relates closely to laboratory and clinical experiences. Students acquire foundational concepts in caries diagnosis, prevention, repair, and restorative techniques. They prepare to proceed independently in operative dentistry during their fourth year of training.

Professional Program of Study

- Certificate in Operative Dentistry

Students must earn the Certificate in Operative Dentistry in conjunction with an M.S. or Ph.D. in oral science; see Oral Science (p. 741) in the Catalog.

Certificate

The Certificate in Operative Dentistry is a professional clinical specialty program that provides dentists with advanced training for teaching, research, and the clinical practice of operative dentistry. The operative dentistry

graduate program meets the educational requirements for application to take board certification examinations of the American Board of Operative Dentistry. (The American Dental Association does not recognize operative dentistry as a specialty area.)

Applicants to the certificate program must be graduates of accredited U.S. or recognized foreign dental schools and must meet the admission requirements of the Graduate College. The department may request an interview with an applicant.

Certificate students must be enrolled in the M.S. or Ph.D. program in oral science in order to earn the Certificate in Operative Dentistry. Completion of both programs requires 36 months of full-time study. The M.S. requires additional course work as well as a thesis and oral and written comprehensive exams. Students have some flexibility in their curriculum to take courses that particularly interest them. See Oral Science (p. 741) in the Catalog.

Students must provide their own financial support for the certificate and degree programs, including research and thesis expenses.

Courses

For D.D.S. Students

OPER:8120 (082:120) Dental Anatomy 3 s.h.
Basic dental terminology and nomenclature, human tooth morphology, creation of tooth crowns with wax.

OPER:8122 (082:122) Operative Dentistry I 6 s.h.
Principles, design of cavity preparations; placement of restorative materials; clinical simulation on dental mannequins.

OPER:8240 (082:140) Operative Dentistry II 1 s.h.
Principles, design of cavity preparations, restoration of teeth, patient management, and pain control; esthetic dentistry; tooth bleaching, tooth recontouring, esthetic buildups with composite resin; simulation clinic exercises on mannequins.

OPER:8241 (082:141) Operative Dentistry II Clinic 3 s.h.
Procedures performed on operative clinic patients; based on biological principles for preparation of cavities, restoration with appropriate materials.

OPER:8242 (082:142) Esthetic Dentistry 1 s.h.
Continuation of principles covered in OPER:8240 (082:140).

OPER:8370 (082:170) Operative Dentistry III 4 s.h.
Combination of didactic and clinical aspects of operative dentistry; review of clinical problems, restorative dental materials, and treatment methods; patient treatment; amalgam, composite resin, gold; emphasis on physiological and esthetic importance of restorative treatment.

For Certificate Students

OPER:5126 (082:226) Operative Dentistry Seminar 1 s.h.

Direct resin systems, bonding technology; their use in dental esthetic treatment.

**OPER:5140 (082:240) Operative Dentistry
Advanced Clinic** arr.

Materials, techniques; restoration procedures on a mannequin.

**OPER:5234 (082:234) Selected
Applications of Operative Dentistry** arr.

Advanced techniques.

OPER:5245 (082:245) Pre-Clinical Teaching arr.

Teaching predoctoral dental students in laboratory, clinic.

OPER:6246 (082:246) Clinical Teaching 2 s.h.

Clinical teaching instruction.

**OPER:9300 (082:300) Operative Dentistry
Certificate Program** 0 s.h.

Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in operative dentistry.

Oral and Maxillofacial Surgery

Head

- Kirk L. Fridrich

Assistant head

- Richard G. Burton

Director, graduate studies

- Steven L. Fletcher

Professors

- Richard G. Burton, Kirk L. Fridrich, Charles L. Ringgold, Robert L. Schneider, William J. Synan

Associate professors

- Terry L. Hopper, Teresa A. Morgan, John O. Rice

Assistant professors

- Steven Fletcher, Kyle Stein

Professors emeriti

- Daniel Lew, John Montgomery

Associate professor emeritus

- Sherwood Wolfson

Professional certificate: oral and maxillofacial surgery

Web site: <http://www.dentistry.uiowa.edu/oral-maxillofacial-surgery>

The Department of Oral and Maxillofacial Surgery combines clinical and didactic training to fit the individual interests, abilities, and development of students. Its training program for predoctoral students is based in the College of Dentistry, with some clinical assignments in the oral and maxillofacial surgery division at University of Iowa Hospitals and Clinics. Its certificate program is based primarily in the Oral and Maxillofacial Surgery Residency program at University of Iowa Hospitals and Clinics.

D.D.S. Student Training

The Doctor of Dental Surgery curriculum in oral and maxillofacial surgery is designed to develop a foundation of professional knowledge and surgical skills that will enable students to diagnose and manage surgical problems related to general dentistry practice. The program emphasizes high ethical standards and development of good surgical concepts and judgment.

The clinical portion of the curriculum allows students to develop surgical skills and apply the theoretical knowledge acquired in didactic courses. Theory and application of anesthesia-analgesia, intravenous sedation, and nitrous oxide analgesia techniques are presented through didactic and clinical experiences.

Professional Program of Study

- Certificate in Oral and Maxillofacial Surgery

Certificate

The department offers a four-year residency program that culminates in the Certificate in Oral and Maxillofacial Surgery. The program combines clinical and didactic

training to prepare dentists for specialty practice. Every effort is made to adapt the program to the individual interests, abilities, and development of students, but it is essential that all students meet certain fundamental requirements.

Recommendations of the American Dental Association, the Committee on Graduate Training of the American Association of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been considered carefully in planning the structure and scope of training.

The residency period covers four years of hospital training, providing an orientation to hospital procedures, integration of basic and clinical sciences, acquisition of surgery principles, and familiarization with varied aspects of health services.

Competence in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. So in addition to hospital and clinical training, residents take advanced course work in subjects such as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology. They also review closely related disciplines such as roentgenology, anesthesiology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity for clinical and operating room experience are important aspects of residency training.

Residents gain clinical training in anesthesia through an assigned rotation in the Department of Anesthesia (Carver College of Medicine). Previous advanced training in physical diagnosis, physiology, pharmacology, and pathology take on greater clinical significance, and increased responsibility in the operating room as first assistant and surgeon further develops surgical judgment and skills.

Development and implementation of a research project under staff supervision enhance the value of the residency training.

Senior residents may be given responsibility for major oral and maxillofacial surgical cases during rotations at University of Iowa Hospitals and Clinics. Each fourth-year resident is assigned to a rotation as a clinical and didactic coordinator and assumes responsibility to qualify for examination by the American Board of Oral and Maxillofacial Surgery. To learn more about Iowa's program, visit the Oral and Maxillofacial Surgery Residency web site.

Admission

Students may begin the four-year certificate program only on July 1. Applicants are selected through a post-D.D.S. dental matching program sponsored by the American Association of Oral and Maxillofacial Surgeons. The application deadline for the match in oral and maxillofacial surgery is September 1 for admission the following July. Appointments are made after the match results are revealed and the staff elects to take official action. Appointments are offered on or before February 1 for the following July.

Applicants must have graduated from an accredited college of dentistry, should be in the upper one-fourth of their graduating class, and must be eligible to be licensed to practice dentistry in the United States.

Facilities

The University of Iowa health sciences campus has outstanding basic and clinical science departments that stimulate and support scholarly research and superior clinical practice. Appropriate environments for residency training in oral and maxillofacial surgery are provided by University of Iowa Hospitals and Clinics, the College of Dentistry, and the Carver College of Medicine.

Courses

For D.D.S. Students

OMFS:8115 (087:115) Anesthesia and Pain Control I 1 s.h.

Principles, techniques of complete medical history, head and neck examination, cardiovascular and respiratory examination; neuroanatomical, psychophysiological aspects of pain; pharmacologic action and techniques for using local anesthetics.

OMFS:8230 (087:130) Basic Oral and Maxillofacial Surgery 2 s.h.

Principles; indications, contraindications for extractions; evaluation of patient's related medical history; techniques of extraction, minor oral surgery procedures.

OMFS:8245 (087:145) Anesthesia and Pain Control II 1 s.h.

Theory, application, instrumentation of nitrous oxide sedation; emphasis on cardiovascular, respiratory physiology; evaluation of patients, practical techniques for nitrous oxide sedation.

OMFS:8355 (087:155) Advanced Oral and Maxillofacial Surgery 1 s.h.

History, examination, diagnosis, treatment of diseases and traumatic injuries of oral cavity.

OMFS:8360 (087:160) Clinical Oral and Maxillofacial Surgery arr.

Clinical experience at the College of Dentistry, University of Iowa Hospitals and Clinics, Veterans Affairs Iowa City Health Care System.

For Certificate Students

OMFS:5208 (087:208) Pain and Anxiety Control 1-3 s.h.

Nitrous oxide; intravenous, oral, intramuscular anxiety and pain control; pharmacology of agents; complications, their management.

Oral Pathology, Radiology, and Medicine

Head

- Steven D. Vincent

Professors

- John W. Hellstein, Axel Ruprecht, Christopher A. Squier, Steven D. Vincent, Philip W. Wertz

Associate professors

- Trishul Allareddy, Karen A. Baker, Ronald D. Elvers, Cindy L. Marek, Carrie McKnight

Assistant professors

- Joanna L. Clancy, Nidhi Q. Handoo, Ruth D. Spieker, Sherry R. Timmons

Adjunct professors

- Eva Dahl, Thomas P. Williams

Adjunct assistant professors

- Brad G. Johnson, John A. Maxwell, Daniel S. Sarasin

Professors emeriti

- Daniel L. Hall, Harold L. Hammond

Professional certificates: oral and maxillofacial pathology; oral and maxillofacial radiology

Web site: <http://www.dentistry.uiowa.edu/oral-pathology-radiology-medicine>

The Department of Oral Pathology, Radiology, and Medicine educates predoctoral students and professional students, who may pursue graduate study along with their professional training. The department has diverse curricular responsibility and a faculty with widely varied disciplinary expertise.

D.D.S. Student Training

The Department of Oral Pathology, Radiology, and Medicine teaches Doctor of Dental Surgery and other health care students about diseases that manifest in and around the oral and maxillofacial region. Students learn about the clinical, radiographic, laboratory, histopathologic, and therapeutic features of these diseases and about their etiology and natural history. They also study identification of systemic diseases through physical evaluation of patients.

Professional Programs of Study

- Certificate in Oral and Maxillofacial Pathology
- Certificate in Oral and Maxillofacial Radiology

Oral science involves the study of structure, function, and diseases of the oral and maxillofacial region. Study methods include examination of related histories, evaluation of clinical signs and symptoms, and use of biochemical, microscopic, and radiologic procedures to establish a diagnosis and plan for therapeutic management.

The department's programs are diverse and flexible, allowing students to obtain advanced clinical, didactic, and research-related education while earning a

professional certificate. Students working toward one of the department's certificates may pursue a Master of Science in oral science in conjunction with the certificate; see "Graduate Study" below.

Certificates

The department offers the Certificate in Oral and Maxillofacial Pathology and the Certificate in Oral and Maxillofacial Radiology. The educational requirements of each certificate program meet the requirements for preparation of dental specialists set by the Commission on Dental Accreditation of the American Dental Association, the American Board of Oral and Maxillofacial Pathology, or the American Board of Oral and Maxillofacial Radiology.

Admission

Applicants must have successfully completed an accredited program leading to the D.D.S. or D.M.D., or a foreign equivalent, and must meet the admission requirements of the Graduate College. They must have a cumulative g.p.a. of at least 3.00 (or foreign equivalent) to be considered for admission.

International applicants whose first language is not English must present a satisfactory score on the Test of English as a Foreign Language (TOEFL).

The department's faculty makes final decisions on acceptance of applicants who meet the requirements for admission. A personal interview is required.

Graduate Study

Students earning one of the department's professional certificates may pursue a Master of Science in oral science while they work toward the certificate. They pursue the M.S. track that corresponds with their certificate (Certificate in Oral and Maxillofacial Pathology or Certificate in Oral and Maxillofacial Radiology). Each program combines the minimum requirements of the M.S. and the certificate; completion time usually is 36 to 48 months.

All students in the combined programs pursue comprehensive study of basic biologic and health sciences in preparation for teaching and research. They must complete the courses listed below, including the core courses and the basic science and departmental courses listed for their M.S. track. They also must prepare and submit a thesis based on the results of research conducted during their course of study. See Oral Science (p. 741) in the Catalog for additional information about requirements and admission.

CORE COURSES

OPRM:5200 (086:200) Stomatology Literature Review	arr.
OPRM:5226 (086:226) Oral Pathology for Graduate Students	arr.
OPRM:5242 (086:242) Clinical Oral and Maxillofacial Radiology	arr.
ORSC:5200 (151:200) Seminars in Dental Research	1 s.h.
ORSC:5210 (151:210) Dental Sciences Research Methodology	2 s.h.
ORSC:5212 (151:212) Statistical Methods for Dental Research	3 s.h.

ORSC:5215 (151:215) Research Design in Dentistry 2 s.h.

ORSC:5600 (151:600) Research in Oral Science (for a total of 9 s.h.) arr.

OTO:8199 (068:199) Basic Otolaryngologic Science 2 s.h.

ORAL AND MAXILLOFACIAL PATHOLOGY TRACK

OPRM:5225 (086:225) Manifestations of Oral and Paraoral Disease arr.

OPRM:5227 (086:227) Surgical Oral Pathology 1 s.h.

OPRM:5240 (086:240) Histopathology 1 s.h.

OPRM:5256 (086:256) Advanced Oral Pathology 1 s.h.

DPH:6017 (111:217) Teaching Methods and Evaluation 2 s.h.

ORSC:5280 (151:280) Advanced Dental Therapeutics 1 s.h.

PATH:8204 (069:205)-PATH:8214 (069:206) Medical Pathology I-II 10 s.h.

ORAL AND MAXILLOFACIAL RADIOLOGY TRACK

OPRM:5243 (086:243) Practical Oral and Maxillofacial Radiology arr.

OPRM:5244 (086:244) Technical Oral and Maxillofacial Radiology arr.

OPRM:5245 (086:245) Head and Neck Radiology arr.

FRRB:3130 (077:120) Radiation Safety and Radiobiology 2 s.h.

PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students 4 s.h.

Facilities

Facilities reserved for the Department of Oral Pathology, Radiology, and Medicine include a radiology special procedures area; an interpretation room; a surgical oral pathology laboratory; a clinical pathology laboratory with areas for histopathology; and a seminar room for small groups of graduate and undergraduate students.

In addition, the College of Dentistry has joint-use research laboratories that are well equipped and staffed for conducting research involving histology, histochemistry, materials technology, radiobiology, ultrastructure, and electron probe analysis and quantification.

Courses

For D.D.S. Students

OPRM:8120 (086:120) Fundamentals of Oral Radiology 1 s.h.

Methods of clinical, radiographic examination, record keeping; correlation of basic, clinical sciences.

OPRM:8235 (086:135) Oral Pathology 4 s.h.
Diseases involving orofacial organs.

OPRM:8245 (086:145) Introduction to Clinical Oral Radiology 1 s.h.

Principles, techniques of diagnosis, radiology, clinical pathology in clinical practice.

OPRM:8355 (086:155) Systemic Disease Manifestations 1 s.h.

Clinical medicine for dental students; basic information for patient evaluation.

OPRM:8360 (086:160) Clinical Oral Diagnosis 1 s.h.

Diagnosis of orofacial diseases by clinical, laboratory, radiographic and treatment planning methods; clinical case analysis.

OPRM:8361 (086:161) Clinical Oral Radiology arr.

Making and processing intraoral, extraoral radiographs; principles of radiographic interpretation.

OPRM:8365 (086:165) Clinical Oral Pathology 1 s.h.

Oral and maxillofacial diseases: integration of the clinical, historical, radiographic features; therapeutic management.

For Certificate Students

Courses offered by the graduate programs in oral science are listed in the Oral Science (p. 741) section of the Catalog.

OPRM:5200 (086:200) Stomatology Literature Review arr.

Current literature in oral and maxillofacial pathology and radiology; presentation of graduate student research; development of lectures or seminars for D.D.S. or graduate students, or continuing education for peers and practicing dentists.

OPRM:5225 (086:225) Manifestations of Oral and Paraoral Disease arr.

Clinical experience in diagnosing, managing patients.

OPRM:5226 (086:226) Oral Pathology for Graduate Students arr.

Head and neck diseases, abnormalities.

OPRM:5227 (086:227) Surgical Oral Pathology 1 s.h.

Experience in day-to-day operations of surgical oral pathology laboratory; advanced training in histopathologic diagnosis of oral and maxillofacial diseases. Corequisites: OPRM:5240 (086:240), if not taken as a prerequisite.

OPRM:5228 (086:228) Introduction to Surgical Oral Pathology 1 s.h.

Day-to-day operations of surgical oral pathology laboratory; histopathologic diagnosis of oral and maxillofacial diseases.

OPRM:5230 (086:230) Research in Oral Pathology, Radiology, and Medicine arr.

Includes thesis preparation.

OPRM:5238 (086:238) Introduction to Histopathology 1 s.h.

Case studies; histopathologic diagnosis of diseases that affect oral and maxillofacial region.

OPRM:5240 (086:240) Histopathology 1 s.h.

Case studies; advanced training in histopathologic diagnosis of diseases that affect oral and maxillofacial region. Corequisites: ORDN:5202 (089:202), if not taken as a prerequisite.

OPRM:5241 (086:241) Hospital Oral Pathology, Radiology, and Medicine arr.

Management of patient consultations, diagnosis, therapy at a hospital-based dental service.

OPRM:5242 (086:242) Clinical Oral and Maxillofacial Radiology arr.

Radiologic manifestations of diseases; emphasis on craniofacial complex.

OPRM:5243 (086:243) Practical Oral and Maxillofacial Radiology arr.

Clinic participation; supervision of dental and dental hygiene students; review of their cases; participation in clinical radiology conferences, laboratory exercises.

OPRM:5244 (086:244) Technical Oral and Maxillofacial Radiology arr.

Experience with technical maintenance of darkroom, clinical equipment; troubleshooting under supervision of radiology staff.

OPRM:5245 (086:245) Head and Neck Radiology arr.

Hospital-based rotation in diagnostic radiology with participation in interpretation sessions; CT, MRI, nuclear medicine, ultrasound.

OPRM:5246 (086:246) Craniofacial Radiology arr.

Hospital-based rotation in diagnostic radiology; exposure to interpretive sessions on ultrasound, CT, MRI, nuclear medicine.

OPRM:5256 (086:256) Advanced Oral Pathology 1 s.h.

Diseases involving orofacial organs; emphasis on bibliographic research, biodynamic analysis of pathologic processes, diagnostic interpretation; content adapted to student interests. Requirements: graduate standing in oral pathology.

OPRM:9300 (086:300) Oral Pathology Certificate Program 0 s.h.

Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in oral and maxillofacial pathology.

OPRM:9301 (086:301) Oral Radiology Certificate Program 0 s.h.

Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in oral and maxillofacial radiology.

Oral Science

Director

- Christopher Squier (Oral Pathology, Radiology, and Medicine/International Programs)

Graduate degrees: M.S. in oral science; Ph.D. in oral science

Web site: <http://www.dentistry.uiowa.edu/>

Graduate Programs of Study

- Master of Science in oral science
- Doctor of Philosophy in oral science

Graduate programs in oral science require that students complete courses from a core curriculum and conduct independent research leading to a thesis. The programs prepare graduates for careers in teaching and research.

Students must enroll in a professional certificate program offered by a College of Dentistry department in order to enroll in the Master of Science program in oral science. The following departments offer their certificate students the opportunity to earn graduate degrees in oral science: Endodontics (p. 729). Prosthodontics (p. 752), and Operative Dentistry (p. 734) students may earn an M.S. or Ph.D. in oral science; Oral Pathology, Radiology, and Medicine (p. 738) and Periodontics (p. 747) students may earn an M.S. in oral science.

Master of Science

The Master of Science program in oral science requires a minimum of 30 s.h. of graduate credit, including 21 s.h. of course work, 9 s.h. of independent research leading to a thesis, and a final examination. M.S. students must spend at least two years in full-time residence at The University of Iowa.

Students pursuing the M.S. normally must be enrolled in a clinical specialty training program offered by a College of Dentistry department. Students should complete the M.S. and the clinical specialty training program in three years of study.

Doctor of Philosophy

The Doctor of Philosophy program in oral science requires a minimum of 72 s.h. of graduate credit, including advanced course work and original research that culminates in the successful defense of a dissertation. Students must pass a comprehensive examination, prepare and gain approval of a research project, and complete and successfully defend a dissertation that describes the results of their research. Completion of the program usually requires at least four years of full-time study.

Admission

Applicants to the M.S. and Ph.D. programs must meet the admission requirements of the Graduate College. Applicants whose first language is not English must score at least 550 (paper-based) or at least 79 (Internet-based) on the Test of English as a Foreign Language (TOEFL); they also may be asked to take the Test of Spoken English.

Programs normally begin July 1 each year.

Applicants to the Ph.D. program are asked to submit a statement describing past research experience and current research interests, and stating how completion of the Ph.D. program fits their career goals.

A personal interview may be requested for either program.

Courses

ORSC:5200 (151:200) Seminars in Dental Research 1 s.h.

ORSC:5210 (151:210) Dental Sciences Research Methodology 2 s.h.

Practical, experimental procedures in dental research; literature and design; writing of research protocols. Offered summer session.

ORSC:5212 (151:212) Statistical Methods for Dental Research 3 s.h.

Descriptive methods, elementary probability, distributions, populations and samples, methods for analyzing percentage data and paired and unpaired measurement data, regression, correlation, and analysis of variance.

ORSC:5215 (151:215) Research Design in Dentistry 2 s.h.

Types of studies used in dentistry; design validity; sampling methodologies; major descriptive and experimental designs used in dental research; application of statistical tests to these designs. Offered spring semester.

ORSC:5220 (151:220) Pathophysiology of Skin and Oral Mucosa 2 s.h.

Biology of skin, oral mucosa; changes in behavior of the tissues in varied physiological, pathological conditions. Offered spring semesters of even years. Prerequisites: ORSC:5210 (151:210).

ORSC:5240 (151:240) Pathophysiology of the Pulp-Dentin Complex arr.

Biology of tissue; emphasis on pathological changes. Offered spring semesters of even years. Prerequisites: ORSC:5210 (151:210).

ORSC:5250 (151:250) Current Concepts of Cariology 2 s.h.

Etiology of dental caries; pathogenesis, development of preventive measures. Offered spring semesters of odd years. Prerequisites: ORSC:5210 (151:210).

ORSC:5260 (151:260) Bone and Tooth Support Structure and Implants 2 s.h.

Biology of bone and periodontal structures; biologic basis for therapeutic use of dental implants. Offered fall semesters of odd years.

ORSC:5275 (151:275) Oral Microbiology and Immunology 2 s.h.

Principles of microbiology and immunology, aspects of microbial community development in the oral cavity, basic concepts of host/parasite interactions related to development of oral diseases; biological, immunological, and clinical manifestations induced by major oral pathogens. Offered spring semesters of odd years. Requirements: microbiology, biochemistry, and biology. Recommendations: immunology.

ORSC:5280 (151:280) Advanced Dental Therapeutics 1 s.h.

Antimicrobial, analgesic, related therapies; emphasis on drug/drug interactions, dental implications of chronic cardiovascular and central nervous system medications. Offered fall semesters.

ORSC:5600 (151:600) Research in Oral Science arr.

Thesis research. Requirements: oral science M.S. or Ph.D. candidacy.

ORSC:5610 (151:610) Independent Study arr.

Opportunity to pursue in-depth study in a particular area of interest; students meet with faculty member to design plan of study.

Orthodontics

Head

- Thomas E. Southard

Professors

- Andrew C. Lidral, Thomas E. Southard, Robert N. Staley

Associate professors

- Veerasathpurush Allareddy, Steven D. Marshall

Assistant professors

- Michael Callan, David A. Jones, Clayton Parks, Sreedevi Srinivasan, Lina Maria Moreno Uribe

Professors emeriti

- John S. Casco, William Olin

Professional certificate: orthodontics

Graduate degree: M.S. in orthodontics

Web site: <http://www.dentistry.uiowa.edu/orthodontics>

The Department of Orthodontics educates predoctoral, professional, and graduate students for careers as practicing dentists, orthodontists, researchers, and teachers. It delivers state-of-the-art treatment to its patients—adults, children, and adolescents with a range of orthodontic, craniofacial, and related issues. The department also conducts major research programs and receives significant funding from the National Institutes of Health.

D.D.S. Student Training

The Department of Orthodontics prepares Doctor of Dental Surgery students to competently recognize and diagnose malocclusions of the teeth. Lecture courses guide D.D.S. students in learning basic concepts of dental and facial growth as well as treatment-oriented subject matter. In a laboratory course, students take and evaluate diagnostic records and fabricate treatment appliances.

Graduate and Professional Programs of Study

- Master of Science in orthodontics
- Certificate in Orthodontics

The graduate program and the professional clinical specialty program in orthodontics prepare competent individuals to practice orthodontics and dentofacial orthopedics. The programs' objectives are to provide students with an in-depth education in biological and biomechanical principles related to orthodontics; to teach students to diagnose, plan, and deliver comprehensive orthodontic health care service; and to develop students' research and service skills.

Opportunities are available for research and independent study in the department, and there are special facilities for research in biomechanics and craniofacial growth. Interaction with other departments provides learning and research opportunities in surgical orthodontics, cleft lip and palate treatment, speech pathology, animal experimentation, and human growth.

Master of Science and Certificate

The Master of Science program in orthodontics requires a minimum of 30 s.h. of graduate credit. Students must satisfactorily complete a thesis based on an original research project to qualify for an M.S. in addition to the Certificate in Orthodontics.

Satisfactory completion of 24 months of intensive study, including lecture courses, seminars, clinical practicum, and a research paper, qualifies students to receive the Certificate in Orthodontics.

Admission

Applicants must have a D.D.S. degree or equivalent and must meet the admission requirements of the Graduate College. Application deadline is September 1 for entry the following July 1. Applicants are required to come to the University for interviews with department faculty.

Courses

For D.D.S. Students

ORDN:8215 (089:115) Growth and Development 1 s.h.

Normal human growth and development; emphasis on craniofacial region.

ORDN:8235 (089:135) Orthodontic Laboratory 1 s.h.

Limited care case diagnosis and treatment.

ORDN:8236 (089:136) Orthodontic Treatment 1 s.h.

From patient management to use of appliances for correcting some malocclusions in the general practitioner's office.

For Graduate and Certificate Students

ORDN:5200 (089:200) Control Theory and Craniofacial Morphogenetic Systems 1 s.h.

ORDN:5201 (089:201) Orthodontic Theory: Diagnosis and Treatment Plan 2 s.h.

Diagnosis, treatment planning implementation.

ORDN:5202 (089:202) Diagnosis and Treatment Planning 2 s.h.

Literature concerning orthodontic diagnosis; treatment of particular problems; case histories of patients treated in graduate clinic.

ORDN:5203 (089:203) Advanced Orthodontic Technique arr.

Skills for treatment of disfiguring malocclusions; use of edgewise biomechanical therapy; laboratory focus on typodont exercises.

ORDN:5204 (089:204) Biomechanics arr.

ORDN:5205 (089:205) Facial Growth 1-2 s.h.

Theories, processes; use of accepted facial growth concepts in treatment of individuals with malocclusions during active growth period.

ORDN:5207 (089:207) Case Analysis arr.

Literature on diagnosis, treatment of mixed dentition patients; case histories of patients treated by serial extraction procedure.

ORDN:5209 (089:209) Orthodontic Practicum arr.

Clinical practice.

ORDN:5210 (089:210) Orthodontic Seminar arr.

Evaluation, discussion, criticism, defense of diagnostic and treatment approaches to orthodontic cases that need, are undergoing, or have completed orthodontic treatment.

ORDN:5217 (089:217) Cephalometrics arr.

Use of skull X-ray (lateral and/or postero-anterior) in formulating orthodontic diagnosis, treatment plans for malocclusions; cephalometrics as a tool for craniofacial structure research.

ORDN:5220 (089:220) Craniofacial Anatomy arr.

Literature on anatomy, phylogeny, ontogenesis, physiology of craniofacial structures.

ORDN:5221 (089:221) Surgical Orthodontic Seminar 1 s.h.

Evaluation, discussion, criticism, defense of diagnostic and treatment approaches to orthodontic cases that need, are undergoing, or have completed surgical-orthodontic treatment.

ORDN:5400 (089:400) Dental Treatment of Maxillofacial Deformities 2 s.h.**ORDN:5700 (089:310) Orthodontics Clinic** 0-1 s.h.

Clinical experience in orthodontics clinic.

ORDN:6211 (089:211) Problems: Orthodontics arr.**ORDN:6212 (089:212) Research: Orthodontics** arr.**ORDN:6215 (089:215) Orthodontic Journal Club** arr.

Current biological, technical publications.

ORDN:6216 (089:216) Practice Management arr.

Business management of orthodontic practice; solo practice, associateship, partnership, practice corporation.

ORDN:9300 (089:300) Orthodontic Certificate Program 0 s.h.

Clinical and didactic education toward eligibility for board certification in orthodontics.

Pediatric Dentistry

Head

- Karin Weber-Gasparoni

Professors

- Jeffrey A. Banas, Deborah V. Dawson, David C. Johnsen, Michael J. Kanellis

Associate professors

- Richard M. Burke Jr., Tad R. Mabry, Karin Weber-Gasparoni

Assistant professors

- Matthew Geneser, M. Catherine Skotowski

Adjunct assistant professors

- Erik Balster, Sandra Fox, Natalie Ghosheh, Pollyanne Iben, Steve Kelly, Steven Leifker, Michael Mathews, Thomas Maurice, Matthew Pyfferoen, Hilary Reynolds, Edward Rick, Michael Stufflebeam

Professors emeriti

- Clemens A. Full, Stephen J. Goepferd, Arthur J. Nowak, Jimmy R. Pinkham, Jerry D. Walker

Associate professor emeritus

- Cynthia K. Christensen

Professional certificate: pediatric dentistry

Web site: <http://www.dentistry.uiowa.edu/pediatric>

The Department of Pediatric Dentistry instructs predoctoral and professional students in the prevention and treatment of dental diseases in children. Instruction combines didactic, laboratory, and clinical experiences and gives special consideration to reviewing current literature and managing dental problems of children with special health care needs. It also emphasizes efficient treatment through proper use of dental auxiliary personnel and record management.

D.D.S. Student Training

All second-year Doctor of Dental Surgery students participate in a one-semester lecture course that includes preclinical exercises in the Simulation Clinic. Third-year D.D.S. students participate in a clerkship, which includes a lecture course and a clinical course. During their fourth year, D.D.S. students participate in a rotation through the department's clinics.

Professional Program of Study

- Certificate in Pediatric Dentistry

The department's certificate program is accredited by the Commission on Dental Accreditation of the American Dental Association.

Certificate

The Certificate in Pediatric Dentistry is a two-year residency program that prepares students for certification by the American Board of Pediatric Dentistry. Certificate students are trained in all phases of pediatric dentistry and have career choices in private practice, education, or research. Special emphasis is placed on development

of leadership skills and strategies for serving vulnerable populations.

Approximately 60 percent of the certificate program is devoted to advanced clinical activity, 30 percent to didactic courses and practice teaching, and 10 percent to original research. The program includes a core of didactic, clinical, and research-oriented courses supplemented by electives determined by students' individual interests. Development of a minor subject area is recommended.

Close associations with the Stead Family Department of Pediatrics in the Roy J. and Lucille A. Carver College of Medicine, the Center for Disabilities and Development, and University of Iowa Hospitals and Clinics permit emphasis on oral rehabilitation under general anesthesia, treatment of children with conscious sedation, instruction in physical diagnosis, and management of children with developmental disabilities.

Admission

Prospective students apply through the American Dental Education Association PASS program. Openings in the program are filled through the Postdoctoral Dental Matching Program. Applicants must meet the admission requirements of the Graduate College.

Financial Support

Stipends for the two-year program are provided by federal agencies and other sources.

Research Opportunities

Clinical and laboratory research projects have financial support from federal agencies and other sources. Major research areas include cariology, dental materials, dentistry for persons with special health care needs, growth and development, fluoride therapy, child behavior management, nutrition, prevention, and access to care.

Faculty

Faculty members hold numerous professional offices at national and state levels, committee memberships, consultantships, and honors in professional organizations. They serve as reviewers for professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Fifteen of the department's faculty members are diplomates of the American Board of Pediatric Dentistry.

Courses

For D.D.S. Students

PEDO:8240 (090:140) Pediatric Dentistry 3 s.h.
Diagnosis and Treatment

Growth and development, behavior management, diagnostic-preventive-restorative techniques for pediatric patients.

PEDO:8360 (090:160) Clinical Pediatric Dentistry arr.

Comprehensive clinical management of pediatric patients.

PEDO:8365 (090:165) Clinical Seminar in Pediatric Dentistry 1 s.h.

Patient management, case histories, treatment philosophies, issues in contemporary dentistry for children.

For Certificate Students

PEDO:5220 (090:220) Social, Cultural, and Public Health Issues in Pediatric Dentistry	1 s.h.
PEDO:5700 (090:310) Advanced Didactic Pediatric Dentistry Lectures in advanced pediatric dentistry.	0-1 s.h.
PEDO:5702 (090:311) Seminar in Pediatric Dentistry Discussion in pediatric dentistry.	0-1 s.h.
PEDO:5704 (090:312) Pediatric Dentistry Graduate Rounds Pediatric dentistry rounds.	0-1 s.h.
PEDO:5706 (090:313) Journal Review Practice Review of journal material in pediatric dentistry.	0-1 s.h.
PEDO:5720 (090:315) Diagnosis and Treatment Planning Diagnosis and treatment planning for pediatric patient.	0-1 s.h.
PEDO:5722 (090:316) Interdisciplinary ISS Disabilities	0-1 s.h.
PEDO:5724 (090:317) Oral Health Care for People with Disabilities Providing oral health care for individuals with disabilities.	0-1 s.h.
PEDO:5730 (090:318) Advanced Clinical Pediatric Dentistry Advanced study in clinical pediatric dentistry.	0-2 s.h.
PEDO:5732 (090:319) Pediatric Physical Diagnosis Pediatric physical diagnosis for dental practice.	0-1 s.h.
PEDO:5734 (090:320) Pediatric Therapy Dental Practitioners Pediatric therapy for dental practitioners.	0-1 s.h.
PEDO:5736 (090:321) General Anesthesia Rotation	0,2 s.h.
PEDO:5738 (090:322) Clinical Application in Pediatric Conscious Sedation	0-1 s.h.
PEDO:6700 (090:314) Research in Pediatric Dentistry	0-1 s.h.
PEDO:6710 (090:323) Practice Teaching in Pediatric Dentistry	0-1 s.h.
PEDO:9300 (090:300) Pediatric Dentistry Certificate Program Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in pediatric dentistry.	0 s.h.

Periodontics

Head

- Georgia K. Johnson

Professors

- Kim Brogden, Lewis Humbert, Georgia K. Johnson

Associate professors

- Steven H. Clark, Paula Weistroffer

Assistant professors

- Satheesh Elangovan, Gustavo Avila Ortiz

Assistant in instruction

- Nancy A. Slach

Adjunct professor

- Jason Mailhot

Adjunct assistant professors

- Brandon Baillie, Derek Borgwardt, Stephen Cooper, Michael Franzman, Adrienne Gunstream, Truman Johnson, Quinn Morarend, Brian Recker, Ann Romanowski, Jo Rummelhart

Professors emeriti

- William R. Grigsby, Frank J. Kohout, Phillip A. Lainson, William C. Rubright

Associate professors emeriti

- Paul J. Collins, Benny F. Hawkins

Professional certificate: periodontics

Web site: <http://www.dentistry.uiowa.edu/periodontics>

The Department of Periodontics educates predoctoral students as well as professional students, who may elect to pursue graduate study along with their professional training. The department also provides interdisciplinary care for patients with complex treatment needs; generates new knowledge through its research programs; and provides professional service and leadership at all levels, local to worldwide.

D.D.S. Student Training

The periodontal program acquaints Doctor of Dental Surgery students with the diagnosis and management of periodontal diseases. It combines didactic, laboratory, and clinical experience and applies the biological concepts of periodontology to the comprehensive clinical management of patients.

Professional Program of Study

- Certificate in Periodontics

Students working toward the Certificate in Periodontics may pursue the Master of Science in oral science in conjunction with the certificate; see "Graduate Study" below.

Certificate

The Certificate in Periodontics requires 36 months of full-time study, including satisfactory completion of required didactic and clinical courses, satisfactory completion of comprehensive written and oral examinations, and

an acceptable literature review or research paper. Opportunities are provided for experience in clinical and basic research.

The certificate program provides a sound foundation for the clinical practice of periodontics. It meets all requirements of the American Dental Association's Commission on Dental Accreditation for advanced dental education programs in periodontics. It also meets the educational requirements for application to take board certification examinations of the American Board of Periodontology.

Certificate students must be financially prepared for uninterrupted pursuit of their program of study.

Admission

Applicants to the periodontics certificate program must have a D.D.S. degree or the equivalent and must meet the admission requirements of the Graduate College. Applicants must take the National Dental Board Examination and must interview with the department. Visit Iowa Graduate Admissions—College of Dentistry to learn more about applying to the certificate program.

Graduate Study

Students earning the Certificate in Periodontics may pursue a Master of Science in oral science while they work toward the certificate. The M.S. program requires 36 months of full-time study, including satisfactory completion of required and elective courses, preparation and defense of an acceptable thesis based on original research, and satisfactory completion of comprehensive written and oral examinations. See Oral Science (p. 741) in the Catalog.

Facilities

The department has 22 modern, well-equipped operatories devoted exclusively to periodontics. Hospital experience is available to students in the nearby University of Iowa Hospitals and Clinics.

Research facilities include collegiate laboratories in histology, microscopy, biomaterials, quantitation, tissue culture, molecular biology and biochemistry, and microbiology. Other facilities are available by arrangement with University of Iowa Hospitals and Clinics, Eckstein Medical Research Building, and Medical Laboratories.

Courses

For D.D.S. Students

PERI:8120 (092:140) Periodontic Methods I 2 s.h.
Normal periodontium, periodontal diseases, diagnosis etiology, epidemiology of periodontal diseases.

PERI:8230 (092:141) Periodontic Methods II 1 s.h.
Periodontal treatment planning, prognosis, initial phase of periodontal therapy, treatment of acute periodontal problems, overview of surgical procedures.

PERI:8360 (092:160) Periodontics Clinic arr.
Comprehensive clinical management of periodontal patients.

PERI:8365 (092:165) Periodontology Seminar 1-2 s.h.
Comprehensive concepts of periodontology, clinical management of patients.

For Certificate Students

Courses offered by the graduate programs in oral science are listed in the Oral Science (p. 741) section of the Catalog.

PERI:5212 (092:212) Applied Oral Microbiology arr.
Role of microbial factors and host response in pathogenesis of periodontal diseases; interactions between periodontal diseases and systemic diseases/conditions.

PERI:5225 (092:225) Periodontology Literature Review I: Mucogingival Therapy arr.
Analysis of literature relating to a range of mucogingival conditions affecting the periodontium, different procedures to address/correct them, and expected outcome from each.

PERI:5226 (092:226) Periodontology Literature Review: Regenerative Therapy arr.
Critical evaluation of rationale, indications, and results of various regeneration procedures and materials used in periodontics.

PERI:5227 (092:227) Periodontology Literature Review: Longitudinal Studies arr.
Effects and effectiveness of mechanical periodontal therapy.

PERI:5228 (092:228) Periodontology Literature Review: Occlusion arr.
Role of occlusal trauma in periodontal diseases; occlusion, mandibular movements, and occlusal adjustment; diagnosis and management of temporomandibular disorders; occlusion related to implants.

PERI:5229 (092:229) Periodontology Literature Review: Implants arr.
Critical review, in-depth analysis, and discussion of classical and current implant literature involving basic and clinical science of surgical and some prosthodontic implantology.

PERI:5230 (092:230) Periodontic Literature Review: Resective 1 s.h.
Introduction to language and concepts for resective procedures used in patient treatment.

PERI:5700 (092:310) Advanced Periodontology 0-1 s.h.

PERI:5710 (092:311) Case Management Seminar 0,2 s.h.
Case management seminar in periodontics.

PERI:5720 (092:312) Current Topics 0-1 s.h.
Current topics in periodontics.

PERI:5740 (092:315) Periodontal Implant Provisionalization 0-1 s.h.

PERI:5750 (092:316) Advanced Clinical Periodontics 0,2 s.h.

PERI:7208 (092:208) Recent Advances in Periodontics arr.
Review of current literature.

PERI:7700 (092:314) Practice Management 0-1 s.h.
Practice management in periodontics.

PERI:9300 (092:300) Periodontic Certificate Program 0 s.h.
Advanced education program in periodontics.

Preventive and Community Dentistry

Head

- Daniel Caplan

Professors

- Daniel Caplan, Howard Cowen, Peter Damiano, Jed Hand, Raymond Kuthy, Steven Levy, Elaine Smith, John Warren

Associate professors

- Marsha Cunningham, Teresa Marshall, Michelle McQuistan

Assistant professors

- Jennifer Hartshorn, Leonardo Marchini

Adjunct assistant professors

- Julie Eichenberger-Gilmore, Betsy Momany, Fang Qian

Professors emeriti

- Henrietta Logan, Nelson Logan

Associate professors emeriti

- Howard Field, Hermine McLeran, Lawrence Peterson, Jamie Sharp

Graduate degree: M.S. in dental public health

Web site: <http://www.dentistry.uiowa.edu/preventive>

The Department of Preventive and Community Dentistry educates future and practicing dental and oral health professionals, preparing them to understand and recognize:

- conditions that compromise patients;
- social, cultural, community, and political influences on dental practice;
- principles of preventive dentistry for individuals, groups, and communities; and
- considerations for preventing and treating oral disease in geriatric and special needs patients.

In addition to offering educational programs, the department provides patient care at the College of Dentistry and in a variety of off-campus settings. It also is home to research that advances dental public health.

D.D.S. Student Training

Predoctoral training in preventive, community, and geriatric dentistry is designed to increase Doctor of Dental Surgery students' awareness of preventive dental practices, aspects of dental practices affected by community factors, and care of compromised adult patients.

Community dentistry programs give students opportunities to interact with health care teams and the public in Iowa and around the world. The department conducts off-site community programs statewide, nationwide, and worldwide. It also operates the Special Care Clinic, which is housed in the Dental Science Building.

Using the community dentistry programs as the classroom, D.D.S. students observe and participate in a variety of

activities that nurture their awareness of the societal obligations they must assume in order to become effective practitioners.

Graduate Program of Study

- Master of Science in dental public health

Master of Science

The Master of Science program in dental public health requires 40 s.h. of course work and is designed to be completed in two academic years of full-time study. It prepares dentists and dental hygienists to be specialists in dental public health. The program emphasizes research and requires a research project culminating in the completion and defense of a thesis. Successful dentist graduates meet the educational requirements for eligibility to take the certifying examination of the American Board of Dental Public Health.

Applicants must meet the admission requirements of the Graduate College.

Courses

For D.D.S. Students

The department offers courses in preventive and community dentistry for D.D.S. students.

PCD:8116 (111:116) Fundamentals of Clinical Dentistry 1 s.h.

Identification of health and disease in the mouth; practical methods of disease control, philosophy of preventive dentistry; patient assessment, clinical diagnosis.

PCD:8117 (111:117) Cariology and Preventive Therapies 2 s.h.

Multifactorial etiology of dental caries; support data for use of fluorides, sealants, antimicrobials, and plaque control mechanisms in prevention of caries. Prerequisites: PCD:8116 (111:116).

PCD:8118 (111:118) Preventive Dentistry Assessment and Patient Care 3 s.h.

Patient oral assessment, communication, patient management skills; preventive dentistry risk assessment, oral hygiene instruction for collegiate recall patients; skills in instrumentation for detection, removal of calculus deposits. Prerequisites: PCD:8116 (111:116) and PCD:8117 (111:117).

PCD:8245 (111:145) Clinical Preventive Dentistry 0,2 s.h.

Experience providing complete prophylaxis and preventive services for college patients; application of nutrition principles and communication skills in a clinic setting. Prerequisites: PCD:8118 (111:118).

PCD:8360 (111:160) The Practice of Dentistry in the Community I 1-2 s.h.

Issues related to the role of the dental professional at a local and state level, including dental public health, health literacy, cultural competency, and forensic dentistry; the role of the state dental director.

PCD:8361 (111:161) The Practice of Dentistry in the Community II 1-2 s.h.

Factors that affect the profession and practice of dentistry, including basics of health care systems in the U.S. and in other countries; health care reform; Medicaid; dental insurance; health care delivery systems; legal and malpractice issues; dental utilization and dental workforce; quality of care.

PCD:8485 (111:185) Broadlawns Medical Center arr.

Dental care to low-income patients in a metropolitan hospital-based clinic; community-related assignments; student team experience in Des Moines.

PCD:8486 (111:186) Colorado Migrant Program arr.

Experience providing primary dental care and outreach services to a migrant population; broad understanding of needs, resources for migrant, low-socioeconomic populations.

PCD:8487 (111:187) Community Health Care: Davenport arr.

Experience providing dental care at medical-dental ambulatory health care facility serving Scott County; community-related assignments.

PCD:8488 (111:188) St. Lukes Dental Health Center arr.

Experience providing clinical and outreach services for low-income children and adults with developmental disabilities at St. Luke's Hospital, Cedar Rapids; operative and behavioral dental problems, hospital protocol, special needs of low-socioeconomic clients.

PCD:8489 (111:189) Geriatrics and Special Needs Program arr.

Experience in Special Care Clinic and Geriatric Mobile Dental Unit; comprehensive care for medically, physically, cognitively compromised adults, including frail elderly nursing home residents with portable equipment, other underserved populations.

PCD:8491 (111:191) Private Practice Preceptorship arr.

Development of skills and knowledge necessary for day-to-day practice of dentistry; experience at selected preceptor sites in Iowa.

PCD:8494 (111:194) Special Field Clinic arr.

Extramural experiences developed according to student needs, extramural opportunities.

PCD:8496 (111:196) Siouxland Community Health Center arr.

Experience providing dental care at medical/dental ambulatory health care facility; community-related assignments.

PCD:8497 (111:197) ADEAGies/AADR-ADCFP Fellowship 4 s.h.

Window into day-to-day experiences of dental school faculty members for oral health professional students; exposure to multifarious educational experiences at dental institutions including academics, clinical practice, and biomedical, clinical, educational research, and administration.

For Graduate Students

The department offers courses in dental public health for graduate students.

DPH:5000 (111:200) Introduction to Dental Public Health 2 s.h.

Science, philosophy, practice of dental public health.

DPH:5001 (111:201) Literature Review Methods: Dental Public Health 2 s.h.

Concepts and process of literature review, particularly in area of student's interest.

DPH:5005 (111:205) Administration of Public Dental Programs 2 s.h.

Application of general management concepts; practical aspects of planning, financing, staffing, implementing, operating, evaluating dental public health programs at federal, state, local levels.

DPH:5006 (111:206) Preventive Programs in Dental Public Health 2 s.h.

Prevention, control methods for major dental conditions, primarily dental caries, periodontal diseases; clinical efficacy, cost-effectiveness; development of comprehensive preventive oral health plan for a community.

DPH:5008 (111:208) Field Experience in Dental Public Health arr.

Arranged with public and voluntary health agencies according to students' and agencies' needs.

DPH:5009 (111:209) Advanced Field Experience in Dental Public Health 1-3 s.h.

Opportunity to research, develop, and implement programmatic objectives with local, state, national, and/or federal agencies and organizations on an issue that is both relevant to the student and the agency; may require off-site visits to agencies or organizations. Prerequisites: DPH:5008 (111:208).

DPH:5014 (111:214) Dental Care Policy and Financing 2 s.h.

Dental financing and policy issues: payment mechanisms for health care service providers, third-party prepayment plans, salaried and public-financed programs, Medicaid and Medicare programs, dental insurance systems, and care of the underserved.

DPH:5031 (111:231) Geriatric Care II 2 s.h.

Issues and problems related to oral health care in older adults, especially the frail or functionally dependent.

DPH:6002 (111:202) Research Protocol Seminar 2 s.h.

Development of a master's thesis protocol; identification of thesis topic, review of relevant literature, development of research methods, writing.

DPH:6003 (111:203) Independent Study: Dental Public Health 1-3 s.h.

DPH:6004 (111:204) Principles of Oral Epidemiology arr.

Retrospective, prospective, cohort study designs; validity and reliability; distribution and determinants of oral diseases—caries, periodontal diseases, oral cancer, malocclusion, fluorosis, HIV infection, tooth loss, edentulism.

DPH:6011 (111:211) Thesis: Dental Public Health arr.

Protocol preparation; data collection, analysis, organization; writing, defense of research.

DPH:6017 (111:217) Teaching Methods and Evaluation 2 s.h.

Philosophies of dental education, teaching methodologies, evaluation; focus on learning to write educational objectives, writing and analyzing exam items.

DPH:6018 (111:218) Clinical Teaching Practicum: Preventive Dentistry arr.

Teaching experience in preventive dentistry clinic setting with first-year dental students; outcomes focused on methods in clinical teaching, evaluation, and remediation.

Prosthodontics

Head

- Julie Holloway

Professors

- Steven A. Aquilino, Isabelle Denry, Ronald L. Ettinger, Lily T. Garcia, Julie Holloway, Galen Schneider, Clark M. Stanford

Associate professors

- David M. Bohnenkamp, James M.S. Clancy, David Gratton, Terry L. Lindquist, Peter S. Lund

Assistant professors

- Luis A. Boza, Yung-Shen Huang, Lawrence R. Huber, Ghadeer Thalji

Adjunct assistant professor

- Joanna L. Clancy

Adjunct instructor

- Frederick R. Drexler

Professors emeriti

- William E. LaVelle, Robert J. Luebke, Forrest R. Scandrett, Max L. Smith, Keith E. Thayer

Professional certificate: prosthodontics

Web site: <http://www.dentistry.uiowa.edu/prosthodontics>

Prosthodontics is the dentistry specialty involving crowns, fixed partial dentures (bridges), removable partial dentures, complete dentures, maxillofacial prostheses, and implant prostheses.

D.D.S. Student Training

The Department of Prosthodontics instructs Doctor of Dental Surgery students in the basic principles, practices, and concepts of prosthodontics required for the practice of general dentistry. Students learn through laboratory projects and treatment of patients with differing prosthodontic needs.

Professional Program of Study

- Certificate in Prosthodontics

Students working toward the Certificate in Prosthodontics may pursue the Master of Science or the Doctor of Philosophy in oral science in conjunction with the certificate; see "Graduate Study" below.

Certificate

The Certificate in Prosthodontics requires a minimum of 36 months of study. It prepares individuals for specialty clinical practice in the discipline. The curriculum includes didactic courses and clinical training in all of the disciplines that make up the broad specialty of prosthodontics, including implant prosthodontics, maxillofacial prosthetics, and treatment of temporomandibular disorders. Patient care is completed in close collaboration with the other dental specialties. Clinically related basic science instruction complements the clinical curriculum.

The certificate program is accredited by the Commission on Dental Accreditation of the American Dental

Association. Successful completion of the program satisfies the formal training requirement for eligibility to take the American Board of Prosthodontics certification examination.

Admission

Applicants to the prosthodontics certificate program must meet the admission requirements of the Graduate College. They must hold a D.D.S. or a D.M.D. degree from a dental school accredited by the American Dental Association or an equivalent degree.

The certificate program begins around July 1 each year. Applications are accepted year-round; those received by September 1 are considered for admission the following July. A personal interview is required for qualified applicants.

Graduate Study

Students earning the Certificate in Prosthodontics may pursue a Master of Science or a Doctor of Philosophy in oral science while they work toward the certificate. The graduate programs prepare individuals for careers in dental education and research and for independent study and professional growth.

Both graduate programs require more courses in the biomedical sciences and research methodology than the certificate program requires. Students must prepare and defend a thesis (M.S.) or dissertation (Ph.D.) based on original research. Facilities and support personnel for research are available through the college's Dows Institute for Dental Research. See Oral Science in the Catalog.

Facilities

Most didactic, clinical, and laboratory instruction and patient treatment takes place in the Department of Prosthodontics, which is located in the Dental Science Building. The building also houses the Doctor of Dental Surgery (D.D.S.) program, training programs in specialties recognized by the American Dental Association, and the Dows Institute for Dental Research.

The college and the department provide supporting technologies that include cone beam CT radiography, implant imaging software, laboratory CAD/CAM systems, laser surgery, clinical operating microscopes, and digital shade matching.

Advanced prosthodontic students spend time at University of Iowa Hospitals and Clinics, where they work closely with medical professionals in other disciplines to treat medically compromised prosthodontic patients and those who require maxillofacial rehabilitation.

Courses

For D.D.S. Students

PROS:8120 (084:120) Treatment of Dentate Patients: Introduction to Occlusion Lecture

1 s.h.

Introduction to principles and clinical application of occlusion.

PROS:8121 (084:121) Treatment of Dentate Patients: Introduction to Occlusion Lab	1 s.h.	PROS:8244 (084:144) Treatment of Partially Dentate Patients: Removable Partial Prosthodontics Lecture	1 s.h.
Laboratory exercises illustrating principles of occlusion.		Basic biomechanical principles of tooth replacement with removable partial prosthodontics; diagnosis and treatment planning for partially edentulous patients. Prerequisites: PROS:8140 (084:140), PROS:8141 (084:141), PROS:8242 (084:142), and PROS:8243 (084:143).	
PROS:8122 (084:122) Treatment of Dentate Patients: Fixed Prosthodontics for Single Anterior Teeth Lecture	1 s.h.	PROS:8245 (084:245) Treatment of Partially Dentate Patients: Removable Partial Prosthodontics Lab	1 s.h.
Basic principles and clinical application of occlusion; basic principles, clinical steps, and laboratory procedures necessary for fabrication of complete dentures. Prerequisites: PROS:8120 (084:120) and PROS:8121 (084:121).		Laboratory exercises in basic principles, clinical steps, and laboratory procedures necessary for fabrication of removable partial dentures. Prerequisites: PROS:8140 (084:140), PROS:8141 (084:141), PROS:8242 (084:142), and PROS:8243 (084:143).	
PROS:8123 (084:123) Treatment of Dentate Patients: Fixed Prosthodontics for Single Anterior Teeth Lab	1 s.h.	PROS:8246 (084:146) Introduction to Implant Dentistry	2 s.h.
Laboratory exercises in tooth preparation and fabrication of single-unit anterior restorations. Prerequisites: PROS:8120 (084:120) and PROS:8121 (084:121).		Fundamental principles of osseointegration, diagnosis and treatment planning, surgical and prosthodontic protocols, laboratory communications introduced through patient simulation.	
PROS:8124 (084:124) Treatment of Dentate Patients: Fixed Prosthodontics for Single Posterior Teeth Lecture	1 s.h.	PROS:8247 (084:147) Treatment of Edentulous Patients: Removable Prosthodontics Lab	1 s.h.
Basic biomechanical principles of fixed posterior single tooth prosthodontics; diagnosis and treatment planning for dentate patients including occlusion. Prerequisites: PROS:8120 (084:120), PROS:8121 (084:121), PROS:8122 (084:122), and PROS:8123 (084:123).		Laboratory exercises in basic principles, clinical steps, and laboratory procedures necessary for fabrication of complete dentures. Prerequisites: PROS:8140 (084:140), PROS:8141 (084:141), PROS:8242 (084:142), PROS:8243 (084:143), PROS:8244 (084:144), and PROS:8245 (084:245).	
PROS:8125 (084:125) Treatment of Dentate Patients: Fixed Prosthodontics for Single Posterior Teeth Lab	1 s.h.	PROS:8250 (084:150) Clinical Readiness in Prosthodontics	1 s.h.
Laboratory exercises in tooth preparation and fabrication of single-unit posterior restorations. Prerequisites: PROS:8120 (084:120), PROS:8121 (084:121), PROS:8122 (084:122), and PROS:8123 (084:123).		Capstone course; preparation for entry into third-year clinics. Prerequisites: PROS:8140 (084:140), PROS:8141 (084:141), PROS:8242 (084:142), PROS:8243 (084:143), PROS:8244 (084:144), PROS:8245 (084:245), PROS:8246 (084:146), and PROS:8247 (084:147).	
PROS:8140 (084:140) Fixed Prosthodontic Lecture I	2 s.h.	PROS:8360 (084:160) Prosthodontic Clinic	arr.
Basic biomechanical principles of fixed prosthodontics; metal, single-unit, multiple-unit fixed prostheses; diagnosis and treatment planning for the partially edentulous patient, including occlusion and esthetic concerns.		Experience supplemented by individual supervision, demonstration.	
PROS:8141 (084:141) Fixed Prosthodontic Patient Simulation I	2 s.h.	PROS:8365 (084:165) Prosthodontic Seminar	2 s.h.
Laboratory exercises in fabrication of single-unit metal, provisional restorations; preparations for fabrication of a three-unit fixed partial denture.		Knowledge in biological, basic sciences and technique applied to clinical fixed and removable prosthodontics procedures.	
PROS:8242 (084:142) Fixed Prosthodontics Lecture II and Removable Partial Denture Lecture	2 s.h.		
Principles, clinical steps, materials, and laboratory procedures necessary for fixed and removable partial dentures; lecture format.			
PROS:8243 (084:143) Fixed Prosthodontics Lab II and Removable Partial Denture Lab	2 s.h.	PROS:5700 (084:311) Advanced Clinical Prosthodontics	0,2 s.h.
Participation in projects and seminars simulating the clinical and laboratory steps in fixed and removable partial denture fabrication.		PROS:5710 (084:312) Advanced Removable Prosthodontic Technique	0,2 s.h.

For Certificate Students

Courses offered by the graduate programs in oral science are listed in the Oral Science (p. 741) section of the Catalog.

PROS:5720 (084:313) Advanced Instrument Technique	0,2 s.h.
PROS:5730 (084:314) Advanced Implant Techniques	0-2 s.h.
PROS:5740 (084:315) Advanced Fixed Prosthodontics Technique	0,2 s.h.
PROS:5750 (084:317) Clinical Issues and Treatment Planning in Prosthodontics	0-1 s.h.
PROS:6220 (084:220) Fixed Prosthodontics Literature Review I	arr.
Fixed prosthodontic procedures; assigned readings, discussion of related research.	
PROS:6221 (084:221) Fixed Prosthodontics Literature Review II	arr.
Porcelain-fused-to-metal and ceramic restorations, color science and esthetics; assigned readings, discussion of related research.	
PROS:6222 (084:222) Implant Literature Review	arr.
Implant prosthodontics; assigned readings, discussion of related research.	
PROS:6223 (084:223) Occlusion Seminar	arr.
Occlusion and the temporomandibular system; assigned readings and discussion of related research.	
PROS:6224 (084:224) Graduate Restorative Materials	2 s.h.
Dental materials science; mechanical, physical, and chemical properties of restorative materials; selection and manipulation.	
PROS:6225 (084:225) Complete Denture Literature Review	arr.
Complete denture prosthodontics; assigned readings, discussion of related research.	
PROS:6226 (084:226) RPD Literature Review	arr.
Removable partial denture prosthodontics; assigned readings, discussion of related research.	
PROS:6231 (084:231) Thesis Preparation: Prosthodontics	3 s.h.
Thesis preparation, defense.	
PROS:6700 (084:310) Maxillofacial Prosthodontics Seminar	0-1 s.h.
PROS:7700 (084:316) Maxillofacial Prosthodontics Rotation	0-1 s.h.
PROS:9300 (084:300) Prosthodontic Certificate Program	0 s.h.
Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in prosthodontics.	

College of Education

Dean

- Nicholas Colangelo

Executive associate dean

- Christopher Morphew

Associate dean, academic affairs and graduate programs

- David Bills

Associate dean, teacher education and student services

- Susan Lagos Lavenz

Undergraduate major: elementary education (B.A., B.S., granted by the College of Liberal Arts and Sciences)

Undergraduate minors: educational psychology; human relations

Graduate degrees: M.A.; M.A.T.; M.S.; Ed.S.; Ph.D.

Graduate certificate: college teaching

Web site: <http://www.education.uiowa.edu/>

The nation's first university-level professorial chair in education was established at The University of Iowa in 1872. The department became the School of Education in 1907; and the College of Education, structured largely as it is today, was founded in 1913. Since then, the college's growth has mirrored the growth of the University.

Over the years, College of Education faculty members have been leaders in a variety of educational fields. Particularly noteworthy have been their contributions in the fields of educational testing and measurement. These contributions helped lay the foundation for today's testing and measurement industry, making Iowa City one of the best-known centers for this educational specialty.

The college has four departments: Educational Policy and Leadership Studies (p. 765); Psychological and Quantitative Foundations (p. 780); Rehabilitation and Counselor Education (p. 794); and Teaching and Learning (p. 814).

Teacher Education Programs and Student Teaching

The College of Education offers teacher preparation programs in elementary education and in secondary education for students earning bachelor's degrees. It offers the major in elementary education with a Teacher Education Program (TEP) for students earning a Bachelor of Arts or a Bachelor of Science from the College of Liberal Arts and Sciences. It offers a secondary education TEP for students earning bachelor's degrees with certain majors from the College of Liberal Arts and Sciences. The college also provides a number of specialized elementary and secondary teaching endorsement programs.

Graduate and postbaccalaureate students also may complete a Teacher Education Program; see "Graduate and Postbaccalaureate Admission to TEPs" below and the Teaching and Learning (p. 814) section of the Catalog.

Preparation for special education teaching is offered primarily at the graduate level. In addition, an instructional strategists program is available as an added endorsement

for undergraduate students admitted to an elementary education program.

Undergraduate students admitted to a Teacher Education Program must complete all requirements for graduation from the College of Liberal Arts and Sciences, including the General Education Program (p. 323). They must satisfy General Education's Quantitative or Formal Reasoning requirement with a college-level mathematics course.

The Office of Education Services provides information on Teacher Education Programs; offers assistance with admission, student field experiences, and teacher licensure/certification; and serves as a liaison with other University units and external agencies. For more information, visit the office's web site.

Undergraduate Admission to TEPs

Undergraduate applicants to The University of Iowa who wish to become teachers indicate their interest in the elementary major or a specific secondary-level teaching endorsement program on their application for admission. This results in a Teacher Education Program emphasis notation on the student's official records. Application materials for Teacher Education Programs are available from the Office of Education Services or on the office's web site.

Acceptance to a Teacher Education Program is prerequisite to registration for most College of Education undergraduate courses.

APPLICATION DEADLINES

Application deadlines for all Teacher Education Programs are as follows.

Summer session and fall semester: March 1

Spring semester: October 1

Late applications are not accepted.

GENERAL REQUIREMENTS

Admission to Teacher Education Programs is competitive. Admission requirements may vary by program area. Faculty members in each program area review and select students to be admitted to their program. In order to be considered for admission to a Teacher Education Program, an undergraduate student must satisfy the following requirements: admission to The University of Iowa; a minimum amount of credit for college-level work; a minimum grade-point average; minimum scores on a preadmissions test; and a preadmission volunteer field experience in a regular K-12 classroom setting. There may be additional requirements. Teacher Education Program applications materials and current minimum application requirements are available on the Office of Education Services web site.

Graduate and Postbaccalaureate Admission to TEPs

Students who have completed a baccalaureate degree may be admitted to a teacher preparation program as graduate students or as postbaccalaureate students with senior standing. They may apply to the Graduate College and indicate their desired licensure area. In some programs they may apply for a master's degree objective, either a Master of Arts in Teaching (M.A.T.), or in selected majors, a Master of Arts (M.A.).

Students who choose to pursue a graduate-level teacher preparation program must be eligible for admission to the Graduate College, which requires a g.p.a. of at least 3.00 on all previous college course work. They must submit an official Graduate Record Examination (GRE) General Test score report, with scores that meet the minimum score requirement. They also must submit a complete application to the Teacher Education Program; see the Iowa Graduate Admissions web site.

Students also may apply to the College of Liberal Arts and Sciences as postbaccalaureate students with senior standing. Students who choose this option must apply to the appropriate Teacher Education Program, following the undergraduate admissions procedure, and must meet the general requirements for undergraduate admission to The University of Iowa; see the Iowa Undergraduate Admissions web site.

Application deadlines for graduate students and postbaccalaureate students with senior standing are March 1 and October 1.

TEP Standards and Policies

Students in the Teacher Education Program must meet grade-point average requirements each semester. Students who do not meet the requirements are placed on probation; those who fail to meet the requirements in a successive semester may be removed from the Teacher Education Program or denied admission to student teaching. For more information on standards and policies, consult the Office of Education Services.

Electronic Portfolio

Students in the Teacher Education Program document their achievement of professional standards on ePortfolio, a web-based program in which they collect instructional artifacts and performances assigned in all their courses. Students receive instruction on the ePortfolio requirement beginning with the required course EDTL:3002 (07E:102) Technology in the Classroom (teacher education) and EALL:4081 (07X:181) ePortfolio Production (educational leadership).

Student Teaching

The final phase of the Teacher Education Program (TEP) is the professional semester, devoted to supervised student teaching and directed observation in a variety of situations. The student teaching semester is a full-time, all-day, experience. Faculty members, professional staff, and advanced graduate students who are experienced teachers serve as supervisors.

Periodic seminars provide for discussion and evaluation of student teachers' experiences. Transfer credit may not be used to satisfy the student teaching requirement.

To be admitted to the student teaching semester, students must submit a separate application to the Office of Education Services in the College of Education. All course work in education, for the major, and for the degree must be completed before the student teaching semester. Applications are submitted during the calendar year before the student teaching semester. The deadline is November 30 for students planning to student teach the following fall semester and April 30 for students planning to student teach the following spring semester.

Admission to student teaching requires program area faculty approval as well as verification of satisfactory

progress in meeting both College of Education professionalism standards and program area standards, which are set at the time of admission to the TEP. In some programs, standards are higher than the college's required g.p.a. of at least 2.70. Students should consult with their advisors regarding specific requirements for the program areas.

For more information, contact the Office of Education Services.

WAIVERS

Students who have completed courses that they wish to substitute for program requirements should consult with their advisors.

URBAN STUDENT TEACHING

Students who want to advance their educational interests through student teaching in an urban setting may apply through the Office of Student Field Experiences. The urban districts include Clark County, Nevada (Las Vegas area); Chicago Public Schools; Aldine, Texas (Houston area); Rialto, California (Los Angeles area); and St. Louis Park, Minnesota (Minneapolis area). These options are open to all education majors who meet the requirements established for these student teaching sites. For more information about this and other programs, contact the Office of Education Services.

INTERNATIONAL STUDENT TEACHING

International student teaching experiences are available primarily through Global Gateway for Teachers, an Indiana University Program working in collaboration with The University of Iowa. Sites include Australia, China, Costa Rica, Ecuador, England and Wales, Greece, India, Ireland, Italy, Japan, Kenya, New Zealand, Norway, Russian Federation, Scotland, Spain, and Turkey.

Interested students must meet the regular requirements for student teaching and must have the approval of their advisor and the appropriate program coordinator. In most locations, students are assisted with housing by the on-site coordinator.

International assignments are for eight weeks. Students complete an eight-week assignment in a stateside placement followed by an eight-week assignment in an international placement. Secondary education students in some program areas (for instance, English education) are required to complete a full semester of student teaching in the United States before student teaching at an international site.

For more information about international student teaching opportunities, contact the Office of Education Services.

Teacher Licensure/Certification

The Iowa Board of Educational Examiners issues teacher, support service, and administrator licenses on the recommendation of Iowa colleges and universities whose programs have been approved by the Iowa Department of Education. All University of Iowa preparation programs have Iowa Department of Education approval.

Licensure/certification requirements across the nation are subject to change. Students who plan to seek employment in a state other than Iowa should make every effort to be informed about current requirements in that state. Many states require some type of competency testing.

Generally, students who apply out-of-state should first secure Iowa licensure.

To be recommended by The University of Iowa, applicants must complete all requirements of the appropriate approved program. A minimum of 20 s.h. of course work applied to meet program requirements must be earned at The University of Iowa. Fingerprinting is required for all new applicants for Iowa licensure; the State of Iowa has outlined specific procedures for the fingerprinting process.

As a requirement for completion of an approved Teacher Education Program for initial teaching licensure, the state of Iowa requires a passing score on two tests: a test that measures pedagogy and a test that measures knowledge of at least one content area. Current requirements are for PRAXIS II tests that are specific to a student's program. The tests are required before recommendation for licensure or certification to any state.

The College of Education Office of Education Services provides Iowa application forms, fingerprinting procedures, and licensure/certification assistance to all students completing approved programs offered by the college. It also provides assistance to individuals interested in adding endorsements to their Iowa license based on completion of State of Iowa minimum licensure requirements.

State of Iowa Requirements

All University of Iowa students seeking an Iowa teaching license must complete EPLS:4180 (07B:180) Human Relations for the Classroom Teacher (or an approved substitute) and EDTL:4900 (07U:100) Foundations of Special Education. All University of Iowa Teacher Education Programs require EPLS:4180 (07B:180) Human Relations for the Classroom Teacher and EDTL:4900 (07U:100) Foundations of Special Education. Human relations courses offered through community colleges are not accepted. In the State of Iowa, applicants must be at least 21 years old to be granted a teaching license. Applicants who have been found guilty of a felony are barred from receiving an Iowa teaching license. Appeals may be filed directly with the Iowa Board of Educational Examiners.

Undergraduate Programs of Study

Elementary Education Major

The College of Education offers the undergraduate major in elementary education for students earning a Bachelor of Arts or a Bachelor of Science degree from the College of Liberal Arts and Sciences. See Teaching and Learning (p. 814) for details about the major.

Honors in Education

The College of Education Honors Opportunity Program is open to sophomores, juniors, and seniors who have maintained a g.p.a. of at least 3.50. Students with lower grade-point averages who have demonstrated research potential also may be accepted, based on the recommendations of faculty and/or staff members and the education honors advisor. Honors Opportunity Program students must take EHOP:4100 (07X:100) Honors Seminar in Education, EHOP:4101 (07X:101) Senior Honors Project, and complete five additional honors experiences. Successful completion of the program results in recognition of the student as a College of Education

honors graduate. The Honors Opportunity Program is housed in and administered by the Belin-Blank Center.

Minors

The College of Education offers two minors for students who wish to be better informed about education: one in educational psychology and one in human relations. The minors may help support students' future career objectives and help students prepare to be better informed as parents, as taxpayers, or as future members of local boards of education. See Psychological and Quantitative Foundations (p. 780) to learn more about the minor in educational psychology; see Rehabilitation and Counselor Education (p. 794) to learn more about the minor in human relations.

Graduate Programs of Study

Graduate study in the College of Education is guided by the policies of the Graduate College, with additional requirements set by the College of Education's faculty. Graduate students in education register in the Graduate College and receive their degrees from that college. See the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

All College of Education Ph.D. programs require students to complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also require an additional minimum of 15 s.h. in qualitative and quantitative research course work, with at least 9 s.h. from one area (qualitative or quantitative) and 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

Degree Programs Offered

The College of Education offers the following graduate degrees and programs.

DEPARTMENT OF EDUCATIONAL POLICY AND LEADERSHIP STUDIES

M.A., Ed.S., and Ph.D. in educational policy and leadership studies; the following programs are available: Educational leadership (offered in the M.A., Ed.S., and Ph.D.)

Higher education and student affairs (offered in the M.A., Ed.S., and Ph.D.)

School curriculum and assessment policy (offered in the Ed.S.)

Schools, culture, and society (offered in the M.A. and Ph.D.)

DEPARTMENT OF PSYCHOLOGICAL AND QUANTITATIVE FOUNDATIONS

M.A., Ed.S., and Ph.D. in psychological and quantitative foundations; the following programs are available: Counseling psychology (offered in the Ph.D.)

Educational measurement and statistics (offered in the M.A. and Ph.D.)

Educational psychology (offered in the M.A. and Ph.D.)

School psychology (offered in the Ed.S. and Ph.D.)

DEPARTMENT OF REHABILITATION AND COUNSELOR EDUCATION

M.A. and Ph.D. in rehabilitation and counselor education; the following programs are available:

Counselor education and supervision (offered in the Ph.D.)
 Couple and family therapy (offered in the Ph.D.)
 Rehabilitation and mental health counseling (offered in the M.A.)
 Rehabilitation counselor education (offered in the Ph.D.)
 School counseling (offered in the M.A.)

DEPARTMENT OF TEACHING AND LEARNING

M.A., M.A.T., M.S., and Ph.D. in teaching and learning; the following programs are available:
 Art education (offered in the M.A.)
 Developmental reading (offered in the M.A.)
 English education (offered in the M.A. and M.A.T.)
 Foreign language and English as a Second Language (ESL) Education (offered in the M.A., M.A.T., and Ph.D.)
 Language, literacy, and culture (offered in the Ph.D.)
 Mathematics education (offered in the M.A., M.A.T., and Ph.D.)
 Science education (offered in the M.A.T., M.S., and Ph.D.)
 Social studies education (offered in the M.A. and Ph.D.)
 Special education (offered in the M.A. and Ph.D.)

Master of Arts

The College of Education offers a Master of Arts. Some of the college's M.A. programs are offered with thesis as well as without thesis. Nonthesis programs usually provide more specialized course work than do thesis programs. Although a nonthesis program is not necessarily terminal, students who expect to continue their studies in a doctoral program are urged to select a thesis program in order to gain more experience in research procedures. Students who complete a nonthesis M.A. and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their advisor or department during the early part of their doctoral program. For information about programs that offer a thesis option, see the program descriptions under "Graduate Programs" in College of Education department sections of the Catalog.

Course work completed more than 10 years before the session in which the degree is to be conferred must be evaluated to determine how much credit may be accepted toward the degree requirements. Students must earn at least 24 s.h. in University of Iowa courses after formal admission to a master's degree.

Master of Arts in Teaching

The M.A.T. program is designed for academically superior liberal arts and sciences graduates who completed few or no professional education courses in their undergraduate programs. It is a nonthesis program with requirements that range from 45 s.h. to 67 s.h. of credit. See Teaching and Learning (p. 814) in the Catalog.

The program leads to a master's degree and licensure as a secondary teacher in the fields of English, foreign languages, and science education. Admission to the program requires a g.p.a. of at least 3.00 in undergraduate course work. The program includes 18 s.h. of graduate course work in the student's teaching field. Students must complete a minimum of 20 s.h. of graduate work in education to satisfy licensure requirements.

A Master of Arts program with a secondary education major in social studies leads to initial teacher licensure. See "M.A. in Social Studies Education"/"Program B Requirements" in the Teaching and Learning (p. 814) section of the Catalog.

Master of Science

Thesis programs are available for M.S. students in science education. The degree requirements are similar to those for a Master of Arts.

Specialist in Education

The Ed.S. is granted upon completion of a prescribed two-year postbaccalaureate program designed for students preparing for professional work in fields such as administration and supervision, and special services. Of the minimum 60 s.h. required for the degree, 28 s.h. must be in the specialization area; the rest may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report.

Other requirements for the Ed.S. are the same as for the master's degree, except that an Ed.S. requires students to complete 15 s.h. of resident work on campus in one 12-month period or in two summer sessions. Course work completed 10 years before the final examination must be evaluated to determine the amount of credit that may be accepted toward program requirements.

Not all programs offer an Ed.S. degree. For a list of programs and degrees offered, see "Graduate Programs" above.

Doctor of Philosophy

The Ph.D. is the most advanced academic degree. It is conferred upon students who have demonstrated superior scholarship and mastery of research skills in course work as well as in the preparation and defense of a dissertation. Ph.D. students must complete two full-time semesters of course work after they have earned 24 s.h. of graduate credit and have been admitted to the Ph.D. program.

Certificate

The Certificate in College Teaching requires 12 s.h. of graduate credit. The certificate program is open to all University of Iowa students working toward a Ph.D. or other terminal graduate degree. Completion of the certificate is noted on the student's transcript.

The certificate program complements discipline-oriented graduate programs and prepares students for careers in postsecondary education. It requires course work, supervised teaching experience, and preparation of a teaching portfolio. To learn more or to apply, contact the College of Education.

Professional Improvement

Some students are admitted to professional improvement status in a College of Education department rather than to degree candidacy. This option is appropriate only for persons who wish to update their knowledge or who are temporarily undecided about career plans. Students should file a change of status stating a specific program objective at the earliest opportunity.

Extramural Education

Through the Division of Continuing Education, selected College of Education courses are offered at off-campus sites and hours outside the traditional schedule. If taken after formal admission to a specific program, some of these courses may be applied to meet residency requirements for degrees. Students who plan to complete

a degree program should apply for admission to the Graduate College and satisfy all application requirements for the degree program they wish to enter.

Special regulations govern such course work. Students should obtain prior approval from their program advisor before registering in extramural courses. Students not regularly admitted to The University of Iowa also may register in extramural courses, but credit earned before admission does not count toward residency requirements.

Support Units and Resources

Belin-Blank Center for Gifted Education and Talent Development

The Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development conducts research, training, and service in gifted education. It also gathers and disseminates information on the education of gifted students.

The center is located in the Blank Honors Center. Its programs and services include the Belin-Blank Fellowship Program in Gifted Education; the Honors Opportunity Program; Invent Iowa; Scholastic Art & Writing Awards; the Henry B. and Jocelyn Wallace National Research Symposium on Talent Development; the Wallace Assessment and Counseling Clinic; practicum and internship experiences; course work in gifted education (including state endorsement); academic talent searches for students in grades 2-9; a number of precollege programs for gifted students in grades 2-12; and programs for international students. The center also administers the Iowa Online Advanced Placement Academy.

The Belin-Blank center administers four University-level student programs: the Iowa Talent Project, developed for minority students from gifted programs in Des Moines and Cedar Rapids, Iowa; the National Academy of Arts, Sciences, and Engineering, a highly selective early-entrance program for students who have completed their junior year in high school; the China Scholars Program, an early decision program that admits to The University of Iowa selected high school seniors from the People's Republic of China; and the Hong Kong Scholars Program, an early decision program that admits to The University of Iowa selected high school seniors from Hong Kong.

The center also provides practicum and internship experiences for undergraduate and graduate students and coordinates course work for the Iowa Talented and Gifted Endorsement.

The Belin-Blank center houses the Institute of Research and Policy on Acceleration (IRPA), which is dedicated to the study of curricular acceleration for academically talented children.

For more information, contact the Belin-Blank Center.

Blommers Measurement Resources Library

The Paul Blommers Measurement Resources Library provides resources and services to support the teaching and research needs of the College of Education and Iowa Testing Programs as well as all University of Iowa faculty, staff, and students. The Blommers collection encompasses the literature of educational measurement, evaluation, research, and statistical methods.

Center for Advanced Studies in Measurement and Assessment

The Center for Advanced Studies in Measurement and Assessment (CASMA) pursues interdisciplinary research-based initiatives that lead to advances in the methods and practice of educational measurement and assessment. CASMA performs, promotes, fosters, and disseminates research in measurement and psychometric methodologies that respond to contemporary needs and initiatives in testing.

Currently, the center devotes considerable resources to research on equating, scaling, and generalizability theory; it also offers workshops and training sessions on those topics. Together with ACT, CASMA co-sponsors a national conference on current challenges in educational testing.

Extensive free suites of computer programs for equating are available on the CASMA web site. The site also features research reports and technical notes on measurement topics such as generalizability theory, equating methods, revolutions and evolutions in educational testing, and decision consistency with complex assessments.

Center for Disability Research and Education

The Center for Disability Research and Education (CDRE) provides a bridge between research and practice to facilitate interdisciplinary collaboration and implementation of evidence-based practices and to conduct research that meets the needs of individuals with disabilities.

Center for Evaluation and Assessment

The Center for Evaluation and Assessment (CEA) conducts evaluations, research studies, and professional development initiatives. The center's mission is to promote the sound use of assessment results, provide high-quality evaluation services to clients, create effective training activities for graduate students, improve the quality of evaluation theory and practice, and contribute to research on program evaluation and assessment.

The center conducts evaluations in a broad range of areas: clinical and translational science, minority recruitment and retention, delivery of social and human services, curriculum and instruction, professional training, and the impact of public policy on PK-12 education. The center's staff members consult with universities, school systems, and other policy-making organizations in Iowa and nationwide that use evaluation studies and assessments to make important decisions regarding individuals or organizations. The center also provides training and professional development in program evaluation and assessment.

Center for Research on Undergraduate Education

The Center for Research on Undergraduate Education (CRUE) is dedicated to the study of undergraduate education in America, from how academic and social experiences affect students to the methods schools use to improve students' chances for success in the classroom and beyond graduation. CRUE brings a methodologically balanced approach to the study of undergraduate education.

Collaborative Writing Consultancy

The Collaborative Writing Consultancy provides graduate students with a writing tutor who can assist with academic writing to revise, discuss, and offer a one-to-one workshop setting as graduate students prepare papers. This is a collaborative process, requiring both student and tutor to improve the paper's content.

Cooperating Schools Program

The Cooperating Schools Program (CSP) is a University-wide service that facilitates placement of research projects and service-learning projects conducted by faculty, staff, and students in public schools throughout Iowa. The program provides information to help researchers obtain permission to conduct research in Iowa schools. The Cooperating Schools Program was instituted at the request of school administrators charged with the responsibility of approving research projects in their schools.

Education Technology Center

The Education Technology Center (ETC) provides computer services to College of Education faculty, staff, and students. In addition to Internet access, services include collegiate file and application servers; standard office tools; specialized applications such as media production tools and qualitative and quantitative analysis programs; secure folders and directories; and electronic mailing lists for faculty, staff, and student groups.

The Education Technology Center provides faculty with technical and design support for online course management, research technologies, distance education, multimedia, and ePortfolio production.

Polycom videoconferencing, SMART Boards and SMART Podiums, and wireless access are available throughout the college. Every classroom and conference room has a digital presentation system, and five classrooms are outfitted for videoconferencing and distance education instruction.

Faculty members and students can check out wireless laptops, computer projectors, audience response systems (clickers), digital audio recorders, digital video cameras, iPads, and other devices from the center. In all, the College of Education supports more than 850 computers, laptops, PDAs, and smartphones as well as seven servers.

Grant and Research Services Center

The Grant and Research Services Center (GRSC) provides grant and research-related support services for the college's faculty, staff, and students. GRSC staff members help identify internal and external funding sources, prepare and submit grant proposals and application materials, provide grant accounting services, and help in the preparation of applications for Human Subjects/Institutional Research Board review. The college also provides limited funds for faculty research, professional development, and travel.

Institute on Disability and Rehabilitation Ethics

The Institute on Disability and Rehabilitation Ethics (IDARE) is a cross-disciplinary, cross-institutional online community of scholars. Its goal is to use research, education, and consultation to improve the quality of ethical practice experienced by people with disabilities who receive services from rehabilitation, health, mental health, and

social service professionals. IDARE works to influence disability policy and practice development nationally and locally and to influence professional organizations' consideration of ethical issues that affect people with disabilities and other marginalized populations.

Iowa Center for Assistive Technology Education and Research

The Iowa Center for Assistive Technology Education and Research (ICATER) helps to ensure equal access and opportunities for persons with disabilities by advancing assistive technology through research, education, and service. The center collaborates with University and community programs to provide technical assistance that enhances the services and resources available to educators, service providers, and persons with disabilities. It also sponsors workshops and education programs. The center's assistive technology laboratory is available for student use, demonstrations, consultations, and research.

Iowa Testing Programs

Iowa Testing Programs (ITP) provides assessment expertise to schools in the State of Iowa and consultation to the Iowa Department of Education and to area education agencies. Its faculty and staff develop standardized educational tests, such as the widely used Iowa Assessments, for use in elementary and secondary schools, as well as other assessment tools to support instruction and learning. Iowa Testing Programs also conducts research studies in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposia, provides consulting and in-service training to educators and school systems, and provides training experience for graduate students in educational measurement and evaluation.

Libraries

University of Iowa Libraries provides a wide variety of resources in print and online. Course reserve materials are available at the Main Library, just across the street from the College of Education; at the Hardin Library for the Health Sciences, on the health sciences campus; and at the Science Library, near the center of campus. An education librarian, whose office is in the College of Education, is available to help students with their research projects and assist faculty members and teaching assistants with their research and instructional needs.

Office of Graduate Teaching Excellence

The Office of Graduate Teaching Excellence (OGTE) is dedicated to excellence in college teaching and the preparation of future faculty. The office facilitates opportunities for research, teaching, and service. Through the Iowa Education Fellows Program (i-fellows), OGTE develops and conducts workshops and seminars that address the developmental needs of College of Education doctoral students, from their first semester on campus through completion of their degrees.

Office of Education Services

The Office of Education Services assists students, faculty, staff, and the general public in graduate and undergraduate admission, Graduate College examinations, student field experiences, and teacher licensure/certification. It also serves as a liaison with other University units, including the Graduate College, the College of Liberal Arts and Sciences, the Office of

Admissions, and the Office of the Registrar, and with external agencies, including the Iowa Department of Education, out-of-state teacher licensure/certification departments, and school district personnel in Iowa and outside of the state. A variety of application and information materials are available at the office and on its web site.

Statistics Outreach Center

The Statistics Outreach Center (SOC), a service of the College of Education and Iowa Testing Programs, helps the college's faculty, staff, and students use quantitative statistical methods to produce high-quality research. The center offers short-term consulting on statistical data analysis and grant proposals to the College of Education at no charge and provides services to departments and grants outside the college on a fee basis.

Teacher Leader Center

The Teacher Leader Center (TLC) helps students in the Teacher Education Program realize their career and professional goals and become leaders as 21st-century teachers. The center provides students with access to key individuals in the Teacher Education Program and offers core student support in one central location. Its technology-enhanced Learning Commons has collaborative work spaces for students, faculty, and staff. The facility models new and innovative technologies in education and supports seminars, workshops, and presentations. Community partnerships with area education agencies, community organizations, and schools provide access to classrooms where future teachers can innovate, improve, collaborate, develop, and discover their identities as teacher leaders.

UI Helping Professional Workshops

The UI Helping Professionals Workshops (IHELP) program provides affordable workshops intended to enhance the personal and professional development of helping professionals. The program offers Continuing Education Units (CEU's) for community, agency, and education practitioners working with or interested in individuals, groups, families, and organizations.

Financial Support

College of Education students may be eligible for scholarships, awards, or graduate assistantships. Information about financial support for students is available at Graduate Student Grants & Assistantships on the college's web site. The Graduate College posts a list of open assistantships on its web site; see Graduate Assistant Job Postings.

Students interested in employment opportunities in the college's support units and special resources should contact the director of each facility and indicate their interests, their academic and experience records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships as well as for fellowships and related employment opportunities. Inquiries should be addressed to the chair of the department or the director of the program in which the student believes he or she can provide service or achieve an outstanding academic record. Assistantship

appointments are usually, but not always, made by the program area.

Special Graduate Research Assistantships in Education

The Iowa Testing Programs provides funds to support a limited number of special graduate assistantships in education, in which students do research work under the direction of a faculty member of their choice. Students must be enrolled for at least 6 s.h. but not more than 12 s.h. per semester; assistantships are for the academic year and are renewable for a limited number of years. Students admitted to or pursuing any advanced degree program offered by the College of Education are eligible to apply, provided they are committed to a professional career in the United States.

Applicants must submit transcripts of all completed college work (undergraduate and graduate), recommendation forms specific to the assistantship, and scores on the Graduate Record Examination (GRE) General Test. For assistantship application forms, contact the Iowa Testing Programs director. Application deadline is late February.

Scholarships and Awards

The College of Education presents a number of awards funded by donors; recipients must meet the criteria established by the donors for their awards. Recipients are presented with their award at a spring semester luncheon. For more information, see Scholarships and Awards on the college's web site.

Duane D. Anderson Memorial Scholarship: awarded to a transfer student from an Iowa community college who is currently enrolled in a program in the College of Education.

Jack Bagford Elementary Education Scholarship: presented to an undergraduate or graduate student in elementary education who will be student teaching during the academic year following the award; recipient must be a resident of Iowa.

David and Connie Belin Honors Award: presented to graduating seniors who have completed all requirements for the Honors Opportunity Program.

Blommers-Hieronymus-Feldt Fellowship: presented to doctoral students in educational measurement and statistics.

Lowell Brandt Rehabilitation Counseling Award: presented to graduate students pursuing a master's degree in the rehabilitation counseling program.

Barry Bratton Award for Achievement in Design of Instructional Processes: presented to graduate students who have completed course work that reflects a commitment to the systemic design and improvement of instructional processes and materials.

Dr. Bettye M. Caldwell and Dr. Fred T. Caldwell Scholarship: presented to undergraduate students interested in pursuing careers in early childhood development including the fields of education, sociology, psychology, and other related academic programs.

Jake and Kimberly Chung Scholarship: presented to a teacher education student for their student teaching semester.

Debra Clausen Memorial Scholarship: presented to undergraduate or graduate students with preference given to students pursuing careers in special education.

T. Anne Cleary Psychological Research Scholarship: presented to students in the Department of Psychological and Quantitative Foundations.

John Leonard Davies Scholarship: presented to a student who is a first- or second-semester senior in the Department of Teaching and Learning who is viewed as being creative and having outstanding potential for success in the field of K-12 education.

Harvey H. Davis Memorial Scholarship: presented to outstanding graduate students in educational leadership or higher education with preference given to students interested in the financing of education.

Dr. Mary Agnella Gunn Memorial Scholarship: presented to worthy undergraduate or graduate students in education.

John H. Haefner Memorial Scholarship: presented to a student who will be student teaching in the area of social studies.

Gladys and Margaret Harvey Education Scholarship: presented to students who show financial need and are enrolled in the College of Education.

Thelma Grandia Scholarship: presented to undergraduate or graduate teacher education students based on financial need.

Emma E. Holmes Education Scholarship: presented to an outstanding undergraduate or graduate student in any program in the College of Education; based on merit and need, the recipient must be a U.S. citizen with first preference for a student in the top 20 percent of their class, second preference for a student with demonstrated financial need.

Albert Hood Promising Scholar Award: presented to a doctoral student in the Department of Rehabilitation and Counselor Education and a student in the higher education and student affairs program with an approved prospectus.

H.D. Hoover Fund for Excellence: presented to a graduate student working on mathematics achievement testing in the elementary grades.

Howard R. Jones Achievement Award: presented to worthy undergraduate or graduate students in education.

Kyle C. and Eula B. Jones Scholarship: presented to undergraduate and graduate students planning careers in elementary and secondary education and administration.

Charlotte and Ruby Junge Scholarship: presented to undergraduate or graduate students in elementary or secondary education who will be student teaching for a full semester.

Daniel G. Loetscher Memorial Science Education Scholarship: presented to students pursuing secondary education with an emphasis in the sciences.

Perry Eugene McClenahan Memorial Scholarship: presented to an outstanding graduate student in educational administration.

Sheila E. McFarland Memorial Scholarship: presented to a student who will be student teaching for a full

semester in the area of elementary education, preference for this award will be given to an Iowa resident.

Leonard A. Miller Memorial Scholarship: presented to an outstanding first-year M.A. student in rehabilitation counseling.

Minority Student Award: presented to undergraduate or graduate students of color.

Helen Mackin Nichol Memorial Scholarship: presented to students from Iowa who are in secondary education and plan to teach and work with mentally and emotionally disturbed children.

Melvin R. Novick Award in Educational Measurement and Statistics: presented to a third- or fourth-year doctoral student in educational measurement and statistics who has at least a year of study remaining.

Paul Opstad Scholarship: presented to a full- or part-time graduate student in the College of Education based on need and merit.

Margaret P. Park Scholarship: presented to deserving students in the College of Education with preference given to students from St. Louis County, Minnesota; Rock Island County, Illinois; or Iowa.

Guy and Gladys Peterson Scholarship: presented to students admitted to the Teacher Education Program who have completed at least 12 s.h. of education course work.

Betty Piercy Award: presented to an outstanding student in reading who will benefit the field.

Ann Ramsey and Richard E. Posey Scholarship: presented to a student who is a junior pursuing a career in teaching or education.

Rolland Ray Award: presented to doctoral students completing a dissertation concerned with measurement in mathematics education, science education, social studies education, or English education.

Mary Maxine Redmond Scholarship: presented to undergraduate students from Iowa enrolled in the College of Education.

Judith Young Saunders Scholarship: presented to an undergraduate or graduate student who is pursuing a degree in teacher education, with preference given to students with severe visual impairments.

Margaret A. Sloan Scholarship: presented to undergraduate or graduate students in the College of Education, preference will be given to Iowa residents enrolled in elementary education.

Lloyd Smith Scholarship: presented to students in elementary social studies.

Judy Skalsky Memorial Scholarship: presented to an undergraduate or graduate student majoring in art education.

Franklin D. Stone and Louise P. Stone International Scholarship: presented to an outstanding international student pursuing a Ph.D. in the College of Education.

James and Coretta Stroud Fellowship: presented to an outstanding graduate student in educational psychology.

Grace Phelps Stucker Scholarship: presented to an undergraduate or graduate teacher education student.

Student Teaching Abroad Scholarship: presented to undergraduate students who are student teaching in a foreign country.

Edgar M. and Evelyn Benzler Tanruther Scholarship: presented to undergraduate and/or graduate students in elementary education.

University High School Innovative Development in Education Award (IDEA): presented to students during their secondary student teaching experience.

Emily C. Wagner Scholarship: presented to an undergraduate student in secondary education with an English education teaching degree who will be student teaching in the academic year following the award, preference for students who are residents of Iowa with a g.p.a. of at least 3.00 and demonstrated financial need.

Erwin and Louise Wasta International Scholarship: presented to an international student in the College of Education.

Faculty

All tenure-track faculty members hold earned doctorates in their teaching fields, and many have had teaching or administrative experience in the public schools. Several hold joint appointments in the College of Liberal Arts and Sciences.

Courses

Most College of Education courses are offered by the college's departments and programs. They are listed and described in the corresponding General Catalog sections; see the links under "Index: Academic Programs" toward the top of this page. The college also offers the following interdepartmental courses.

Education Interdepartmental, Upper-Level Undergraduate and Graduate

EALL:4081 (07X:181) ePortfolio Production 1-2 s.h.
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Requirements: able to perform basic computer functions and use a World Wide Web browser. Same as PSQF:4081 (07P:181), EDTL:4081 (07E:181), RCE:4081 (07C:181), EPLS:4081 (07B:181).

EALL:4130 (07X:130) Introduction to Grant Writing 3 s.h.
Comprehensive training in grant proposal writing; basics of project development and management; core principles for writing small and large proposals to public and private funding sources; finer points of grant writing to increase competitiveness of future proposals and applications; for students with limited grant writing experience.

EALL:5000 (07X:140) Introduction to Multicultural Education and Culturally Competent Practice 3 s.h.

Introduction to foundations of multicultural education and cultural competence; numerous equal access movements that impact professional practice in education, social work, counseling, and the allied helping professions mobilized in the U.S. during the 20th century; issues of diversity and equity that continue to fuel current policy debates and impact professional practice; roots of equal access movements from *Brown v. Board of Education* to the present; social, political, and/or economic contexts for equal access policies concerning race/ethnicity, class, language, gender, ability, and sexual orientation.

EALL:5150 (07X:150) Introduction to Educational Research 3 s.h.

Principles of empirical educational research; logic of inquiry for both quantitative and qualitative research methodologies.

Education Interdepartmental, Graduate

EALL:7387 (07X:387) Introduction to Online Post-Secondary Course Design and Facilitation 3 s.h.

Knowledge of distance learning and teaching at the post-secondary level; instructional design principles relevant to development of online courses.

EALL:7475 (07X:475) Ph.D. ePortfolio in College Teaching 3 s.h.

Framework for connecting authentic evidence of scholarly work and teaching competencies; use of advanced web and multimedia technologies to link artifacts to ePortfolio templates.

Education Honors Opportunity Program, Upper-Level Undergraduate and Graduate

EHOP:4100 (07X:100) Honors Seminar in Education 1 s.h.

Research in education and related professions in collaboration with a College of Education faculty member of student's choice; preparation for senior honors project.

EHOP:4101 (07X:101) Senior Honors Project 1-2 s.h.

Collaboration with a faculty member on research project; written report. Prerequisites: EHOP:4100 (07X:100).

Departments

Educational Policy and Leadership Studies (p. 765)

Psychological and Quantitative Foundations (p. 780)

Rehabilitation and Counselor Education (p. 794)

Teaching and Learning (p. 814)

Majors Offered with Other Colleges

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Certificate Programs

Multicultural Education and Culturally Competent Practice (p. 778)

Online Teaching (p. 779)

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Educational Policy and Leadership Studies

Chair

- Debora L. Liddell

Program coordinator, educational leadership

- Elizabeth Hollingworth

Program coordinator, higher education and student affairs

- Jodi Linley

Program coordinator, schools, culture, and society

- Christine A. Ogren

Professors

- David B. Bills, Kenneth G. Brown, Ronald S. Fielder, Susan M. Lagos Lavenz, Christopher C. Morpew, Ernest T. Pascarella, Michael B. Paulsen, Donald B. Yarbrough

Associate professors

- Marcus J. Haack, Elizabeth Hollingworth, Debora L. Liddell, Christine L. McCarthy, Christine A. Ogren, Chet S. Rzonca, Katrina Sanders, Sherry K. Watt

Assistant professors

- Brian P. An, Cassie Barnhardt

Adjunct assistant professors

- Andrew Beckett, David L. Grady, Wayne Jacobson, Heidi B. Levine, Becki S. Elkins Nesheim, Dorothy M. Persson, Von Stange

Professors emeriti

- Larry D. Bartlett, Sandra B. Damico, Walter J. Foley, Lelia B. Helms, Alan B. Henkin, Jerry N. Kuhn, H. Bradley Sagen, Elizabeth J. Whitt

Associate professors emeriti

- Robert E. Engel, Scott F. McNabb, Ray A. Muston, Carolyn L. Wanat, Sara C. Wolfson

Graduate degrees: M.A. in educational policy and leadership studies; Ed.S. in educational policy and leadership studies; Ph.D. in educational policy and leadership studies

Web site: <http://www.education.uiowa.edu/epl/>

The Department of Educational Policy and Leadership Studies offers academic programs that prepare administrators, professional personnel, teachers, and researchers in the fields of educational leadership, higher education and student affairs, and schools, culture, and society. The department also offers joint programs with other College of Education departments and with other University of Iowa colleges.

Graduate Programs of Study

- Master of Arts in educational policy and leadership studies

- Specialist in Education in educational policy and leadership studies
- Doctor of Philosophy in educational policy and leadership studies

The department offers graduate degree programs in three major areas within educational policy and leadership studies:

Educational leadership (offered in the M.A., Ed.S., and Ph.D.), including an interdisciplinary program in school curriculum and assessment policy (offered in the Ed.S.); Higher education and student affairs (offered in the M.A., Ed.S., and Ph.D.); and Schools, culture, and society (offered in the M.A. and Ph.D.).

The areas are described below under "Graduate Study Areas," followed by information about each degree program.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

REQUIRED Ph.D. RESEARCH COURSES

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

Graduate Study Areas

Educational Leadership

Study in educational leadership prepares individuals for leadership positions. In addition to graduate degree programs, the area includes principal licensure and superintendent endorsement.

LICENSURE

To be eligible for recommendation by The University of Iowa for licensure in Iowa as a principal or superintendent/area education agency administrator, students must complete the appropriate program. The specific requirements for each program are available from the Department of Educational Policy and Leadership Studies and the Office of Education Services.

Students who hold an M.A. must satisfy all core requirements and must complete at The University of Iowa the minimum semester-hour program for each licensure level they seek. Because each administrative license has specific requirements, candidates are required to plan their programs with their advisors' approval.

SUPERINTENDENT ENDORSEMENT

The superintendent endorsement curriculum is designed to prepare individuals for licensure as a school superintendent (pre-K-12) as well as for other school district leadership positions; for the chief administrator position in Iowa's area education agencies (AEA) as well as other AEA leadership positions; and for leadership positions in state or federal departments of education and related agencies.

The superintendent endorsement requires a total of 30 s.h. of credit.

Higher Education and Student Affairs

Advanced study in higher education and student affairs draws upon diverse perspectives from varied disciplines and professional fields to analyze critical issues and policies and their effects on students, faculty, administrators, staff, and other members of the higher education community. It also explores the complex interactive relationships among institutions of higher education, the external environment, and society at large.

Graduate degree programs in higher education and student affairs prepare professionals and scholar practitioners to serve as administrators, researchers, educators, and analysts in institutions of higher and postsecondary education and in related public and private agencies. The programs provide opportunities for concentrated study in student affairs administration; higher education policy and leadership; teaching, learning, and curriculum; and cultural foundations of higher education.

Schools, Culture, and Society

Schools, culture, and society is an interdisciplinary area that enhances students' ability to analyze the influence of social, historical, and philosophical factors that frame contemporary issues in the formal social enterprise of education.

M.A.: Educational Leadership

The Master of Arts program in educational leadership requires a minimum of 36 s.h. of graduate credit and is offered without thesis. The program prepares individuals for appointments as school principals and for positions in area education agencies and state departments of education.

CORE REQUIREMENTS

With the aid of an advisor, each M.A. student prepares a plan of study that includes the following core requirements.

EPLS:6201 (07B:201) Foundations of School Administration	3 s.h.
EPLS:6236 (07B:236) Administration of Students with Special Needs	3 s.h.
EPLS:6242 (07B:242) Research for Effective School Leaders	3 s.h.
EPLS:6260 (07B:260) Contemporary Management Strategies for the Pre-K-12 Principal	3 s.h.
EPLS:6285 (07B:285) School and Community Relationships	3 s.h.
EPLS:6298 (07B:298) Legal Aspects of School Personnel	3 s.h.
EPLS:6381 (07B:381) Analysis and Appraisal of Curriculum	3 s.h.
EPLS:6383 (07B:383) Supervision and Evaluation	3 s.h.

For Iowa licensure as a principal, students must meet the human relations requirement of the State of Iowa. Students must complete the core requirements listed above and the following required clinical courses.

EPLS:6400 (07B:400) Early Childhood Leadership Clinical	3 s.h.
EPLS:6401 (07B:401) Elementary Leadership Clinical	3 s.h.
EPLS:6402 (07B:402) Secondary Leadership Clinical	3 s.h.
EPLS:6403 (07B:403) Special Education Leadership Clinical	3 s.h.

Students earning an M.A. without principal licensure are not required to complete the clinical courses. Instead, they complete a series of electives approved by their advisors.

COMPREHENSIVE EXAMINATION

The M.A. comprehensive examination for students earning principal licensure consists of a three-hour examination and a presentation of the student's ePortfolio. Students earning an M.A. without licensure complete a six-hour comprehensive examination consisting of two three-hour written exams. Students must be registered in the Graduate College during their comprehensive examination semester if they plan to graduate at the end of that semester.

ADMISSION

Applicants to the M.A. program in educational leadership must meet the admission requirements of the Graduate College. Admission decisions are made through a faculty review process. Factors considered include recommendations, grade-point average, Graduate Record Examination (GRE) General Test scores, an essay demonstrating writing ability, and other evidence of academic ability and professional promise.

Ed.S.: Educational Leadership

The Specialist in Education program in educational leadership requires 36 s.h. of graduate credit. The program prepares candidates to be superintendents in Iowa or to hold other district-level leadership positions in K-12 school districts. It also prepares them for appointments as area education agency chief administrators and for jobs in state or federal departments of education.

Students in the Ed.S. program must have an Iowa administration license. They obtain the superintendent endorsement (State of Iowa endorsement 171) upon completing the required Ed.S. course work.

Ed.S. students must complete 26 s.h. of course work. Many educational leadership courses are offered by distance education; see ISIS for information about courses offered during current semesters. They also must complete 10 s.h. of clinical work and must maintain an ePortfolio. The Ed.S. program culminates with the student's presentation of the ePortfolio to his or her committee.

ADMISSION

Applicants to the Ed.S. program in educational leadership must meet the admission requirements of the Graduate College and of the educational leadership program. Required application materials include transcripts, official Graduate Record Examination (GRE) General Test scores, three letters of recommendation, and a personal statement of career goals. Admission is based on grade-point average and GRE scores, promise for scholarly and professional growth, and recommendations. Complete applications are reviewed as they are received.

Ph.D.: Educational Leadership

The Doctor of Philosophy program in educational leadership requires a minimum of 90 s.h. of graduate credit. The program prepares scholarly professionals for leadership positions in a wide range of educational and public sector settings. Ph.D. students acquire strong backgrounds in leadership, policy, and research. They equip themselves to discover, integrate, and apply knowledge as transformational leaders.

The Ph.D. in educational leadership requires the following work.

Common courses	12 s.h.
Cognates	9 s.h.
Electives	29 s.h.
Concentration area courses	12 s.h.
Research	18 s.h.

Students also complete the comprehensive examination and a dissertation, described below.

Many educational leadership courses are offered by distance education; see ISIS for information about courses offered during current semesters.

REQUIRED RESEARCH COURSES

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

COMPREHENSIVE EXAMINATION

Ph.D. students must satisfactorily complete a written take-home comprehensive examination consisting of three parts. The first part covers the student's major area of study, and the second covers two additional concentration areas. The third is on the student's outside area of study and is prepared by faculty members outside the Department of Educational Policy and Leadership Studies. The written exams are followed by an oral examination.

DISSERTATION

All students must write a dissertation based on an original research project in an area of educational leadership. Students must earn 10 s.h. of credit for dissertation research. The doctoral program culminates with a final oral defense of the dissertation. Students must be registered at The University of Iowa during the session in which they graduate.

ADMISSION

Applicants to the Ph.D. program in educational leadership must meet the admission requirements of the Graduate College and of the educational leadership program. They also must satisfy the residency requirement of two full-time (at least 9 s.h.) registrations. Required application materials include transcripts, official Graduate Record Examination (GRE) General Test scores, three letters of recommendation, and a personal statement of career goals. Admission is based on grade-point average and GRE scores, promise for scholarly and professional growth, and

recommendations. Complete applications are reviewed as they are received.

Ed.S.: School Curriculum and Assessment Policy

The Specialist in Education program in school curriculum and assessment policy requires 36 s.h. of graduate credit beyond the master's degree (required credit may vary depending on the student's academic background, experiences, needs, and interests).

The interdisciplinary program trains graduate students to become school leaders who know how to use assessment information for accountability purposes and curriculum evaluation. The program offers concentrations in policy, measurement and statistics, and curriculum and draws on course work from across the College of Education. Graduates are qualified to serve as educational leaders in the areas of school policy, assessment, and curriculum at federal, state, and district levels.

For more information on the educational leadership programs, see Department of Educational Policy and Leadership Studies.

M.A.: Higher Education and Student Affairs

The Master of Arts program in higher education and student affairs requires a minimum of 40 s.h. of graduate credit. The program prepares graduates for entry-level and midlevel positions in two- and four-year institutions.

Students choose one of two tracks when they apply to the program: the student affairs track or the higher education policy/administration track. Through these two tracks, the program prepares individuals for positions in advising, programming, administration, assessment, management, and policy in higher education settings.

EXAMINATIONS

Students complete a take-home written examination based on the program core and their chosen track.

ADMISSION

Applicants to the M.A. program in higher education and student affairs must meet the admission requirements of the Graduate College. Admission is based on grade-point average, Graduate Record Examination (GRE) General Test scores, and promise for professional growth. Transcripts, GRE scores, a résumé or curriculum vita, three letters of recommendation, and a statement of educational goals are required. Application deadline is January 15 for admission the following fall. Applicants who are recommended for admission are invited to come to campus on spring Campus Visit Day, during which they interview for assistantships. Full-time M.A. students must be employed at an approved site.

Ed.S.: Higher Education and Student Affairs

The Specialist in Education program in higher education and student affairs requires 60 s.h. of graduate credit. The program provides advanced graduate study in administration, policy studies, and specializations developed in consultation with the advisor. The Ed.S. also may be awarded upon completion of a joint program

of graduate work in higher education and an academic field, or upon completion of a higher education sequence following a master's degree program. Students must meet the Graduate College residency requirement.

REQUIRED COURSES

The Ed.S. program of study must include at least 18 s.h. in professional education and related fields; at least 28 s.h. in the student's specialization area and 10 s.h. of electives, all approved by the advisor; and 4 s.h. of research credit in EPLS:7395 (07B:395) Educational Specialist Research. Depending on the student's career goals, the program may include an appropriate structured and supervised internship, determined in consultation with the advisor.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of a take-home written exam covering the field of higher education and student affairs and the student's concentration area. The written exams may be followed by an oral exam.

RELATED FIELD

Students majoring in another field who want to complete a related field in higher education and student affairs should consult with a higher education and student affairs faculty member early in their study. Plans of study are developed individually.

ADMISSION

Applicants to the Ed.S. program in higher education and student affairs must meet the admission requirements of the Graduate College. Admission is based on grade-point average, GRE General Test scores, and promise for professional growth. Transcripts, GRE scores, three letters of recommendation, and a statement of educational goals are required.

Ph.D.: Higher Education and Student Affairs

The Doctor of Philosophy program in higher education and student affairs requires 90 s.h. of graduate credit. The program prepares faculty and scholar practitioners for leadership positions in student affairs and academic administration and for positions as graduate faculty members, leaders in conducting research about college students and higher education, policy analysts in postsecondary institutions and in public or private agencies, and teachers and academic leaders at two-year and four-year colleges.

The program integrates the academic experience with the cocurricular learning experiences of students and studies the outcomes of both. The curriculum is organized around three core areas: higher education administration and policy; teaching, learning, and the college experience; and diversity, equity, and foundations of higher education. Students take courses in each area and specialize in one.

The higher education administration and policy area studies organizational policy, leadership, and change. It helps administrators develop expertise in planning, evidence-based decision making, and effective leadership and organizational management. Individuals interested in enrollment management and institutional research should find this area appealing.

The teaching, learning, and the college experience area studies college teaching and learning and the ways in

which college affects students. It enables educators to become more effective in designing, implementing, and evaluating powerful curricular and cocurricular initiatives. It should appeal to teaching faculty, institutional researchers, faculty development professionals, and leaders of student success initiatives.

The diversity, equity, and foundations of higher education area helps educators prepare to lead social change within their organizations and to facilitate difficult dialogues designed for interpersonal growth and development. It should appeal to chief diversity officers and other administrators called upon to develop curricula around social justice and to individuals interested in the empirical study of diversity in higher education.

The 90 s.h. required for the Ph.D. includes a substantive common core (24 s.h.), a research core (18 s.h.), a specialization (12 s.h.), graduate electives (24 s.h.), and dissertation research (12 s.h.).

To fulfill the Graduate College residency requirement, each doctoral student must enroll for a minimum of 9 s.h. in each of two semesters or a minimum of 6 s.h. in each of three semesters.

SUBSTANTIVE COMMON CORE

The substantive common core provides foundational understanding of higher education and general knowledge that all students must master, regardless of their career goals and interests. All courses in the core (24 s.h.) must be completed at The University of Iowa.

EPLS:6216 (07B:216) Finance in Higher Education	3 s.h.
EPLS:6220 (07B:220) History of Higher Education	3 s.h.
EPLS:6221 (07B:221) The College Curriculum	3 s.h.
EPLS:6224 (07B:224) Organizational Theory and Administrative Behavior	3 s.h.
EPLS:6225 (07B:225) Introduction to Public Policymaking	3 s.h.
EPLS:6273 (07B:273) The College Student	3 s.h.
EPLS:6275 (07B:275) Diversity and Equity in Higher Education	3 s.h.
EPLS:7432 (07B:432) Multicultural Initiatives	3 s.h.

RESEARCH CORE

The research core (18 s.h.) assures that the student achieves scholarly autonomy and initiative.

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements. Course selections must be consistent with the following research core requirements.

All students take the following four courses, or their equivalents, as approved by the advisor and the course instructor.

EPLS:6206 (07B:206) Research Process and Design	3 s.h.
EPLS:7373 (07B:373) Qualitative Research Design and Methods	3 s.h.

EALL:5150 (07X:150) Introduction to Educational Research (taken during first year in program)	3 s.h.
PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.

In addition, students and their advisors choose at least three more research courses appropriate to the student's research interests.

SPECIALIZATION AREA

The specialization gives students the opportunity to develop expertise in one area. Most students complete the common core before declaring one of the following three specializations: higher education administration and policy; teaching, learning, and the college experience; or diversity, equity, and foundations of higher education. Each specialization has its own course requirements and options.

GRADUATE ELECTIVES

Students choose 24 s.h. of elective graduate course work in consultation with their advisors. The student and his or her advisor may determine that some of the graduate elective work may be drawn from appropriate previous graduate course work that complements other aspects of the student's doctoral program.

COMPREHENSIVE EXAMINATION

The Ph.D. comprehensive examination consists of a set of take-home questions with a limited time to respond. Questions are based on the substantive core, the student's concentration, and research core content. The written examination is followed by an oral examination.

DISSERTATION

The dissertation is a major research study planned in collaboration with the student's advisor. Students must write a formal dissertation proposal and submit it for approval, first to their advisor and then to the members of their doctoral committee. Students and their advisors determine when the proposal is complete. Students must earn 12 s.h. of dissertation research credit. The doctoral program culminates with a final oral defense of the dissertation.

Students must be registered at The University of Iowa each fall and spring semester from the semester in which they complete their comprehensive examination through the semester in which they defend their dissertation and graduate.

ADMISSION

Applicants to the Ph.D. program in higher education and student affairs must meet the admission requirements of the Graduate College. Each applicant must submit a personal statement explaining his or her professional goals, experiences, and research plans; undergraduate and graduate grade-point averages; undergraduate and graduate transcripts; three letters of recommendation; a résumé or curriculum vita, and scores on the Graduate Record Exam (GRE) General Test. Application deadline is December 15 for admission the following fall.

For more information on higher education and student affairs programs, see Department of Educational Policy and Leadership Studies.

M.A.: Schools, Culture, and Society

The Master of Arts program in schools, culture, and society requires a minimum of 32 s.h. of graduate credit and is offered without thesis. The program develops students' ability to analyze the influence of social, historical, and philosophical factors that frame contemporary issues in education.

M.A. students complete at least 24 s.h. in schools, culture, and society courses in three disciplinary areas: philosophy, history, and sociology. They earn 12 s.h. in one of the disciplinary areas and 6 s.h. in each of the other two areas. The remaining 8 s.h. of course work must be in a concentration area appropriate to the student's career and academic goals.

Students must satisfactorily complete a six-hour comprehensive examination covering the program's three disciplinary areas and the student's concentration area. The examining committee may elect to hold an oral examination after the exam.

ADMISSION

Applicants to the M.A. program in schools, culture, and society must meet the admission requirements of the Graduate College. A personal interview with one or more members of the program's faculty is recommended. Undergraduate and/or graduate emphases in education, sociology, and the humanities (philosophy, history, and so forth) provide good background for graduate study of schools, culture, and society, although other emphases also may be useful. Each applicant must submit a personal statement explaining his or her professional goals, experiences, and research plans; undergraduate and graduate grade-point averages; undergraduate and graduate transcripts; three letters of recommendation; a résumé; and scores on the Graduate Record Exam (GRE) General Test. Application deadline is February 15 for admission the following fall.

Ph.D.: Schools, Culture, and Society

The Doctor of Philosophy program in schools, culture, and society requires a minimum of 90 s.h. of graduate credit. The program develops students' ability to analyze the influence of social, historical, and philosophical factors that frame contemporary issues in education.

Ph.D. students complete a common core (12 s.h.), a disciplinary foundation (12 s.h.), an interdisciplinary focus (9 s.h.), cognate courses (27 s.h.), research tools (18 s.h.), and a dissertation (12 s.h.).

COMMON CORE

All Ph.D. students in schools, culture, and society must complete all four courses in the common core (12 s.h.).

EPLS:5102 (07B:102) History of American Education	3 s.h.
EPLS:5126 (07B:126) Twentieth-Century Educational Movements	3 s.h.
EPLS:5130 (07B:130) Sociology of Education	3 s.h.
EPLS:5156 (07B:156) Philosophies of Education	3 s.h.

DISCIPLINARY FOUNDATION

Students choose one of three disciplinary foundation areas: sociology, history, or philosophy. They complete 12 s.h. in the area by taking three courses offered by the Department of Educational Policy and Leadership Studies (prefix EPLS) and one course offered by the corresponding department in the College of Liberal Arts and Sciences: sociology (prefix SOC), history (prefix HIST), or philosophy (prefix PHIL). The following lists provide examples of courses appropriate for the three disciplinary foundation areas.

Sociology:

EPLS:5131 (07B:131) Race, Class, and Gender Inequalities in Education	3 s.h.
EPLS:5134 (07B:134) Education and the World of Work	2-3 s.h.
EPLS:5142 (07B:142) Sociology of Higher Education	3 s.h.
EPLS:5210 (07B:210) Education and Social Change	2-3 s.h.
EPLS:5240 (07B:240) Topics in Education (topic: sociology of education)	arr.

History:

EPLS:5123 (07B:123) History of Ethnic/Minority Education	2-3 s.h.
EPLS:5240 (07B:240) Topics in Education (topic: history of education)	arr.
EPLS:6220 (07B:220) History of Higher Education	3 s.h.
EPLS:6237 (07B:237) History of the Teaching Profession	3 s.h.
EPLS:6238 (07B:238) Gender and Education in Historical Perspective	3 s.h.

Philosophy:

EPLS:5155 (07B:155) Critical Thinking	3 s.h.
EPLS:5157 (07B:157) Ethics in Education	3 s.h.
EPLS:5158 (07B:158) John Dewey and Education	2-3 s.h.
EPLS:5240 (07B:240) Topics in Education (topic: philosophy of education)	arr.
EPLS:6358 (07B:358) Seminar in the Philosophy of John Dewey	3 s.h.

INTERDISCIPLINARY FOCUS

Students choose one of two interdisciplinary focus areas: diversity and equity, or policy contexts. They take three courses in that area (total of 9 s.h.) chosen from the corresponding list below. At least two of the courses (6 s.h.) must be from outside their disciplinary foundation area (see "Disciplinary Foundation" above).

Diversity and equity:

EPLS:5104 (07B:104) Education in the Third World	2-3 s.h.
EPLS:5120 (07B:120) Teaching in a Culturally Diverse Society	2-3 s.h.
EPLS:5123 (07B:123) History of Ethnic/Minority Education	2-3 s.h.
EPLS:5154 (07B:154) Education, Race, and Ethnicity	2-3 s.h.

EPLS:5157 (07B:157) Ethics in Education	3 s.h.
EPLS:6237 (07B:237) History of the Teaching Profession	3 s.h.
EPLS:6238 (07B:238) Gender and Education in Historical Perspective	3 s.h.
EPLS:6275 (07B:275) Diversity and Equity in Higher Education	3 s.h.
A relevant course from another department, with advisor's approval	

Policy contexts:

EPLS:5134 (07B:134) Education and the World of Work	2-3 s.h.
EPLS:5157 (07B:157) Ethics in Education	3 s.h.
EPLS:5210 (07B:210) Education and Social Change	2-3 s.h.
EPLS:6225 (07B:225) Introduction to Public Policymaking	3 s.h.
EPLS:6228 (07B:228) Policy Design and Implementation	2-3 s.h.
EPLS:6237 (07B:237) History of the Teaching Profession	3 s.h.
EPLS:6270 (07B:270) Policy and Politics of Leadership	3 s.h.

One relevant course from another department, with advisor's approval

COGNATE COURSES

Students must complete at least 27 s.h. of additional graduate-level course work in a field or fields that are relevant to the student's scholarly and professional goals. Students commonly complete some or all of the 27 s.h. with relevant graduate-level course work from other University of Iowa programs or with approved transfer credit from other institutions. Student's advisors, in consultation with other faculty members in the program, determine which course work to accept.

RESEARCH TOOLS

The research tool requirement is 18 s.h. All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements. Students must complete one research course (3 s.h.) on the use of quantitative research in policy evaluation [e.g., EPLS:6370 (07B:370) Quantitative Methods for Policy Analysis]. Students should choose research courses in consultation with their advisors.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three take-home exams, each with a maximum of 12 pages. The first exam covers the common core, the second covers the student's interdisciplinary focus area, and the third covers the student's disciplinary foundation area.

DISSERTATION

After completing the comprehensive examination, Ph.D. students write a formal dissertation prospectus and submit it for approval first to their dissertation advisor and then

to the members of their dissertation committee. The dissertation prospectus must be formally approved by the dissertation advisor and the dissertation committee before the student may begin his or her dissertation research.

Students must earn 12 s.h. of dissertation research credit. The dissertation process culminates with a final oral defense of the dissertation. Students must register at The University of Iowa each fall and spring semester until the dissertation is successfully defended and the Ph.D. is awarded.

ADMISSION

Applicants to the Ph.D. program in schools, culture, and society must meet the admission requirements of the Graduate College. A personal interview with one or more members of the program's faculty is recommended. Undergraduate and/or graduate emphases in education, sociology, and the humanities (philosophy, history, and so forth) provide good background for graduate study of schools, culture, and society, although other emphases also may be useful. Each applicant must submit a personal statement explaining his or her professional goals, experiences, and research plans; undergraduate and graduate grade-point averages; undergraduate and graduate transcripts; three letters of recommendation; and scores on the Graduate Record Exam (GRE) General Test. Admission is for fall semester entry. Application deadline is January 15 for admission the following fall.

For more information on schools, culture, and society programs, see Department of Educational Policy and Leadership Studies.

Courses

Lower-Level Undergraduate

EPLS:1029 (07B:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

EPLS:2098 (07B:098) The Student Affairs Profession 3 s.h.
Introduction to field of student affairs in context of higher education; focus on foundations of profession, including a brief history of field, professional associations, institutional differences, professional and ethical standards, functional areas in higher education, student learning and developmental theory, overview of graduate preparation, and current topics.

Upper-Level Undergraduate and Graduate

EPLS:3000 (07B:103) Foundations of Education 3 s.h.
Overview of American education, preschool through secondary; aims, history, philosophy of education; professional ethics, legal responsibilities; school curriculum, organization, finance, school law, political and social issues.

EPLS:4081 (07B:181) ePortfolio Production 1-2 s.h.
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Requirements: able to perform basic computer functions and use a World Wide Web browser. Same as PSQF:4081 (07P:181), EALL:4081 (07X:181), EDTL:4081 (07E:181), RCE:4081 (07C:181).

EPLS:4110 (07B:110) Administration and Policy in Gifted Education 2 s.h.
Policy, administrative, evaluation issues in developing and maintaining gifted programs in a school setting; participants develop gifted program and policies for a school; for school executives and coordinators of gifted programs.

EPLS:4111 (07B:111) Evaluation of Gifted Programs 1 s.h.
Fundamentals of program evaluation essential for exemplary gifted programs.

EPLS:4113 (07B:113) Staff Development for Gifted Programs 1 s.h.
Planning, content, and delivery of staff development regarding gifted students and their needs.

EPLS:4150 (07B:150) Leadership and Public Service I 3 s.h.
Preparation for providing public service to a local community; leadership skills for effective mentoring of children in grades 6-10.

EPLS:4151 (07B:151) Leadership and Public Service II 2 s.h.
Preparation to provide leadership and public service to a local community agency; being a leader and a public servant in the context of societal oppressions such as racism, sexism, able-bodyism; part of the human relations minor. Prerequisites: EPLS:4150 (07B:150).

EPLS:4180 (07B:180) Human Relations for the Classroom Teacher 3 s.h.
Influence of social factors such as discrimination, diversity, equity, racism, sexism, and ethnic and socioeconomic pluralism on American schools and classrooms; for teacher education candidates. GE: Values, Society, and Diversity.

Graduate

EPLS:5100 (07B:100) Issues and Policies in Higher Education 3 s.h.
Development of the idea of a university; selected functions, issues, policies of American higher education.

EPLS:5102 (07B:102) History of American Education 3 s.h.
Purposes of public education, diversity, and control of schooling from a historical perspective; emphasis on conflicting interpretations of pivotal events and educational movements; connections between educational policies and larger historical developments.

EPLS:5104 (07B:104) Education in the Third World 2-3 s.h.

Educational implications of various development issues, including role of media, and multinational corporations and foreign aid; educational dilemmas currently facing Third World governments.

EPLS:5116 (07B:116) Characteristics of Effective Instruction: Assessment for Learning 3 s.h.

Professional development sequence designed for practicing teachers to develop conceptual knowledge and understanding of Assessment for Learning implementation and practice, a key component of effective instruction; training modules are aligned with the Iowa Department of Education's "Characteristics of Effective Instruction," with videos of best practice across the state.

EPLS:5120 (07B:120) Teaching in a Culturally Diverse Society 2-3 s.h.

Issues in education and individual educators' own practice related to increasing cultural, racial, and linguistic diversity; challenges, concerns.

EPLS:5122 (07B:122) History of School Leadership in the United States 3 s.h.

History of public school administration; 19th-century crusade of Horace Mann and other common-school reformers, social-efficiency movement of early 20th century; gender issues, parental involvement in history of school leadership.

EPLS:5123 (07B:123) History of Ethnic/Minority Education 2-3 s.h.

Educational histories of American ethnic and minority groups; comprehensive understanding of American educational history, context for contemporary educational policy discussions.

EPLS:5126 (07B:126) Twentieth-Century Educational Movements 2-3 s.h.

Current educational policy debates concerning diversity and equity, historical roots of these policies; historical context for 20th-century equal education opportunity movements.

EPLS:5130 (07B:130) Sociology of Education 3 s.h.

Effects of school and school organization on educational outcomes; course-taking patterns and tracking, desegregation, differences in school sector; focus on entire span of student's academic career; examination of school and organizational effects at the primary, secondary, and postsecondary levels of education. Same as SOC:5130 (034:133).

EPLS:5131 (07B:131) Race, Class, and Gender Inequalities in Education 3 s.h.

Role of ascribed characteristics (e.g., race, class, gender) on educational opportunities and outcomes; achievement gaps, school desegregation, social and cultural capital, peer influence, family attributes, neighborhood influence, influence of significant others, course-taking patterns, and educational destinations. Same as SOC:5165 (034:265).

EPLS:5134 (07B:134) Education and the World of Work 2-3 s.h.

Relationship between education and work in individual and organizational behavior, and between educational and economic systems; economics, psychology, sociology, education.

EPLS:5142 (07B:142) Sociology of Higher Education 3 s.h.

Sociological approach to study of higher education; issues of inequality and stratification in higher education; focus on relationship between higher education and larger economic and demographic processes; college access, college destinations, attainment, and returns to a college degree. Same as SOC:5680 (034:280).

EPLS:5154 (07B:154) Education, Race, and Ethnicity 2-3 s.h.

Role of education in ethnic and racial stratification in the United States and other nations; influence of variations in family structure, stratification patterns, institutional constraints in formation of educational aspirations and achievement levels. GE: Values, Society, and Diversity.

EPLS:5155 (07B:155) Critical Thinking 3 s.h.

Formal and informal logic and probabilistic reasoning; focus on construction and critical analysis of arguments; introduction for students planning research in social foundations.

EPLS:5156 (07B:156) Philosophies of Education 2,3,5 s.h.

Principal educational philosophers and philosophies that have influenced Western education; emphasis on how philosophical ideas and conflicts have shaped the educational scene.

EPLS:5157 (07B:157) Ethics in Education 3 s.h.

Major theories of the nature of ethical action and of value judgment; theoretical accounts related to the practical decision making contexts of teaching.

EPLS:5158 (07B:158) John Dewey and Education 2-3 s.h.

Dewey's philosophy of instrumentalism, with emphasis on his theories of knowledge, valuation, aesthetics, especially as applied to educational theory and practice.

EPLS:5165 (07B:165) Introduction to Program and Project Evaluation 3 s.h.

Skills and knowledge required for conducting evaluations of products, projects, and programs; recent scholarship on evaluation and project management. Same as PSQF:5165 (07P:165).

EPLS:5176 (07B:176) Demographic Techniques for Educational Research 3 s.h.

Basic demographic concepts, techniques, resources; life table analysis, enrollment projections, demographic measurement, shift-share analysis.

EPLS:5195 (07B:195) Research in Cross-Cultural Settings 3 s.h.

Cultural, psychological, logistical issues in conducting research in foreign settings; development of a research plan, recent debates in ethnographic research literature.

EPLS:5210 (07B:210) Education and Social Change 2-3 s.h.

Role of educational institutions, in connection with political and economic structures, in the process of social change; illumination of theories of social change through case studies of educational systems in both less-developed and industrialized nations. Same as SOC:5810 (034:310).

EPLS:5230 (07B:230) Alternative Models of Schooling 2-3 s.h.

Popular alternatives to K-12 and postsecondary education; homeschooling, boarding schools, charter schools, magnet schools; construction of a conceptual framework for understanding alternatives.

EPLS:5240 (07B:240) Topics in Education arr.

Seminar for intensive study of one problem, issue, or work field.

EPLS:5245 (07B:245) The American Professoriate 3 s.h.

Research on college and university faculty members; perspectives on faculty careers, values, beliefs, role in shared governance; tenure process and policies; issues unique to faculty members of color and women faculty members.

EPLS:5247 (07B:247) Multiculturalism in Higher Education 3 s.h.

Theory and application of multicultural competency in higher education.

EPLS:5250 (07B:250) Introduction to Student Affairs 3 s.h.

Foundations of student affairs work; overview of institutional cultures, legal issues, ethical principles, standards of practice in student affairs.

EPLS:5251 (07B:251) College Students and Their Environments 3 s.h.

Characteristics of college students and issues they face; students' institutional, social, cultural environments; impact of environments on student learning, development.

EPLS:5252 (07B:252) Administration of Higher Education and Student Affairs 3 s.h.

Administrative structures and processes in higher education settings. Requirements: higher education and student affairs major.

EPLS:5253 (07B:253) Assessment in Higher Education and Student Affairs 3 s.h.

Theories, practices, and issues relevant to assessment of student outcomes and institutional effectiveness in higher education; basic overview of research, assessment, and evaluation; elements of assessment design, including methods for data collection and analysis; relevant ethical and political dilemmas; practical assessment activities. Requirements: M.A. standing in higher education and student affairs program.

EPLS:5278 (07B:278) Helping Skills in Student Affairs Work 3 s.h.

Development of ability to identify, understand, and intentionally apply the active attending and influencing skills; readings and class presentations.

EPLS:6201 (07B:201) Foundations of School Administration 3 s.h.

Organization and administration of American public education; principles and concepts of leadership and organizations; socioeconomic, political, and professional factors relating to education and school administration.

EPLS:6202 (07B:202) Information Resources 3 s.h.

Research strategies, information literacy skills, University of Iowa Libraries and other sources for research.

EPLS:6206 (07B:206) Research Process and Design 3 s.h.

Research process, with emphasis on fundamentals of experimental design, internal and external validity, correlational designs, and statistical inference.

EPLS:6209 (07B:209) Survey Research and Design 3 s.h.

Survey design and implementation; writing and evaluation of survey questions; error in survey research; techniques to reduce error; sampling; postcollection processing of survey data. Prerequisites: EPLS:6206 (07B:206) or PSQF:4143 (07P:143). Same as PSQF:6209 (07P:209).

EPLS:6216 (07B:216) Finance in Higher Education 3 s.h.

Theory, research, policy, and practice related to public and private funding of higher and postsecondary education.

EPLS:6217 (07B:217) Theory and Practice of Leadership 2-3 s.h.

Theory-based literature and critiques of leadership as applied to educational institutions.

EPLS:6218 (07B:218) The Law and Higher Education 3 s.h.

The role of law as it affects postsecondary institutions; analysis of case law in specific areas of concern to administrators, faculty, staff, students.

EPLS:6220 (07B:220) History of Higher Education 3 s.h.

History of postsecondary education in the United States; emphasis on conflicting interpretations of pivotal developments; consideration of access, curriculum, student life, academic freedom, role of universities in society, and balance of teaching, research and service from a historical perspective.

EPLS:6221 (07B:221) The College Curriculum 3 s.h.

Issues, principles, policies, and practices in college curriculum development; diverse philosophical, historical, cultural, social, psychological, political foundations of contemporary college curricula; perspectives on and models of college curriculum, related processes of teaching and learning; principles and practices that guide design and change of higher education curriculum.

EPLS:6222 (07B:222) Introduction to Policy Analysis and Evaluation 3 s.h.

Theoretical and technical approaches to analysis and evaluation of contemporary public policies.

EPLS:6224 (07B:224) Organizational Theory and Administrative Behavior	3 s.h.	Leadership skills and management techniques for daily organization and operation of schools; emphasis on climate, communication, group processes, conflict resolution, curriculum management.
Theories and concepts of organizational behavior applied in structural, organizational, administrative contexts of American education.		
EPLS:6225 (07B:225) Introduction to Public Policymaking	3 s.h.	EPLS:6265 (07B:265) Standards-Based Education and Accountability 3 s.h.
Overview of state level higher education structures and policies; research on state level policy processes.		Standards-based education; academic content standards, K-12 articulation, alignment studies, use of standardized test results to evaluate academic programs.
EPLS:6226 (07B:226) Educational Management	2-3 s.h.	EPLS:6270 (07B:270) Policy and Politics of Leadership 3 s.h.
Literature and research on management; emphasis on American education.		Current issues from academic journals, states, think tanks, consortia.
EPLS:6228 (07B:228) Policy Design and Implementation	2-3 s.h.	EPLS:6273 (07B:273) The College Student 3 s.h.
Review of literature, emphasis on policy drafting skills for administration and management in education and other settings.		Overview of theories, research, practices, and issues relevant to understanding students in institutions of higher education. Requirements: Ph.D. standing in Higher Education and Student Affairs program.
EPLS:6232 (07B:232) Advanced Theory Sociology of Education	3 s.h.	EPLS:6275 (07B:275) Diversity and Equity in Higher Education 3 s.h.
Sociology of education; concepts and nature of the field; strengths and weaknesses of theories and paradigms; research. Prerequisites: EPLS:5130 (07B:130).		Historical, contemporary, theoretical, and empirical aspects of diversity and equity in higher education; unique experiences of members of historically under-represented groups; challenges of transforming institutions to make them more responsive to the experiences of diverse groups.
EPLS:6236 (07B:236) Administration of Students with Special Needs	3 s.h.	EPLS:6285 (07B:285) School and Community Relationships 3 s.h.
Foundation for and skill practice in tasks performed by directors of special education and others administering to needs of special education students, and economically and socially deprived students; for prospective school administrative personnel. Same as EDTL:6936 (07U:236).		Community analysis, politics and education, power groups and influences, school issues and public responses, public relations strategies.
EPLS:6237 (07B:237) History of the Teaching Profession	3 s.h.	EPLS:6290 (07B:290) Master's Project arr.
History of public school teaching, and teachers' problematic professional status; teacher education in the 19th and 20th centuries; formation and activities of teacher unions in the 20th century.		Research for the nonthesis program; topic approved by advisor.
EPLS:6238 (07B:238) Gender and Education in Historical Perspective	3 s.h.	EPLS:6293 (07B:293) Individualized Instruction arr.
Gender in context of history of education in the United States; coeducation in common schools, academies, and high schools; women's arrival and experiences as college students; masculinity in higher education; single-sex versus coeducation; emphasis on conflicting historical interpretations. Same as GWSS:6238 (131:238).		Readings, special projects, and/or studies that reflect joint instructor/student interest.
EPLS:6242 (07B:242) Research for Effective School Leaders	3 s.h.	EPLS:6298 (07B:298) Legal Aspects of School Personnel 3 s.h.
Fundamental language of contemporary research; identification and application of basic research components to contemporary educational leadership problems; applicability of research toward effective decision making.		Teacher and student: liability, negotiations, rights, privileges, responsibilities of school personnel; principles of law derived from court decisions; constitutional and statutory provisions; for teachers and administrators.
EPLS:6260 (07B:260) Contemporary Management Strategies for the Pre-K-12 Principal	3 s.h.	EPLS:6301 (07B:301) Professional Seminar in Student Affairs I 1 s.h.
		Orientation to field; writing and academic support.
		EPLS:6302 (07B:302) Professional Seminar in Student Affairs II 1 s.h.
		Working with groups in higher education.
		EPLS:6303 (07B:303) Professional Seminar in Student Affairs III 1 s.h.
		Consulting, training, and curriculum development in student affairs.

- EPLS:6304 (07B:304) Professional Seminar in Student Affairs IV** 1 s.h.
Professional identity, job search support.
- EPLS:6311 (07B:311) Seminar: Research Topic in Education** 2-3 s.h.
Topic submitted by students, faculty.
- EPLS:6315 (07B:315) Orientation to the Superintendency** 3 s.h.
Leadership theory and research of the superintendent's role of increasing student achievement; personal goals for communication; ethics, integrity, flexibility, reflective, and collaborative leadership; expectations of the superintendent by the board of directors; defining one's role; developing an entry plan; dealing with social/emotional isolation of superintendency; and influences in the larger political, social, economic, legal, and cultural context.
- EPLS:6317 (07B:317) Operational Leadership and Management** 1 s.h.
Managing fiscal and physical resources responsibly, efficiently, and effectively; effective communication of school operations; leadership and management of nutrition program, transportation program, facilities, construction; board policy, legal issues; state reporting, ethical decision-making; relationship building, problem solving amidst barriers and various stakeholder groups.
- EPLS:6319 (07B:319) Human Resources Leadership** 2 s.h.
Leadership theory and research of the superintendent's role of aligning human resources practice and increasing student achievement; employment law; contract negotiations process/collective bargaining; contract maintenance; recruiting, selecting, developing, and retaining employees; working with labor unions and Public Employee Relations Board; special education law; Evaluator 2 Training. Requirements: Evaluator 1 Training.
- EPLS:6321 (07B:321) Social Advocacy Summit** 1 s.h.
Summit format; challenges and opportunities in Iowa's K-12 schools with changing demographics; opportunity for K-12 school districts and higher education institutions to engage in conversation on how to meet the needs of students and local school districts.
- EPLS:6323 (07B:323) School Finance** 2 s.h.
Manage fiscal and physical resources; communicate effectively with internal and external audiences regarding school operations; comply with state and federal mandates and local board policies; align educational programs, plans, actions, and resources with the district vision and goals.
- EPLS:6325 (07B:325) Organizational and Educational Leadership** 2 s.h.
Facilitate connections of students and families to health and social services that support a focus on learning as a district level leader in a school district; collaboratively establish a culture that welcomes and honors families and community and seeks ways to engage them in students learning; AEA structure, compliance and regulatory functions including special education.
- EPLS:6329 (07B:329) Legislative Summit** 1 s.h.
Collaborate with families and community members, respond to diverse community interests and needs, and mobilize community resources as a district level leader in a school district; work with legislators, build advocacy groups in a community, engage stakeholders, how to lobby legislators and meet with local senate and house representatives to participate in lobbying.
- EPLS:6332 (07B:332) College Student Psychosocial and Identity Development** 3 s.h.
Theoretical models of psychosocial and identity development in college students; applications to student affairs work.
- EPLS:6333 (07B:333) Practicum** arr.
Small-scale research projects; supervised experience in planning, design, management, analysis, reporting of research activities; assignments to current and personal faculty research projects; student assumes major responsibility.
- EPLS:6334 (07B:334) College Student Learning, Cognitive, and Moral Development** 3 s.h.
Learning and development of college students; theoretical models of learning, cognitive development, moral development; applications to student affairs work.
- EPLS:6336 (07B:336) Impact of College on Students** 3 s.h.
Introduction to literature; career and economic returns, values and attitudes, learning and cognitive development, assessment and methodological issues of studying college outcomes. Prerequisites: EPLS:6206 (07B:206).
- EPLS:6358 (07B:358) Seminar in the Philosophy of John Dewey** 3 s.h.
John Dewey and education; extensive reading of the works of Dewey and of contemporary authors who comment on, interpret, or employ Deweyan philosophy. Prerequisites: EPLS:5158 (07B:158).
- EPLS:6370 (07B:370) Quantitative Methods for Policy Analysis** 3 s.h.
Methodological strategies for quantitative research; analysis of secondary data to investigate educational issues and policies; recoding variables, summation scaling and factor analysis, missing data, sample design and survey estimation, model building; implementation of linear and binary regression, regression diagnostics; hands-on experience conducting statistical analysis of social data. Prerequisites: PSQF:4143 (07P:143) and PSQF:6243 (07P:243).
- EPLS:6381 (07B:381) Analysis and Appraisal of Curriculum** 3 s.h.
Comprehensive investigation of systematic procedures and resources for identifying and evaluating essential features and constituent elements of a given school district's curricular offering; state and federal requirements of the curricular program; for persons in administration, curriculum, and supervision programs or positions.
- EPLS:6383 (07B:383) Supervision and Evaluation** 3 s.h.

Data collection and management skills; data-driven leadership; coaching and feedback techniques; teacher quality legislation; research and best practice regarding teacher evaluation, supervision; teaching standards.

EPLS:6400 (07B:400) Early Childhood Leadership Clinical 2-3 s.h.

Classroom instruction and supervised experience with problems in early childhood educational administration; organization, planning, evaluation, decision making.

EPLS:6401 (07B:401) Elementary Leadership Clinical 1-3 s.h.

Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting.

EPLS:6402 (07B:402) Secondary Leadership Clinical 1-3 s.h.

Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting.

EPLS:6403 (07B:403) Special Education Leadership Clinical 1-3 s.h.

Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting.

EPLS:6404 (07B:404) Central Administration Clinical 1-3 s.h.

Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting.

EPLS:6415 (07B:415) Orientation to the Superintendency: Clinical 2 s.h.

Clinical experience aligned with course topics and assignments in a K-12 school or other educational organization; development of a clinical plan with the guidance of a university professor and local school district mentor based on course requirements, career goals, and interests.

EPLS:6417 (07B:417) Operational Leadership Clinical 1 s.h.

Clinical experience aligned with course topics and assignments in the operational leadership course; completion of clinical in a K-12 school or other appropriate educational organization; development of a clinical plan based on course requirements, career goals, and student interests with guidance from a university professor and local school district mentor.

EPLS:6419 (07B:419) Human Resources Leadership Clinical 2 s.h.

Clinical experience aligned with course topics and assignments in the human resources leadership course; completion of clinical in a K-12 school or other appropriate educational organization; development of a clinical plan based on course requirements, career goals, and student interests with guidance from a university professor and local school district mentor.

EPLS:6425 (07B:425) Organizational and Educational Leadership Clinical 1 s.h.

Clinical experience aligned with course topics and assignments in the organizational and educational leadership course; completion of clinical in a K-12 school or other appropriate educational organization; development of a clinical plan based on course requirements, career goals, and student interests with guidance from a university professor and local school district mentor.

EPLS:7291 (07B:291) Administration of Educational Programs and Personnel 3 s.h.

Personnel and program planning examined against statements of educational purpose; interrelationships and internal consistencies of program and staff administration from perspectives of philosophy, psychology, learning theory, sociology, curriculum theory.

EPLS:7337 (07B:337) Theoretical Perspectives on Student Affairs Administration 3 s.h.

Issues and problems in student affairs administration; theories of organization, administration, leadership. Requirements: enrollment in educational policy and leadership studies Ph.D. program.

EPLS:7367 (07B:367) Seminar: Current Issues in Special Education Administration arr.

New developments in administration; new content each year. Prerequisites: EPLS:6236 (07B:236).

EPLS:7373 (07B:373) Qualitative Research Design and Methods 3 s.h.

Theory and practice of qualitative research design and methodology; exploratory field experience in collection and analysis of data; individual and focus group interviews, participant observation. Requirements: Ph.D. standing.

EPLS:7380 (07B:380) Practicum in College Teaching arr.

Supervised college teaching experience in courses related to major academic areas; collaboration with faculty course instructors.

EPLS:7385 (07B:385) Teaching and Learning in Higher Education 3 s.h.

Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as PSQF:7385 (07P:385), GRAD:7385 (650:385), EDTL:7385 (07S:384), RCE:7385 (07C:385).

EPLS:7392 (07B:392) Mixed Methods Research 3 s.h.

Introduction to mixed methods research in education; knowledge and skills necessary to conduct mixed methods study; history and language of mixed methods research; identification and processing arguments for and against mixed methods research; extend understanding of research in education; how to assess strengths and weaknesses of published mixed methods studies; investigation of one or more mixed methods research designs in depth; application of mixed methods research design to a research proposal. Prerequisites: EALL:5150 (07X:150). Requirements: formal introduction to quantitative and qualitative research methods, and familiarity with basic steps of research process. Recommendations: direct experience conducting research studies not required. Same as EDTL:7410 (07S:310).

EPLS:7395 (07B:395) Educational Specialist Research arr.

Individual instruction in the design, research, and writing of a research project of significant quality for upper-level graduate work.

EPLS:7431 (07B:431) Seminar: Research on College Students 3 s.h.

College student learning and development, outcomes, persistence. Requirements: enrollment in educational policy and leadership studies Ph.D. program.

EPLS:7432 (07B:432) Multicultural Initiatives 3 s.h.

Impact of culture, race, ethnicity, and intersection of identity in higher education, student affairs, and community agency settings; knowledge, skills, and competencies needed by teachers, student affairs professionals, social workers, counselors, and educational administrators to facilitate individual empowerment through relationships; focus on different ways to design multicultural initiatives to various professional work settings to promote diversity. Requirements: Ph.D. standing or advanced-level M.A. standing. Recommendations: introductory course on issues of race, culture, gender and/or any course on sociopolitical issues or structural oppression strongly recommended.

EPLS:7433 (07B:433) Current Issues in Higher Education and Student Affairs 3 s.h.

Current issues related to higher education; opportunity to clarify perspectives; review of literature in a particular area of interest; readings, class discussions, independent research, consultations with professionals in the field, student presentations. Requirements: higher education and student affairs Ph.D. standing.

EPLS:7444 (07B:444) Advanced Practicum in Student Affairs arr.

Supervised work experience in student affairs settings.

EPLS:7493 (07B:493) Ph.D. Thesis arr.

Supervision of research, design, and writing of Ph.D. thesis; individual instruction.

Multicultural Education and Culturally Competent Practice

Academic coordinator

- Diana Sproles

Graduate certificate: multicultural education and culturally competent practice

Web site: <http://ogi.grad.uiowa.edu/me-ccp-information>

The certificate program in multicultural education and culturally competent practice helps students develop culturally competent practice as they continue in their academic and professional careers. The program raises awareness of how worldview, values, beliefs, and biases shape the ways in which individuals and groups interact, interpret, and learn from each other. It is based on the need for a proactive and sustained approach to educational reform, advocacy, and social justice.

Graduate Program of Study

- Certificate in Multicultural Education and Culturally Competent Practice

Certificate

The Certificate in Multicultural Education and Culturally Competent Practice requires a minimum of 15 s.h. of graduate credit. Students must maintain a g.p.a. of at least 3.00 in all University of Iowa course work for the certificate. Completion of the certificate is noted on the student's transcript.

The certificate program is open to students who are enrolled in the University of Iowa Graduate College or who hold an undergraduate degree. Students must register on the certificate web site.

The Certificate in Multicultural Education and Culturally Competent Practice requires the following course work. Students may count 6 s.h. of work for their major program of study toward the certificate.

EALL:5000 (07X:140) Introduction to Multicultural Education and Culturally Competent Practice	3 s.h.
Approved electives	9 s.h.
Capstone course covering research and application in multiculturalism and cultural competent practice	3 s.h.

Online Teaching

Coordinator

- Kathy L. Schuh

Affiliated faculty

- George John Achrazoglou (Teaching and Learning), Stephen M. Alessi (Psychological and Quantitative Foundations/International Programs), Benjamin M. Devane (Psychological and Quantitative Foundations), Mitchell J. Kelly (Psychological and Quantitative Foundations), Joyce L. Moore (Psychological and Quantitative Foundations), Kathy L. Schuh (Psychological and Quantitative Foundations/International Programs), James R. Stachowiak (Rehabilitation and Counselor Education)

Graduate certificate: online teaching

The growth of online teaching presents a need to address course quality, instructor training, assessment of teaching effectiveness and student learning, and retention. The Certificate in Online Teaching is an online graduate program designed to prepare students for the realities of online teaching and to help them expand their career options.

Graduate Program of Study

- Certificate in Online Teaching

The Certificate in Online Teaching is administered by the Department of Psychological and Quantitative Foundations (p. 780) and is granted by the Graduate College.

Certificate

The Certificate in Online Teaching requires 12 s.h. of graduate credit and is offered completely online. The certificate program is open to students enrolled in University of Iowa graduate degree programs and to individuals who are enrolled in the Graduate College as nondegree students. Completion of the certificate is noted on the student's transcript.

The certificate program develops students' skills in using technology to solve instructional problems associated with distance and time and to enhance learning environments. The certificate's online format uses the techniques and approaches that the program teaches.

The certificate requires the following course work.

PSQF:6205 (07P:205) Design of Instruction	3 s.h.
PSQF:6215 (07P:215) Web-Based Learning	3 s.h.
PSQF:6216 (07P:216) Tools and Utilities for Online Teaching	3 s.h.
A universal design and accessibility for online instruction course	3 s.h.

Psychological and Quantitative Foundations

Chair

- Timothy N. Ansley

Professors

- Elizabeth M. Altmaier, Susan Assouline, Robert Brennan, Sam V. Cochran, Stephen B. Dunbar, Stewart W. Ehly, Michael J. Kolen, William M. Liu, Thomas R. Rocklin, Walter P. Vispoel, Catherine J. Welch, John S. Westefeld, Donald B. Yarbrough

Associate professors

- Stephen M. Alessi, Saba Ali, Robert D. Ankenmann, Timothy N. Ansley, Clara Baldus, Kathryn C. Gerken, Mitchell Kelly, Won-Chan Lee, Kristen Missall, Joyce L. Moore, Karen Nelson, Megan Foley Nicpon, John Northup, Kathy L. Schuh

Assistant professors

- Brandon LeBeau, Benjamin DeVane, Todd Kopelman

Adjunct professors

- Moon-Kwon Jun, Paula Keeton, Stacey Pawlak, Ann Shoplik

Adjunct associate professor

- E. James Maxey

Adjunct assistant professors

- Audrey S. Bahrack, Sheila Barron, Melissa Chapman-Hayes, Heather M. Cochran, Julie Corkery, Jason Drwal, Deborah J. Harris, Sally Hartman, Dau-Shen Ju, Valerie J. Keffala, Maureen Marron, Robert F. Musson, Carissa Nehl, Daniel R. Orme, Amy Stockman, Doris J. Stormoen, Wendy A. VanVoorst, Tammy Wilgenbusch, Kevin Wood

Adjunct instructor

- Scott Liu

Professors emeriti

- Robert A. Forsyth, David A. Frisbie, Hiram D. Hoover, David F. Lohman, Lowell A. Schoer

Undergraduate minor: educational psychology

Graduate degrees: M.A. in psychological and quantitative foundations; Ed.S. in psychological and quantitative foundations; Ph.D. in psychological and quantitative foundations

Web site: <http://www.education.uiowa.edu/pq>

The Department of Psychological and Quantitative Foundations offers programs in four areas: counseling psychology, educational measurement and statistics, educational psychology, and school psychology. These programs have two general goals: to help students acquire the knowledge and skills necessary to function effectively in settings that require the application of psychological and quantitative principles; and to extend knowledge and understanding of the teaching/learning process as it occurs in a variety of settings. The department's degree programs incorporate both goals, but the Master of Arts and Specialist in Education programs emphasize the first

goal, and the Doctor of Philosophy programs emphasize the second.

Undergraduate Program of Study

- Minor in educational psychology

In addition to offering a minor for undergraduates, the department offers a course that is approved for the Quantitative or Formal Reasoning area of the College of Liberal Arts and Sciences General Education Program (p. 323), PSQF:1020 (07P:025) Elementary Statistics and Inference.

Minor

The minor in educational psychology is open to all College of Liberal Arts and Sciences students enrolled in an undergraduate degree program. The minor provides an enriched background in educational psychology, education testing, and research methods in education. It does not lead to certification for public school teaching. Students earning the minor select a department advisor, who helps them choose appropriate course work.

The minor in educational psychology requires 15 s.h., including 12 s.h. earned at The University of Iowa and 12 s.h. earned courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.50 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Transfer credit must be approved in order to count toward the minor.

Course work for the minor must include 15 s.h. selected from the following list.

PSQF:1075 (07P:075) Educational Psychology and Measurement	3 s.h.
PSQF:4106 (07P:106) Child Development	3 s.h.
PSQF:4111 (07P:111) Motivation	3 s.h.
PSQF:4120 (07P:120) Psychology of Giftedness	3 s.h.
PSQF:4130 (07P:130) Early Adolescent Development	3 s.h.
PSQF:4133 (07P:133) The Adolescent and Young Adult	3 s.h.
PSQF:4134 (07P:134) Parent-Teacher Communication	1-3 s.h.
PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.
PSQF:4150 (07P:150) Introduction to Educational Measurement	3-4 s.h.
PSQF:5165 (07P:165) Introduction to Program and Project Evaluation	3 s.h.
PSQF:6203 (07P:203) Learning, Technology, and Effective Teaching	3 s.h.
PSQF:6205 (07P:205) Design of Instruction	3 s.h.

Contact the Office of Education Services for more information about the minor.

Graduate Programs of Study

- Master of Arts in psychological and quantitative foundations
- Specialist in Education in psychological and quantitative foundations
- Doctor of Philosophy in psychological and quantitative foundations

The department offers graduate degree programs in four major areas within psychological and quantitative foundations:

Counseling psychology (offered in the Ph.D.);
Educational measurement and statistics (offered in the M.A. and Ph.D.);
Educational psychology (offered in the M.A. and Ph.D.);
and
School psychology (offered in the Ed.S. and Ph.D.).

Each program is described below.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

REQUIRED PH.D. RESEARCH COURSES

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

Ph.D.: Counseling Psychology

The Doctor of Philosophy program in counseling psychology requires a minimum of 111 s.h. of graduate credit. All students must study full time. The program is fully accredited by the American Psychological Association.

The Ph.D. program's goal is to prepare counseling psychologists who will promote psychology as a science and contribute to the advancement of the profession. The faculty endorses a scientist/practitioner model of training and expects students to become competent researchers and proficient practitioners. Graduates find positions in a variety of settings, including higher education, counseling centers, clinics, private practice settings, and hospitals.

Students in the program must show appropriate levels of emotional balance and interpersonal skills and act within the American Psychological Association Ethical Principles of Psychologists. For more information, contact the program director.

The Ph.D. program in counseling psychology requires the following work.

BASIC PSYCHOLOGY

All students are required to have a thorough grounding in the basic discipline of psychology. This may be achieved through a minimum of 3 s.h. of credit in each of the following four areas: biological bases of behavior, cognitive-affective bases of behavior, social bases of behavior, and history and systems. Students complete an additional 6 s.h. in the area of individual differences.

REQUIRED PH.D. RESEARCH COURSES

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at

Ph.D. Research Requirements. Course selections must be consistent with the requirements listed under "Statistics and Research Design" below.

STATISTICS AND RESEARCH DESIGN

This course:

PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.
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And one of these:

PSQF:6244 (07P:244) Correlation and Regression	4 s.h.
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PSQF:6246 (07P:246) Design of Experiments	4 s.h.
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COUNSELING PSYCHOLOGY CORE

All of these:

PSQF:6223 (07P:223) & PSQF:6225 (07P:225) Introduction to Counseling Psychology Practice/Research I-II	6 s.h.
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PSQF:6235 (07P:235) Multicultural Counseling	3 s.h.
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PSQF:7305 (07P:305) Psychotherapy I: Dynamic and Phenomenological Approaches	3 s.h.
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PSQF:7306 (07P:306) Psychotherapy III: Work Psychology and Career Interventions	3 s.h.
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PSQF:7309 (07P:309) Personality Assessment	3 s.h.
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PSQF:7310 (07P:310) Intelligence Assessment	3 s.h.
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PSQF:7356 (07P:356) Process and Outcomes in Counseling Psychotherapy	3 s.h.
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PSQF:7365 (07P:365) Psychotherapy II: Cognitive and Behavioral Approaches	3 s.h.
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PSQF:7434 (07P:434) Practicum in Counseling Psychology	3 s.h.
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PSQF:7452 (07P:452) Leadership, Consultation, and Supervision	3 s.h.
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PSQF:7453 (07P:453) Advanced Practicum in Counseling Psychology (repeatable)	1-3 s.h.
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PSQF:7465 (07P:465) Issues and Ethics in Professional Psychology	3 s.h.
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Students must enroll in practicums to reach a specified level of client contact, supervision, and additional experience hours. The first practicum's site typically is University Counseling Service. Subsequent placements at other sites must have prior approval of the counseling psychology faculty. Students must successfully complete one semester of PSQF:6299 (07P:299) M.A. Project: The Portfolio before enrolling in PSQF:7453 (07P:453) Advanced Practicum in Counseling Psychology.

ELECTIVES

Elective courses are determined in collaboration with the major advisor.

INTERNSHIP

Students spend a calendar year in an internship setting approved by the counseling psychology faculty. The faculty determines student readiness to apply for the internship based on completion of all or almost all required course work, satisfactory progress toward completion of the portfolio requirement, and successful completion of practicum requirements. Internships usually require geographic relocation.

COMPREHENSIVE EXAM AND DISSERTATION

Comprehensive examinations are written in counseling psychology ethics and issues. The comprehensive examination is structured as a component of the portfolio review. For more information, contact the program coordinator.

The dissertation research study is planned in collaboration with the doctoral student's major advisor. Dissertation credit ranges from 12 to 15 s.h.

ADMISSION

Applicants to the Ph.D. program in counseling psychology must meet the admission requirements of the Graduate College. Preference is given to applicants who have an undergraduate g.p.a. above 3.00 and a graduate g.p.a. above 3.50; an undergraduate major, minor, or substantial course work in psychology; a Graduate Record Examination (GRE) General Test verbal score of 152 or higher, quantitative score of 151 or higher, and analytical writing score of 3.5 or higher; and previous research and counseling experience.

Application materials must include a Graduate College application form; official transcripts of all previous college work; an official report of GRE General Test scores (the GRE advanced test in psychology is recommended but not required); a personal statement outlining career goals and reasons for seeking advanced training in counseling psychology; and three letters of recommendation from individuals qualified to assess the applicant's potential for completing the doctoral program. The faculty encourages applications from minorities, women, and persons from a wide range of backgrounds and academic preparation. The program typically accepts between five and eight students each year.

Students begin the program in fall. Application deadline is December 1; admission decisions usually are made by March 1. Applicants are invited to campus for interviews before final selection.

M.A.: Educational Measurement and Statistics

The Master of Arts program in educational measurement and statistics requires a minimum of 30 s.h. of graduate credit with thesis and 32 s.h. of graduate credit without thesis. The program provides students with basic knowledge of educational measurement and research methodology. Graduates find employment in large school systems, state departments of education, test publishing organizations, and research centers. The program also is appropriate for students who wish to broaden their knowledge of measurement and research methodology for personal development or professional improvement.

All M.A. students must complete a core of courses (approximately 26 s.h.) that includes a graduate-level survey course in educational psychology, elementary and intermediate courses in statistical methods, a course in educational research methodology, and courses in the development and use of evaluation instruments. Students who already have completed equivalent courses at another institution may add more advanced courses to the core.

Thesis students complete 2 s.h. of additional course work beyond the core and earn 2-4 s.h. of thesis credit.

Nonthesis students complete 6 s.h. of additional course work beyond the core.

The six-hour comprehensive examination typically includes three-hour examinations in educational measurement and in applied statistics. With the approval of the M.A. committee, a student may take two-hour examinations in these fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations assume a minimum of three courses in the area; two-hour examinations assume a minimum of two courses in the area.

ADMISSION

Applicants to the M.A. program in educational measurement and statistics must meet the admission requirements of the Graduate College. They should have a combined verbal and quantitative score of at least 300 on the Graduate Record Examination (GRE) General Test. Completion of at least one college mathematics course and experience as a teacher or researcher are desirable. Applicants who do not meet these requirements but who show offsetting evidence of superior ability may be granted conditional admission.

Applicants must submit a statement of purpose that explains how the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

Ph.D.: Educational Measurement and Statistics

The Doctor of Philosophy program in educational measurement and statistics requires a minimum of 90 s.h. of graduate credit. The program prepares students for senior professional positions in educational measurement, evaluation, and statistical methods. Graduates find employment in colleges and universities, state and federal agencies, large public and private school systems, test publishing firms, and research centers.

During the first year of graduate study, the student and his or her advisor plan a program of study appropriate for the student's interests and vocational objectives. The typical program involves advanced work in educational measurement, data analysis methods, research methodology, and educational psychology. Work in other University of Iowa departments is encouraged.

Students who concentrate in statistics and intend to teach at the college level take courses in the mathematical theory of statistics. Those who concentrate in educational measurement and evaluation take appropriate courses in curriculum, counseling, or higher education.

All students are required to develop familiarity with computer programming techniques and equipment.

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

Students who enter the program without completing an M.A. thesis must complete a substitute project before taking the Ph.D. comprehensive examinations.

After completing most of their course work, students take the comprehensive examination, which typically consists of three 3-hour written examinations on educational measurement, applied statistics, and program evaluation, or approved substitute areas, such as educational psychology or mathematical statistics, in which the student has completed at least 9 s.h. of course work. In place of one written examination, the student's committee may assign a project involving analytical and evaluative skills, or research creativity. The written examinations are followed by an oral examination in which the committee seeks further evidence of the student's command of the three fields. A single decision is made on all aspects of the comprehensive examination.

Work for the Ph.D. concludes with the dissertation, which is included in the 90 s.h. required for the degree.

ADMISSION

Applicants to the Ph.D. program in educational measurement and statistics must meet the admission requirements of the Graduate College. They must have a combined verbal and quantitative score of at least 300 on the Graduate Record Examination (GRE) General Test. They also must hold an M.A. from an accredited institution. At least one year of professional experience in teaching, research, or a related field is desirable. Applicants who expect to concentrate in statistics should have training in college mathematics through differential and integral calculus. Applicants who do not meet these requirements but who show offsetting evidence of superior ability may be granted conditional admission.

Applicants must submit a statement of purpose that explains how the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

M.A.: Educational Psychology

The Master of Arts program in educational psychology requires a minimum of 30 s.h. of graduate credit. It is designed to help students become more effective practitioners by enhancing their ability to make responsible and creative decisions about how to help all of their students learn. By providing an evidence-based perspective on instructional approaches that work, it also addresses the emphasis on teachers' accountability for choosing empirically supported approaches.

The program is intended for working educators. Many of its courses are offered in late afternoons, evenings, and summers.

M.A. students develop a program of study in consultation with their advisors. Each student's progress is evaluated by the faculty after one academic year (two semesters) of study and during subsequent years.

Full-time students typically take at least 9 s.h. each semester, with the option of additional summer session work; they usually complete the program in four semesters. Part-time M.A. students take 3-6 s.h. each

semester; they usually complete the degree in two or three years.

Students complete a required common core of courses, select additional educational psychology courses and electives appropriate to their professional goals, and complete a portfolio project. The two core courses, which are taken during the first year, prepare students for the M.A. program: EALL:5150 (07X:150) Introduction to Educational Research focuses on principles of empirical educational research; PSQF:6221 (07P:221) Educational Psychology for Effective Teaching introduces students to a broad sampling of topics in educational psychology (e.g., development, cognition, motivation). Also during the first year, students begin their portfolios, which they continue to build throughout the program and complete during their final M.A. semester.

Students may apply to substitute equivalent course work from another institution or department for required or recommended courses.

CORE COURSES

Both of these:

PSQF:6221 (07P:221) Educational Psychology for Effective Teaching	3 s.h.
EALL:5150 (07X:150) Introduction to Educational Research	3 s.h.

EDUCATIONAL PSYCHOLOGY COURSES

Five of these:

PSQF:4106 (07P:106) Child Development	3 s.h.
PSQF:4111 (07P:111) Motivation	3 s.h.
PSQF:6203 (07P:203) Learning, Technology, and Effective Teaching	3 s.h.
PSQF:6205 (07P:205) Design of Instruction	3 s.h.
PSQF:6208 (07P:208) Designing Educational Multimedia	3 s.h.
PSQF:6281 (07P:281) Cognitive Theories of Learning	3 s.h.
PSQF:6301 (07P:301) Human Abilities	3 s.h.

ELECTIVES

Students select two electives (6 s.h.) based on their interests and in consultation with their advisors. Electives typically are chosen from areas outside educational psychology.

PORTFOLIO PROJECT

The program's capstone project is a portfolio. Students enroll in PSQF:6299 (07P:299) M.A. Project: The Portfolio (3 s.h.) during their final M.A. semester. The goal of the portfolio is to show how understanding and practical application of educational psychology can help the student become a more effective educator.

The portfolio is a creative and highly individual project. Each student's portfolio reflects his or her own unique learning and synthesis of knowledge. Students begin building the portfolio during their first year, making an entry as they complete each course throughout the M.A. program. Portfolio entries vary widely. For example, the entry for a technology course might include a web site the student developed for the course, while the entry for a development course might detail an intervention program

the student constructed to address problems of student aggression.

During enrollment in PSQF:6299 (07P:299) M.A. Project: The Portfolio, the student revises and adds to his or her portfolio and then presents the portfolio to a group of faculty and students.

ADMISSION

Applicants to the M.A. program in educational psychology must meet the admission requirements of the Graduate College, including minimum grade-point average. Viable applicants have a verbal score of at least 146 and a quantitative score of at least 149 on the Graduate Record Examination (GRE) General Test; successful applicants usually score higher. International applicants whose first language is not English must submit acceptable scores on the Test of English as a Foreign Language (TOEFL). Teaching experience is desirable but not required.

Application deadline for fall semester entry is January 1. Review of applications for fall semester begins February 1, when applicants who wish to be considered for fellowships and other awards are screened. Application deadline for spring semester entry is October 1. Admission decisions are announced approximately six weeks after the application deadlines.

Applicants who accept admission or financial aid and do not relinquish either one on or before April 15 are committed not to solicit or accept another offer. Offers made by the program after April 15 include the provision that the offer is void if the applicant has accepted and continues to hold a previous offer from another program listed in the American Psychological Association publication *Graduate Study in Psychology and Associated Fields*. This policy is consistent with standards set by the association's Board of Educational Affairs.

Ph.D.: Educational Psychology

The Doctor of Philosophy program in educational psychology requires a minimum of 72 s.h. of graduate credit. It is designed to help students master the core content and methods of educational psychology and acquire the depth of knowledge and methodological sophistication necessary for original research that contributes to the discipline.

Students develop a plan of study in consultation with their advisors. Those who begin the program after earning a master's degree or with course work from another program may be able to waive some of the Ph.D. program's requirements.

Students who enter the Ph.D. program without having completed an M.A. thesis are required to complete an independent research course sequence and its assigned research project during their first or second year. Students who have completed an empirical M.A. thesis that is acceptable to the faculty may omit the independent research sequence and second-year project.

Some of the program's required courses encompass substantive areas within educational psychology. Other required courses include a research practicum, in which students assist with and eventually design and carry out original research, and several courses in measurement and statistics.

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research

during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements. Course selections must be consistent with the courses required for the Ph.D.

Students are reviewed annually by the faculty. Students must complete a second-year project by the end of their second academic year in the program. Those who do not fulfill this requirement or who otherwise fail to make satisfactory progress may be required to withdraw.

The Ph.D. program in educational psychology requires the following work.

REQUIRED COURSES

All of these (or equivalents):

PSQF:6200 (07P:200) Educational Psychology	3 s.h.
PSQF:6205 (07P:205) Design of Instruction	3 s.h.
PSQF:6220 (07P:220) Quantitative Educational Research Methodologies	3 s.h.
PSQF:6230 (07P:230) Research in Educational Psychology (taken second year of program)	1-3 s.h.
PSQF:6257 (07P:257) Educational Measurement and Evaluation	3 s.h.
PSQF:6281 (07P:281) Cognitive Theories of Learning	3 s.h.
PSQF:6301 (07P:301) Human Abilities	3 s.h.
PSQF:7331 (07P:331) Seminar: Educational Psychology I--Current Topics	3 s.h.
PSQF:7493 (07P:493) Ph.D. Thesis in Psychological and Quantitative Foundations (minimum requirement)	10 s.h.
EALL:5150 (07X:150) Introduction to Educational Research (taken during first year in program)	3 s.h.

RECOMMENDED COURSES

All of these:

PSQF:6208 (07P:208) Designing Educational Multimedia	3 s.h.
PSQF:6215 (07P:215) Web-Based Learning	3 s.h.
PSQF:6265 (07P:265) Program Evaluation	3 s.h.
PSQF:6275 (07P:275) Constructivism and Design of Instruction	3 s.h.

ELECTIVES

At least two of these (or equivalents):

PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.
PSQF:6244 (07P:244) Correlation and Regression	4 s.h.
PSQF:6245 (07P:245) Applied Multivariate Analysis	3 s.h.
PSQF:6246 (07P:246) Design of Experiments	4 s.h.
PSQF:6247 (07P:247) Nonparametric Statistical Methods	3 s.h.
PSQF:6252 (07P:252) Introduction to Multivariate Statistical Methods	3 s.h.

MINOR AREA

Students must complete a minimum of 12 s.h. that constitute a coherent program of course work outside educational psychology and beyond the courses listed above. The minor area may be from a foundation discipline, such as psychology, or in another area of education, such as mathematics education, educational philosophy, or program evaluation. Courses must be numbered 5000 or above, may span departments and colleges, and must be consistent with a plan approved by the student's advisor.

SECOND-YEAR RESEARCH PROJECT

As part of their participation in PSQF:6230 (07P:230) Research in Educational Psychology, Ph.D. students are required to complete a research project of modest scope under the direction of a faculty member. They must present the work in both oral and written form to the program's faculty and students. The written report must be completed by the end of the student's second academic year in the program.

Students who enter the Ph.D. program holding an M.A. or M.S. with an acceptable empirical thesis are exempt from PSQF:6299 (07P:299) M.A. Project: The Portfolio and the research project.

COMPREHENSIVE EXAMINATION

The Ph.D. comprehensive examination emphasizes competence and depth in one or more narrowly defined areas of research and theory. The examining committee is made up of five faculty members. In consultation with their advisor, students choose from three options for the examination: a review article, an extended research activity, or a traditional comprehensive examination. For details of each option's requirements, visit Educational Psychology on the department's web site.

ADMISSION

Applicants to the Ph.D. program in educational psychology must meet the admission requirements of the Graduate College, including minimum grade-point average. Viable applicants have a verbal score of at least 150 and a quantitative score of at least 152 on the Graduate Record Examination (GRE) General Test; successful applicants usually score higher. International applicants whose first language is not English must submit acceptable scores on the Test of English as a Foreign Language (TOEFL). Applicants who do not meet all admission requirements may be granted conditional admission on the basis of other evidence, such as high grade-point average, strong academic preparation, and highly supportive recommendations. Conditional admission is rare.

Admission is for fall entry. Application deadline is January 1; late applications might not be considered. Review of applications begins February 1, when applicants who wish to be considered for fellowships and other awards are screened. Admission decisions are announced approximately six weeks after the application deadline.

Applicants who accept admission or financial aid and do not relinquish either one on or before April 15 may not solicit or accept another offer. Offers made by the program after April 15 include the provision that the offer is void if the applicant has accepted and continues to hold a previous offer from another program listed in the American Psychological Association publication *Graduate Study in Psychology and Associated Fields*. This policy is

consistent with standards set by the association's Board of Educational Affairs.

Ed.S.: School Psychology

The department's school psychology program focuses on the Doctor of Philosophy degree; admission is granted only to the Ph.D. program. Doctoral students may be granted a Specialist in Education degree once they complete the Ed.S. requirements.

The Educational Specialist program in school psychology requires a minimum of 60 s.h. of graduate credit. The program provides course work and supervised field experience in education and psychology, enabling graduates to qualify for Iowa licensure as school psychologists (State of Iowa Endorsement 236).

The curriculum includes courses in psychological foundations, psychoeducational foundations, school psychology, and research methods. Other requirements include a written comprehensive examination and a research paper prepared in conjunction with PSQF:7342 (07P:342) Research Project in School Psychology (1-6 s.h.).

Ph.D.: School Psychology

The Doctor of Philosophy program in school psychology requires a minimum of 125 s.h. of graduate credit. The program is fully accredited by the American Psychological Association.

The program's goal is to prepare doctoral-level school psychologists who will promote psychology as a science and contribute to the advancement of the profession. The faculty endorses a scientist/practitioner model of training and expects students to become competent researchers and proficient practitioners.

Ph.D. students develop a plan of study in consultation with their academic advisors. All students are required to have a thorough grounding in the basic discipline of psychology, which may be achieved through earning a minimum of 3 s.h. of credit in each of the following areas: biological bases of behavior, cognitive/affective bases of behavior, social bases of behavior, individual differences, and history and systems.

Students are required to complete yearly portfolio reviews, which include oral examinations; carry out a preliminary dissertation research project equivalent in scope to an M.A. thesis; participate in an internship; and complete a doctoral dissertation, earning a minimum of 10 s.h. in PSQF:7493 (07P:493) Ph.D. Thesis in Psychological and Quantitative Foundations.

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements. Course selections must be consistent with other course requirements for the Ph.D.

The following courses constitute the school psychology core.

PSQF:6238 (07P:238) Assessment of Learning Differences (taken with PSQF:7237)	3-4 s.h.
PSQF:6251 (07P:251) Individual Intelligence Testing (taken with PSQF:7237)	3 s.h.

PSQF:6263 (07P:263) Consultation Theory and Practice (taken with PSQF:7337)	3 s.h.
PSQF:7224 (07P:224) Introduction to School Psychology Practice	3 s.h.
PSQF:7237 (07P:237) Beginning Practicum in School Psychological Service (minimum 150 hours)	3 s.h.
PSQF:7313 (07P:313) Psychopathology in Childhood	3 s.h.
PSQF:7315 (07P:315) Social and Emotional Assessment of Children and Adolescents	3 s.h.
PSQF:7337 (07P:337) Advanced Practicum in School Psychology (minimum 750 hours)	12 s.h.
PSQF:7352 (07P:352) Seminar: Behavioral Assessment and Evaluation	3 s.h.
PSQF:7367 (07P:367) Social Psychology and Social Systems	3 s.h.
PSQF:7380 (07P:380) Practicum in College Teaching (optional)	1-3 s.h.
PSQF:7390 (07P:390) Supervision of School Psychology Practicum/Internship	1 s.h.
PSQF:7437 (07P:437) Internship in School Psychology (one year full-time or two years half-time, total of 1800 hours)	3 s.h.
EALL:5150 (07X:150) Introduction to Educational Research (taken during first year in program)	3 s.h.

Program course work in evaluation is required.

Students must enroll in practicums to reach a specified level of client contact, supervision, and additional experience hours. Placements must have prior approval of the school psychology faculty. Students must successfully complete one semester of PSQF:7237 (07P:237) Beginning Practicum in School Psychological Service before enrolling in PSQF:7337 (07P:337) Advanced Practicum in School Psychology. Students must adhere to the most recent ethical principles and standards of the American Psychological Association.

ADMISSION

Applicants to the Ph.D. program in school psychology must meet the admission requirements of the Graduate College. Preference is given to applicants with an undergraduate major in psychology or education and a g.p.a. above 3.00. A combined verbal and quantitative score of 308 or higher and an analytic writing score of 4 or higher on the Graduate Record Examination (GRE) General Test are recommended but not required. The faculty also encourages applications from individuals with an M.A. or Ed.S. and experience as psychologists or other human service providers.

Applications must include three letters of recommendation, a personal statement of interest and goals, and a writing sample. Complete application materials, including transcripts and test scores, must be received by January 1 to be considered for fall semester admission. Admission decisions usually are made by March 15. The program admits from six to eight students each year.

Courses

Lower-Level Undergraduate

Students may receive credit for only two of these three courses: STAT:1010 (22S:002) Statistics and Society, STAT:1020 (22S:025) Elementary Statistics and Inference [same as PSQF:1020 (07P:025) Elementary Statistics and Inference], and STAT:1030 (22S:008) Statistics for Business. Credit for STAT:1010 (22S:002) Statistics and Society is given only if the course is taken before STAT:1020 (22S:025) Elementary Statistics and Inference [same as PSQF:1020 (07P:025) Elementary Statistics and Inference] or STAT:1030 (22S:008) Statistics for Business.

PSQF:1020 (07P:025) Elementary Statistics and Inference 3 s.h.

Graphing techniques for presenting data, descriptive statistics, correlation, regression, prediction; logic of statistical inference, elementary probability models, estimation and tests of significance. Requirements: one year of high school algebra or MATH:0100 (22M:001). GE: Quantitative or Formal Reasoning. Same as STAT:1020 (22S:025).

PSQF:1026 (07P:026) Mindfulness: Being Here With It All 2 s.h.

Training in Mindfulness-Based Stress Reduction; application to dealing with life changes (i.e., transition to University life); navigating daily life (academics, roommates, schedules); improving academic skills; self-regulation of emotions; questions of meaning and purpose. Same as CSI:1000 (407:025).

PSQF:1027 (07P:027) Mindfulness Foundations in the Helping Professions 3 s.h.

Training in Mindfulness-Based Practices; application to personal and professional life.

PSQF:1029 (07P:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

PSQF:1075 (07P:075) Educational Psychology and Measurement 3 s.h.

Principles and classroom applications of cognitive and social development, learning and cognition, motivation, and assessment.

PSQF:2115 (07P:115) Introduction to Counseling Psychology 3 s.h.

Historical and philosophical foundations of counseling psychology; theories, application, and work of counseling psychologists.

PSQF:2116 (07P:116) Applied Child and Adolescent Psychology 3 s.h.

Overview of child and adolescent development, psychopathology, and basic-level intervention; foundation for working in applied child and adolescent mental health settings; typical areas of psychological difficulty, including developmental disorders, ADHD, depression, anxiety, substance use; contextual and environmental factors, including abuse, poverty, neglect.

Upper-Level Undergraduate and Graduate

- PSQF:3028 (07P:114) Mindfulness for Educators: Psychological Foundations, Applications, and Practices** 1-2 s.h.
Exploration of research-based implications for teaching, learning, and daily living; skillful engagement of demands educators face in personal and professional lives; mindfulness as paying attention in present moment and relating wisely to what is occurring; specific mindfulness practices that integrate awareness into daily living; how research and program evaluations throughout the world document that consistent practice of mindfulness improves attention and concentration; ability to respond skillfully to stress, self-regulation of emotion, physical and mental health, communication, life satisfaction.
- PSQF:3103 (07P:103) Early Childhood Guidance** 4 s.h.
Effective communication, understanding child development and behavior, appropriate limits and rules, structuring problem solving and consequences, fostering self control, organizing classroom environment and curriculum to support child behavior, methods to address persistent and challenging behaviors; nurturance and child guidance via parenting, child rearing practices, and child-family relations.
- PSQF:3104 (07P:104) Multicultural Issues in Counseling and Psychology** 3 s.h.
Introduction to multicultural competencies and its importance to counseling, psychology, and helping professions; psychological concepts and research pertaining to privilege; racism, race, culture, sexual orientation, social class and classism, and their application in culturally adapted psychotherapy interventions; how these matters and other cultural identities and constructs are handled and used in applied psychology and counseling; focus on intersection of research and practice.
- PSQF:4081 (07P:181) ePortfolio Production** 1-2 s.h.
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Requirements: able to perform basic computer functions and use a World Wide Web browser. Same as EALL:4081 (07X:181), EDTL:4081 (07E:181), RCE:4081 (07C:181), EPLS:4081 (07B:181).
- PSQF:4106 (07P:106) Child Development** 3 s.h.
Theories and research findings about typical course of child development, differences in development. Requirements: junior standing.
- PSQF:4111 (07P:111) Motivation** 3 s.h.
Principles of motivation and their application to applied settings, especially to the classroom as teachers try to motivate students. Requirements: junior standing.
- PSQF:4120 (07P:120) Psychology of Giftedness** 3 s.h.
Theories of learning, child development, motivation; issues unique to gifted education. Same as RCE:4120 (07C:120).
- PSQF:4121 (07P:121) Identification of Students for Gifted Programs** 3 s.h.
Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for grades K-12; ability, aptitude, achievement tests; current issues in the uses of various instruments. Same as RCE:4121 (07C:121).
- PSQF:4122 (07P:122) Math Programming for High Ability Students** 1 s.h.
Unique challenges and opportunities confronted by teachers of high-ability students; theory and practice, development of program outlines for implementation. Same as EDTL:4022 (07S:122).
- PSQF:4123 (07P:123) Academic Acceleration: Providing Excellence and Equity in Education for High Ability Students** arr.
Acceleration as an effective curricular intervention for high-ability students; forms of acceleration, research evidence for acceleration, and process of implementing acceleration; reasons for persistent negative attitudes about acceleration; advocacy for acceleration; skills for effective practice and implementation. Requirements: computer with internet access, sound card, Adobe Reader, and Adobe Flash Player.
- PSQF:4125 (07P:125) Counseling and Psychological Needs of the Gifted** 1 s.h.
Psychological aspects of giftedness, counseling techniques appropriate for gifted children, adolescents; socio-emotional concerns, career development, underachievement. Same as RCE:4125 (07C:125).
- PSQF:4126 (07P:126) Cognitive and Affective Needs of Underachieving Gifted** 1 s.h.
Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as RCE:4126 (07C:126).
- PSQF:4127 (07P:127) Research and Theory in Talent/Giftedness** 1 s.h.
Biennial research symposium. Same as RCE:4127 (07C:127).
- PSQF:4128 (07P:128) Neuroscientific Implications for Gifted** 1 s.h.
Neurology of behavior and neurodegenerative disease; the psychology of learning and memory, its application to gifted education.
- PSQF:4129 (07P:129) Creativity: Issues and Applications in Gifted Education** 1 s.h.
Theories that underpin contemporary definitions of creativity; instruments developed to measure creativity; activities in the school environment that enhance or inhibit student creativity. Same as RCE:4129 (07C:129).
- PSQF:4130 (07P:130) Early Adolescent Development** 3 s.h.

Psychological growth and development of the early adolescent (ages 10-14), including the physical, cognitive, social, emotional, and sexual development of the middle-school aged child.

PSQF:4133 (07P:133) The Adolescent and Young Adult 3 s.h.

Psychological and social aspects of adolescence and young adulthood; emphasis on theory, research, and practical applications.

PSQF:4134 (07P:134) Parent-Teacher Communication 1-3 s.h.

Realities of working with parents; interpersonal skills; options for parent support services. Same as EDTL:4934 (07U:134).

PSQF:4136 (07P:136) Home/School/Community Partnerships 3 s.h.

Issues related to collaboration among families, educators, community members in implementing school programs. Same as EDTL:4936 (07U:136).

PSQF:4143 (07P:143) Introduction to Statistical Methods 3 s.h.

Analysis, interpretation of research data; descriptive statistics; introduction to probability, sampling theory, statistical inference (binomial, normal distribution, t-distribution models); linear correlation, regression. Same as STAT:4143 (22S:102).

PSQF:4150 (07P:150) Introduction to Educational Measurement 3-4 s.h.

Test development procedures, reliability, validity, item writing, evaluation of item and test characteristics; classroom assessment methods; interpretation of scores from standardized achievement and aptitude tests; no background in statistics assumed.

PSQF:4520 (07P:148) Bayesian Statistics 3 s.h.

Bayesian statistical analysis, with focus on applications; Bayesian and frequentist methods compared; Bayesian model specification, choice of priors, computational methods; hands-on Bayesian data analysis using appropriate software; interpretation and presentation of analysis results. Prerequisites: STAT:3100 (22S:130) and STAT:3101 (22S:131), or STAT:3120 (22S:120), or STAT:4100 (22S:153) and STAT:4101 (22S:154); and STAT:3200 (22S:152). Same as STAT:4520 (22S:138).

Graduate

PSQF:5165 (07P:165) Introduction to Program and Project Evaluation 3 s.h.

Skills and knowledge required for conducting evaluations of products, projects, and programs; recent scholarship on evaluation and project management. Same as EPLS:5165 (07B:165).

PSQF:5193 (07P:193) Special Readings and Projects arr.

Supervised individual study. Requirements: senior standing.

PSQF:5194 (07P:194) Continuing Education Individual Study arr.

Supervised individual study.

PSQF:5199 (07P:199) Topical Workshop in Psychological and Quantitative Foundations arr.

School, educational, and counseling psychology and allied disciplines; for professionals and graduate students in education, mental health, social services, related fields.

PSQF:5218 (07P:218) Foundations of School Psychology 3-4 s.h.

Introduction to field of school psychology; becoming competent practitioners and leaders in school and community settings; roles and functions of school psychologists; ethical standards and issues in the profession of psychology; legal issues involved in practice of school psychology; current topics and trends. Corequisites: PSQF:7224 (07P:224).

PSQF:5226 (07P:226) Assessment of Giftedness 3 s.h.

Training and practice in assessment of gifted children. Same as RCE:5226 (07C:226).

PSQF:6200 (07P:200) Educational Psychology 3 s.h.

Psychology of the learning/instruction process: theoretical perspectives on learning, instruction, motivation, and assessment; developmental concepts, social processes, individual variation, learning and technology, biological basis of learning.

PSQF:6203 (07P:203) Learning, Technology, and Effective Teaching 3 s.h.

Theories and issues in the use of technology in learning and teaching; project to design a technology-supported learning solution for an educational problem.

PSQF:6205 (07P:205) Design of Instruction 3 s.h.

Introduction to processes used to design, develop, implement, and evaluate effective instruction; projects.

PSQF:6206 (07P:206) Advanced Child Development 3 s.h.

Theories of social and cognitive development; in-depth study of several current controversies in the field.

PSQF:6208 (07P:208) Designing Educational Multimedia 3 s.h.

Theory, design, and evaluation of instructional software.

PSQF:6209 (07P:209) Survey Research and Design 3 s.h.

Survey design and implementation; writing and evaluation of survey questions; error in survey research; techniques to reduce error; sampling; postcollection processing of survey data. Prerequisites: EPLS:6206 (07B:206) or PSQF:4143 (07P:143). Same as EPLS:6209 (07B:209).

PSQF:6215 (07P:215) Web-Based Learning 3 s.h.

Theory and practice of designing web sites to support or deliver instruction; student team project to create an instructional web site that integrates the theory and principles from class readings.

- PSQF:6216 (07P:216) Tools and Utilities for Online Teaching** 3 s.h.
Guidance for future online teachers in making well-informed decisions on what technologies need to be adopted and applied for high quality, successful online educational programming in a variety of environments (e.g., K-12, higher education, business and industry); choosing, learning, evaluating, and using different types of technologies to produce online instruction; how to learn; initiating and managing learning and professional development for effective online teaching. Corequisites: PSQF:6205 (07P:205), if not taken as a prerequisite.
- PSQF:6217 (07P:217) Seminar in College Teaching** 1-3 s.h.
Preparation for college teaching; for graduate students planning to teach. Same as GRAD:6217 (650:217).
- PSQF:6220 (07P:220) Quantitative Educational Research Methodologies** 3 s.h.
Procedures for planning, conducting, and reporting research; evaluation of current methods in educational research; quantitative designs and methods. Prerequisites: PSQF:4143 (07P:143) or STAT:4143 (22S:102).
- PSQF:6221 (07P:221) Educational Psychology for Effective Teaching** 3 s.h.
How educators use educational psychology theories and research to develop expertise in teaching and learning; cognition, motivation, technology, individual differences.
- PSQF:6223 (07P:223) Introduction to Counseling Psychology Practice/Research I** 3 s.h.
Historical, theoretical, professional, scientific traditions associated with counseling psychology; professional ethical principles.
- PSQF:6225 (07P:225) Introduction to Counseling Psychology Practice/Research II** 3 s.h.
Learning and performance of basic helping skills; integration of these skills with counseling theories, broader counseling strategies; laboratory-based.
- PSQF:6230 (07P:230) Research in Educational Psychology** 1-3 s.h.
Design, implementation, and presentation of an educational psychology empirical research project. Requirements: graduate standing in educational psychology.
- PSQF:6231 (07P:231) Concepts and Principles of Behavior Analysis** 3 s.h.
Comprehensive review of psychological principles of learning derived from experimental research and empirical studies; types of behavior, motivational influences on behavior, respondent behavior and operant conditioning, stimulus control, schedule influences on behavior, observational learning, verbal behavior, rule-governed behavior, and behavioral accounts of language and cognition.
- PSQF:6232 (07P:232) Functional Behavior Assessment and Analysis** 3 s.h.
- Understanding the purpose of assessments of behavior, developing assessments based on the presenting problems of behavior, conducting assessments to understand the purpose of behavior, and develop an effective behavior intervention plan; advanced coverage of special topics, including preference assessments and verbal behavior.
- PSQF:6233 (07P:233) Ethics for Behavioral Psychologists** 1 s.h.
Ethics that are unique to applied behavior analysis; ethical considerations.
- PSQF:6235 (07P:235) Multicultural Counseling** 3 s.h.
Theoretical and practical aspects of the cultural adaptation process; implications for interventions in diverse populations; issues. Requirements: counseling skills introductory course.
- PSQF:6236 (07P:236) Counseling and Psychotherapy for Persons with Disabilities** 3 s.h.
Preparation for future psychologists and counselors to work with persons with disabilities throughout the lifespan; examination of disability issues within the context of present and past theoretical constructs. Requirements: enrollment in psychological and quantitative foundations or rehabilitation and counselor education. Same as RCE:6236 (07C:236).
- PSQF:6238 (07P:238) Assessment of Learning Differences** 3-4 s.h.
- PSQF:6242 (07P:242) Selected Applications of Statistics** 3 s.h.
Application and interpretation of correlation techniques, chi-square, t- and f-tests, interval estimation, simple cases of analysis of variance. Prerequisites: PSQF:4143 (07P:143).
- PSQF:6243 (07P:243) Intermediate Statistical Methods** 4 s.h.
Foundation for more advanced applied courses; logic of statistical inference, chi-square, and other tests of statistical hypotheses; small sample error theory, interval estimates, introduction to analysis of variance, selected nonparametric methods. Requirements: for PSQF:6243 (07P:243) — PSQF:4143 (07P:143); for STAT:6513 (22S:148) — STAT:4143 (22S:102). Same as STAT:6513 (22S:148).
- PSQF:6244 (07P:244) Correlation and Regression** 4 s.h.
Correlation techniques; selected bivariate procedures, multiple, partial, curvilinear correlation; multiple linear regression; sampling theory applied to regression analysis and correlation coefficients; simple causal models. Requirements: for PSQF:6244 (07P:244) — PSQF:6243 (07P:243); for STAT:6514 (22S:157) — STAT:6513 (22S:148). Same as STAT:6514 (22S:157).
- PSQF:6245 (07P:245) Applied Multivariate Analysis** 3 s.h.

Multivariate descriptive statistics, multivariate normal distribution, Hotelling's T-squared, MANOVA, multivariate regression, principal components, discrimination and classification, cluster analysis. Prerequisites: STAT:3200 (22S:152) and STAT:3210 (22S:158). Requirements: facility with matrix algebra. Same as STAT:6540 (22S:161).

PSQF:6246 (07P:246) Design of Experiments 4 s.h.

Theory and methods in the planning and statistical analysis of experimental studies; testing of hypotheses about linear contrasts among means in single-factor and multifactor, completely randomized, and repeated measurement designs. Requirements: for PSQF:6246 (07P:246) — PSQF:6243 (07P:243); for STAT:6516 (22S:159) — STAT:6513 (22S:148). Same as STAT:6516 (22S:159).

PSQF:6247 (07P:247) Nonparametric Statistical Methods 3 s.h.

Selected nonparametric methods; one- and two-sample location tests and estimation methods, measures of association, analyses of variance; emphasis on relationships to classical parametric procedures. Prerequisites: PSQF:6243 (07P:243) or STAT:3120 (22S:120). Same as STAT:6547 (22S:163).

PSQF:6249 (07P:249) Factor Analysis and Structural Equation Models 3 s.h.

Foundations of exploratory and confirmatory factor analysis methods; least squares and maximum likelihood approaches; problems in factor extraction, rotation, interpretation; structural equation models via LISREL; assumptions and limitations of alternative approaches. Prerequisites: PSQF:6244 (07P:244) and PSQF:6246 (07P:246).

PSQF:6250 (07P:250) Computer Packages for Statistical Analysis 1-3 s.h.

Computer programs and systems designed to execute statistical analysis (SAS, SPSS, BMDP, and others); lectures on regression techniques, analysis of variance, multivariate techniques; practice in entering data, calling up desired programs, interpreting computer output. Prerequisites: PSQF:4143 (07P:143). Requirements: elementary knowledge of computer programming.

PSQF:6251 (07P:251) Individual Intelligence Testing 3 s.h.

Administration of individual intelligence tests; interpretation of test results; issues in psychological testing; factors that influence performance. Prerequisites: PSQF:4143 (07P:143) or PSQF:4150 (07P:150).

PSQF:6252 (07P:252) Introduction to Multivariate Statistical Methods 3 s.h.

Selected topics in multivariate analysis, including multivariate significance tests, principal components and factor analysis, discriminant analysis, canonical correlation, multivariate analysis of variance (MANOVA). Prerequisites: PSQF:6244 (07P:244) and PSQF:6246 (07P:246).

PSQF:6255 (07P:255) Construction and Use of Evaluation Instruments 3 s.h.

Design and construction of measures used in educational evaluation: achievement tests, attitude scales, performance measures, questionnaires; emphasis on methods of instrument development and evaluation of instrument characteristics. Prerequisites: PSQF:4143 (07P:143) and PSQF:6257 (07P:257).

PSQF:6257 (07P:257) Educational Measurement and Evaluation 3 s.h.

Evaluation and use of standardized tests and inventories in individual and group assessment; analyzing reliability, validity, normative data; interpreting measures of achievement, intelligence, aptitude, interests, attitudes, personality; current issues; for counselors, administrators, teachers, measurement specialists. Corequisites: PSQF:4143 (07P:143).

PSQF:6258 (07P:258) Theory and Technique in Educational Measurement 3 s.h.

Mathematical foundations, principal results, and applications of classical test theory; perspectives on conditional error variance; binomial error model and applications; introduction to generalizability theory; advanced measurement topics. Prerequisites: PSQF:6243 (07P:243) and PSQF:6257 (07P:257).

PSQF:6259 (07P:259) Scaling Methods 3 s.h.

Unidimensional and multidimensional scaling techniques; item response theory with a focus on polytomous models; introduction to available computer programs for scaling; applications in educational and psychological research. Prerequisites: PSQF:6262 (07P:262). Corequisites: PSQF:6249 (07P:249) and PSQF:6252 (07P:252).

PSQF:6262 (07P:262) Item Response Theory 3 s.h.

Theoretical foundations and practical applications; mathematical models and estimation techniques; emphasis on current applications and issues in testing; computer estimation programs. Prerequisites: PSQF:6243 (07P:243) and PSQF:6257 (07P:257).

PSQF:6263 (07P:263) Consultation Theory and Practice 3 s.h.

Review of concepts and practice of consultation and collaboration in educational and human services settings; focus on mental health, organizational, behavioral, and instructional models. Same as RCE:6263 (07C:263).

PSQF:6265 (07P:265) Program Evaluation 3 s.h.

Theoretical issues and considerations in evaluation of educational and social programs; evaluation design, methodology; metaevaluation; evaluation utilization.

PSQF:6275 (07P:275) Constructivism and Design of Instruction 3 s.h.

Theoretical foundations of constructivism; application of constructivist principles to the design of instruction.

PSQF:6281 (07P:281) Cognitive Theories of Learning 3 s.h.

Theories of learning and cognition as they relate to education; development of expertise, transfer of learning, design of learning environments, use of learning technologies. Prerequisites: PSQF:6200 (07P:200).

- PSQF:6292 (07P:292) Supervised Research in Educational Psychology** 1-3 s.h.
Identification of research problems, development of research designs and materials, conducting of research studies; faculty-guided activity or seminars.
- PSQF:6293 (07P:293) Individual Instruction in Psychological and Quantitative Foundations** arr.
- PSQF:6299 (07P:299) M.A. Project: The Portfolio** 3 s.h.
Individual portfolio project; reflection, revision, and presentation of educational psychology portfolio.
- PSQF:6301 (07P:301) Human Abilities** 3 s.h.
Psychology of abilities required by or developed through schooling; theories of cognitive abilities, age, sex, ethnic differences; cultivation of intelligence through schooling. Prerequisites: PSQF:4143 (07P:143).
- PSQF:6312 (07P:312) Psychopathology Across the Lifespan** 3 s.h.
DSM IV categories, related diagnostic issues.
- PSQF:7201 (07P:357) Counseling Psychology Research Writing** 3 s.h.
How to write scientifically in counseling psychology; qualitative and quantitative research writing, literature reviews, methodologies, discussions; APA style.
- PSQF:7204 (07P:204) Foundations of the Learning Sciences** 3 s.h.
Foundations of Interdisciplinary science of learning; theory and method of study of cognition in sociocultural context; design-based approaches to research on learning.
- PSQF:7224 (07P:224) Introduction to School Psychology Practice** 1-3 s.h.
Introduction to the practice of school psychology; framework for understanding role and function, legal and ethical boundaries, professional requirements; preparation for practicum.
- PSQF:7237 (07P:237) Beginning Practicum in School Psychological Service** arr.
Supervised practicum in psychological and educational evaluation in school settings. Prerequisites: PSQF:6238 (07P:238) and PSQF:6251 (07P:251).
- PSQF:7245 (07P:207) Evaluation of Children with ADHD and LD** arr.
Clinical experience in conducting pediatric neuropsychology examinations in the Pediatric Attention/Learning Disorders Clinic. Requirements: course on psychological testing (including IQ) and graduate psychology standing (school, counseling, rehabilitation, clinical). Same as PEDS:7245 (070:245).
- PSQF:7305 (07P:305) Psychotherapy I: Dynamic and Phenomenological Approaches** 3 s.h.
Major psychodynamic and existential-phenomenological theories of personality; emphasis on implications for psychotherapy.
- PSQF:7306 (07P:306) Psychotherapy III: Work Psychology and Career Interventions** 3 s.h.
Foundations of career interventions; emphasis on major assessment instruments (vocational interests, values, abilities/skills, personality) and career counseling processes, skills, techniques.
- PSQF:7307 (07P:359) Group Psychotherapy** 3 s.h.
Theoretical foundation for working with clients in group settings; major theories on group psychotherapy processes; integration of empirical research on effectiveness of group work; varied theoretical approaches to group psychotherapy.
- PSQF:7309 (07P:309) Personality Assessment** 3 s.h.
Standardized and projective techniques for personality assessment; preparation for competent administration and interpretation of varied tests and measures.
- PSQF:7310 (07P:310) Intelligence Assessment** 3 s.h.
Standardized intelligence testing; preparation to administer and interpret intelligence tests for children and adults.
- PSQF:7311 (07P:311) Practicum in Counseling and Psychological Services for Gifted Students** 1-6 s.h.
Prerequisites: CRSD:4178. Requirements: course work in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Same as RCE:7311 (07C:311).
- PSQF:7313 (07P:313) Psychopathology in Childhood** 3 s.h.
Current theories regarding the development of psychopathology in children and adolescents; current approaches to treatment for disorders in children and adolescents.
- PSQF:7315 (07P:315) Social and Emotional Assessment of Children and Adolescents** 3 s.h.
Link between personality theory, child and adolescent assessment; interpretation, integration of assessment information; record reviews, interviews, objective tests, projective techniques. Prerequisites: PSQF:6238 (07P:238) and PSQF:6251 (07P:251).
- PSQF:7320 (07P:320) History and Systems of Psychology** 3 s.h.
Philosophical underpinnings of psychology, early systems in psychology, developments in the 20th century.
- PSQF:7331 (07P:331) Seminar: Educational Psychology I--Current Topics** arr.
Intensive investigation of a specific research topic.
- PSQF:7337 (07P:337) Advanced Practicum in School Psychology** arr.
Supervised experience in psychological interventions, consultation, counseling in school and clinic settings. Prerequisites: PSQF:6238 (07P:238), PSQF:6251 (07P:251) and PSQF:7237 (07P:237).
- PSQF:7342 (07P:342) Research Project in School Psychology** arr.

Experience in research facilities on campus; writing research questions, planning a research study, writing a research article.

PSQF:7345 (07P:345) Academic Interventions 3 s.h.

Interventions used by school and support system personnel to address academic skill deficits among children, adolescents; instructional design and delivery problems associated with deficits.

PSQF:7346 (07P:346) Behavioral Interventions 3 s.h.

Interventions used by school and support system personnel to address behavioral and social/emotional status of children, adolescents.

PSQF:7347 (07P:347) Home/School/Community: System Interventions 3 s.h.

Interventions used by school and support system personnel; focus on work with parents, siblings. Same as RCE:7347 (07C:347).

PSQF:7350 (07P:350) Seminar in Evaluation 2-3 s.h.

In-depth examination of selected topics. Prerequisites: PSQF:6265 (07P:265). Requirements: two courses in program evaluation.

PSQF:7352 (07P:352) Seminar: Behavioral Assessment and Evaluation 3 s.h.

Broadens skills of graduate students who engage in research with exceptional persons; research designs are usually taught in the Department of Psychological and Quantitative Foundations, but because of the nature of handicapping conditions and the low incidence of some handicaps, the single-subject design yields better research information. Same as EDTL:7952 (07U:252).

PSQF:7354 (07P:354) Seminar: Experimental Approaches in Counseling Research arr.

Application of experimental methodology to study of counseling and vocational phenomena.

PSQF:7355 (07P:355) Seminar: Educational Measurement and Evaluation arr.

Critical examination of current issues and problems of the professional worker in the field of educational measurement and evaluation as reflected in research literature, other professional communication media.

PSQF:7356 (07P:356) Process and Outcomes in Counseling Psychotherapy 3 s.h.

Advanced knowledge of the state of process and outcome research on psychotherapeutic procedures. Requirements: Ph.D. candidacy in appropriate field.

PSQF:7358 (07P:358) Equating and Scaling of Educational Tests 3 s.h.

Designs and methods, including linear, equipercentile, and item response theory methods; emphasis on concepts, applications to testing programs, research. Prerequisites: PSQF:6243 (07P:243) and PSQF:6257 (07P:257).

PSQF:7365 (07P:365) Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h.

Major cognitive and behavioral theories of personality and psychotherapy; emphasis on implications for clinical practice.

PSQF:7367 (07P:367) Social Psychology and Social Systems 3 s.h.

Social aspects of behavior in organizations; behavioral science theory and research on organizations, system change, transformation, leadership.

PSQF:7375 (07P:375) Topics in Educational Measurement and Statistics 1-3 s.h.

PSQF:7380 (07P:380) Practicum in College Teaching arr.

Supervised college teaching experience in courses related to major academic areas, in collaboration with faculty course instructors.

PSQF:7385 (07P:385) Teaching and Learning in Higher Education 3 s.h.

Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as EPLS:7385 (07B:385), GRAD:7385 (650:385), EDTL:7385 (07S:384), RCE:7385 (07C:385).

PSQF:7390 (07P:390) Supervision of School Psychology Practicum/Internship arr.

Experience supervising school psychology practicum or internship students. Requirements: Ph.D. standing.

PSQF:7393 (07P:393) M.A. Thesis in Psychological and Quantitative Foundations arr.

PSQF:7394 (07P:394) Supervised Research in Counseling Psychology 1-3 s.h.

PSQF:7434 (07P:434) Practicum in Counseling Psychology 3 s.h.

Supervised practice in counseling services. Prerequisites: PSQF:6223 (07P:223) and PSQF:6225 (07P:225).

PSQF:7437 (07P:437) Internship in School Psychology arr.

Supervised internship for Ph.D. students in school psychology. Requirements: completion of required courses.

PSQF:7450 (07P:450) Practicum in Program Evaluation arr.

Supervised experience in designing and implementing components of program evaluations. Prerequisites: PSQF:6265 (07P:265). Requirements: two courses in program evaluation.

PSQF:7452 (07P:452) Leadership, Consultation, and Supervision 3 s.h.

Overview of intervention modalities other than individual and group therapy, especially those that pertain to leadership within organizations, consultation with organizations and communities, and supervision of the work of others; capstone course in counseling psychology sequence. Prerequisites: PSQF:6223 (07P:223) and PSQF:6225 (07P:225).

PSQF:7453 (07P:453) Advanced Practicum in Counseling Psychology 1-3 s.h.

Supervised work in counseling services. Prerequisites: PSQF:7434 (07P:434).

PSQF:7455 (07P:455) Generalizability Theory 3 s.h.

Analysis of variance methods applied to estimation of components of various types of measurement error variance; basic concepts, mathematical foundations, models, assumptions, designs, applications; relationships with other measurement theories. Prerequisites: PSQF:6246 (07P:246) and PSQF:6258 (07P:258).

PSQF:7457 (07P:457) Advanced Group Leadership Experience 3 s.h.

Practice working in a psychotherapy group; review major theories on group psychotherapy processes, integrate empirical research on effectiveness of group work; multicultural considerations in group psychotherapy; didactic and experiential format. Prerequisites: RCE:7357 (07C:357).

PSQF:7458 (07P:458) Internship in Counseling Psychology arr.

Supervised work in internship setting. Prerequisites: PSQF:7434 (07P:434) and PSQF:7453 (07P:453). Requirements: Ph.D. standing in counseling psychology and completion of all requirements except dissertation.

PSQF:7465 (07P:465) Issues and Ethics in Professional Psychology 3 s.h.

Professional ethics; issues in professional practice of psychology.

PSQF:7466 (07P:466) Psychological Services to Children, Adolescents, and Families: Legal and Ethical Standards 3 s.h.

Review of laws at state and federal level which are related to child, adolescent, and family functioning; emphasis on APA and NASP ethical standards, application of these standards, and ethical decision making models. Recommendations: graduate student who will provide services to children, adolescents, and families.

PSQF:7493 (07P:493) Ph.D. Thesis in Psychological and Quantitative Foundations arr.

Rehabilitation and Counselor Education

Chair

- Vilia Tarvydas

Professors

- Nicholas Colangelo, Leslie Margolin, Vilia Tarvydas, Volker Thomas

Associate professors

- David Duys, Noel Estrada-Hernandez, Malik Henfield, Jodi Saunders, Carol Smith, John Wadsworth, Susannah Wood

Assistant professors

- Jacob Priest, Armeda Wojciak

Lecturer

- Candis Hill

Assistants in instruction

- Claudia Bischoff, Molly Rechkemmer

Adjunct professors

- Harvey Joanning, Nicole Pizzini

Adjunct assistant professors

- Erin Barnes, Sherri Edvalson, Leanne Eichinger, Noel Harmon, Sara Johnston, Nashae Julian, Suzanne Kelsey, Lori Magnuson, Kayla McKibben, Robert Metzger III, Barbara O'Rourke, Tammara Thomas, Christine Urish, Anne Zalenski

Adjunct lecturers

- Fonda Frazier, Kathy Lowenberg, James Stachowiak, Orville Townsend

Professors emeriti

- Richard Dustin, Dennis Harper, Albert B. Hood, David A. Jepsen, Dennis R. Maki

Associate professors emeriti

- William A. Matthes, Tarrell Portman

Undergraduate minor: human relations

Graduate degrees: M.A. in rehabilitation and counselor education; Ph.D. in rehabilitation and counselor education

Web site: <http://www.education.uiowa.edu/rce>

The Department of Rehabilitation and Counselor Education prepares students to facilitate human development across the life span, to advocate for clients and students, and to serve local, national, and international communities through the delivery and creation of state-of-the-art counseling services. The department achieves these goals by advancing knowledge, skills, and attitudes appropriate for effective and ethical professional counseling practice and by conducting and disseminating related research.

The department prepares practitioners and scholars primarily at the graduate level, through degree programs in counselor education and supervision, couple and family counseling, rehabilitation and mental health counseling, rehabilitation counselor education, and school counseling. It also offers basic courses in interviewing and interpersonal skills for students in other professional and

graduate programs. In addition, it offers an undergraduate minor in human relations.

Undergraduate Program of Study

- Minor in human relations

Minor

The minor in human relations is open to all University of Iowa students enrolled in undergraduate degree programs.

The minor in human relations requires a minimum of 15 s.h. of credit, including 12 s.h. earned at The University of Iowa and 12 s.h. earned in courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.50 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass, but may count toward the minor if offered as S/U or S/F. Transfer credit must be approved by the chair of the Department of Rehabilitation and Counselor Education in order to count toward the minor.

The minor in human relations requires the following course work.

This course:

RCE:4199 (07C:199) Counseling for Related Professions	3 s.h.
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At least 12 s.h. chosen from these:

RCE:2081 (07C:081) Making a Vocational-Educational Choice	2-3 s.h.
RCE:4130 (07C:130) Human Sexuality	3 s.h.
RCE:4131 (07C:131) Loss, Death, and Bereavement	3 s.h.
RCE:4132 (07C:132) Introduction to Addictions and Impulse Control Disorders	3 s.h.
RCE:4137 (07C:137) Introduction to Educating Gifted Students	3 s.h.
RCE:4140 (07C:140) Foundations of Leadership for Community Agencies	3 s.h.
RCE:4145 (07C:145) Marriage and Family Interaction	3 s.h.
RCE:4162 (07C:162) Introduction to Couple and Family Therapy	3 s.h.
RCE:4173 (07C:173) Trauma Across the Lifespan	3 s.h.
RCE:4174 (07C:174) Positive Psychology	3 s.h.
RCE:4175 (07C:175) Motivational Interviewing	3 s.h.
RCE:4176 (07C:176) Child Abuse: Assessment, Intervention, and Advocacy	3 s.h.
RCE:4177 (07C:177) Life After Service: Veterans in College	3 s.h.
RCE:4178 (07C:178) Microcounseling	1-3 s.h.
RCE:4179 (07C:179) Sexuality Within the Helping Profession	3 s.h.
RCE:4180 (07C:180) Topical Seminar for Helping Professionals	3 s.h.
RCE:4185 (07C:185) Introduction to Substance Abuse	3 s.h.
RCE:4187 (07C:187) Introduction to Assistive Technology	3 s.h.
RCE:4190 (07C:190) Group Processes for Related Professions	3 s.h.

RCE:4191 (07C:191) Advocacy: Awareness, Assertiveness, and Activism	arr.
RCE:4192 (07C:192) Group Leadership in Human Sexuality	0-3 s.h.
RCE:4193 (07C:193) Individual Instruction—Undergraduate	arr.
RCE:4194 (07C:194) Interpersonal Effectiveness	3 s.h.
RCE:4195 (07C:195) Ethics in Human Relations and Counseling	3 s.h.
RCE:4197 (07C:197) Citizenship in a Multicultural Society	3 s.h.
EALL:4130 (07X:130) Introduction to Grant Writing	3 s.h.
EPLS:4150 (07B:150) Leadership and Public Service I	3 s.h.
EPLS:4151 (07B:151) Leadership and Public Service II	2 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher (requires special permission for students not enrolled in TEP)	3 s.h.
PSQF:1027 (07P:027) Mindfulness Foundations in the Helping Professions	3 s.h.
PSQF:2115 (07P:115) Introduction to Counseling Psychology	3 s.h.
PSQF:2116 (07P:116) Applied Child and Adolescent Psychology	3 s.h.

Contact the Department of Rehabilitation and Counselor Education for more information about the minor.

Graduate Programs of Study

- Master of Arts in rehabilitation and counselor education
- Doctor of Philosophy in rehabilitation and counselor education

The department offers graduate degree programs in five major areas within rehabilitation and counselor education:

Counselor education and supervision (offered in the Ph.D.);
 Couple and family therapy (offered in the Ph.D.);
 Rehabilitation and mental health counseling (offered in the M.A.);
 Rehabilitation counselor education (offered in the Ph.D.);
 and
 School counseling (offered in the M.A.).

Each degree program is described below.

Upon completing a degree in the department, students are evaluated and are expected to have awareness, knowledge, and skills in the following areas:

- current definitions, professional standards, and appropriate professional practices regarding multiculturalism;
- what it means to be a multiculturally competent helping professional;
- integration of feedback into practice and professionalism in interpersonal interactions;
- personal limitations and strengths that could ultimately support or harm a client or student;
- a personal plan for future practice in the field regarding multicultural relationships.

Prospective students must meet admission requirements for the individual programs as well as the department's

general admission requirements (see "Admission" toward the end of this section). Criminal background checks may be required. Applicants also must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

REQUIRED PH.D. RESEARCH COURSES

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

Ph.D.: Counselor Education and Supervision

The Doctor of Philosophy program in counselor education and supervision requires 96 s.h. of graduate credit. The program provides students with knowledge and skills related to general counseling (including mental health and school counseling), teaching, consulting, supervising counselors, and conducting research. Graduates enter professional work as counselors, counselor supervisors, counselor educators, researchers and/or consultants, or work in other positions requiring expertise in human relations. Students may choose an emphasis in gifted and talented education, school counseling, professional leadership, or other area agreed upon by faculty advisors.

Counselor education and supervision graduates are prepared to teach the knowledge and skills required of professional counselors and to supervise beginning and advanced counselors, perform counseling interventions with individuals and groups, and teach human relations skills in colleges or universities. They provide professional consultation with counseling practitioners and policy makers about counseling program development and evaluation. They also may perform research that contributes to knowledge about counseling, supervision, and counselor education.

The program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The American Counseling Association (ACA) and the Association for Counselor Education and Supervision (ACES) are the professional organizations most related to program activities.

The Ph.D. curriculum includes required courses in counseling and in research tools and applications, a minor outside the department, and a dissertation.

Most students complete their course work in three years and take a fourth year to complete the dissertation. Students who have not completed a master's degree program approved by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) may need to remedy deficiencies by taking appropriate course work at the master's degree level.

The Ph.D. program in counselor education and supervision requires the following work.

REQUIRED COURSES

All of these:

RCE:7255 (07C:255) Advanced Career Development and Counseling (or equivalent)	3 s.h.	RCE:7444 (07C:444) Qualitative Research in the Multicultural Context	3 s.h.
RCE:7347 (07C:347) Home/School/Community: System Interventions	3 s.h.	RCE:7460 (07C:460) Seminar: Research in Counseling	3 s.h.
RCE:7353 (07C:353) Advanced Counseling and Psychotherapy	3 s.h.	RCE:7493 (07C:493) Ph.D. Thesis	10-15 s.h.
RCE:7357 (07C:357) Advanced Group Counseling and Psychotherapy	3 s.h.	EALL:5150 (07X:150) Introduction to Educational Research (taken during first year in program)	3 s.h.
RCE:7360 (07C:360) Advanced Practicum in Counseling (section 002)	3 s.h.	PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.
RCE:7380 (07C:380) Practicum in College Teaching	3 s.h.	At least one additional course (3 s.h.) in quantitative or qualitative research methods	3 s.h.
RCE:7385 (07C:385) Teaching and Learning in Higher Education	3 s.h.		
RCE:7400 (07C:400) Seminar: Ethics and Issues in Counseling	3 s.h.		
RCE:7448 (07C:448) Integrated Developmental Theory and Counseling	3 s.h.		
RCE:7451 (07C:451) Advanced Multiculturalism	3 s.h.		
RCE:7454 (07C:454) Supervision Theory and Practice	3 s.h.		
RCE:7455 (07C:455) Practicum in Clinical Supervision	3 s.h.		
RCE:7457 (07C:457) Seminar: Professional Orientation to Counselor Education and Supervision	3 s.h.		
RCE:7458 (07C:458) Seminar: Current Issues and Trends in Counselor Education and Supervision	3 s.h.		
RCE:7459 (07C:459) Seminar: Leadership and Advocacy in Counselor Education and Supervision	3 s.h.		
RCE:7465 (07C:465) Internship in Counselor Education (at least 240 hours)	3 s.h.		
At least one advanced course in psychological or educational measurement	3 s.h.		

RESEARCH TOOLS AND APPLICATIONS

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements. Course selections must be consistent with the research tools and applications required for the Ph.D. degree.

The following courses are minimum requirements. Students are expected to master research tools and applications beyond the minimum requirements in order to develop research skills consistent with their professional goals.

RCE:6394 (07C:394) M.A. Equivalency Research (for students without an approved M.A./M.S. thesis)	1-3 s.h.
RCE:7338 (07C:338) Essentials of Qualitative Inquiry	3 s.h.
RCE:7438 (07C:438) Advanced Qualitative Research Seminar in Rehabilitation and Counselor Education	3 s.h.

RCE:7444 (07C:444) Qualitative Research in the Multicultural Context	3 s.h.
RCE:7460 (07C:460) Seminar: Research in Counseling	3 s.h.
RCE:7493 (07C:493) Ph.D. Thesis	10-15 s.h.
EALL:5150 (07X:150) Introduction to Educational Research (taken during first year in program)	3 s.h.
PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.
At least one additional course (3 s.h.) in quantitative or qualitative research methods	3 s.h.

MINOR AREA

Students take a series of courses (typically a minimum of three) in an area of study outside the Department of Rehabilitation and Counselor Education. They select course work in collaboration with their minor area advisor, a faculty member from the area, and with approval of the curriculum plan committee.

MASTER'S THESIS PROJECT OR EQUIVALENT

Students are required to submit a previously conducted master's thesis for faculty review and approval or to complete a new supervised experiential research project before taking comprehensive exams.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of an oral defense of the student's portfolio, which covers six professional competency domains in counselor education, and an exam on the minor area. The comprehensive exam may be taken during the student's final semester of course work, which typically includes an internship.

DISSERTATION

The major research project culminating in the doctoral thesis may be on any topic related to counseling and counselor education. The thesis advisor and the examining committee approve the topic and procedures at a formal prospectus meeting. The final oral examination on the thesis is conducted by the examining committee. Students usually earn 10 s.h. for dissertation work, but in some instances they may earn up to 15 s.h. The dissertation committee must include at least two counselor education and supervision faculty members.

ADMISSION

Applicants to any of the department's graduate programs must meet the department's general admission requirements; see "Admission" toward the end of this Catalog section. In addition, applicants to the Ph.D. program in counselor education and supervision must provide evidence of successful experience in counseling or a closely related profession. Applicants without experience may be admitted if their credentials indicate exceptional strengths.

Students may be admitted for fall, spring, or summer entry, but the department strongly advises application for fall entry. Consideration of applications begins January 15 for fall entry; all application materials should be received at the University by this date.

Ph.D.: Couple and Family Therapy

The Doctor of Philosophy program in couple and family therapy (CFT) requires a minimum of 90 s.h. of graduate

credit. The program prepares professionals for couple and family therapy/marriage and family therapy leadership roles in academic and research settings, administration and supervision, and clinical delivery systems. It provides couple and family therapists the opportunity to master cutting-edge theoretical knowledge; research competencies at the most innovative levels; and advanced clinical, teaching, and supervisory skills.

Ph.D. students focus on three areas of advanced training: clinical practice, quantitative and qualitative research methods, and teaching and supervision. The program is designed to meet the accreditation standards of the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) of the American Association for Marriage and Family Therapy. Ph.D. graduates are expected to have sufficient knowledge and skill to teach and conduct research at colleges and universities; supervise other professionals; and provide clinical services to individuals, couples, and families. They also should have competencies to engage in and evaluate theory-based qualitative and/or quantitative research.

Credit for the Ph.D. program may include credit for relevant course work completed for a COAMFTE-accredited master's degree program in couple and family therapy/marriage and family therapy or the equivalent.

Each student is required to submit a curriculum plan during the first two years of the program, before completing the comprehensive examination. The CFT faculty reviews each student annually; students must fulfill departmental requirements in order to continue in the program.

Work for the Ph.D. includes course work, a comprehensive exam, a clinical or academic internship, and a dissertation. Most students complete the program's required course work in two or three years and take one or two years to complete the internship and dissertation.

The Ph.D. program in couple and family therapy requires the following work.

DEPARTMENT CORE

All of these:

RCE:7353 (07C:353) Advanced Counseling and Psychotherapy	3 s.h.
RCE:7357 (07C:357) Advanced Group Counseling and Psychotherapy	3 s.h.
RCE:7400 (07C:400) Seminar: Ethics and Issues in Counseling	3 s.h.

RESEARCH AND STATISTICS

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students choose from courses listed at Ph.D. Research Requirements.

PROGRAM REQUIREMENTS

RCE:5262 (07C:262) Advanced Couple and Family Therapy	3 s.h.
RCE:7361 (07C:361) Advanced Practicum in Couple and Family Therapy	3 s.h.
RCE:7388 (07C:388) Family Development	3 s.h.

RCE:7389 (07C:389) Seminar in Couple Intervention Research	3 s.h.
RCE:7404 (07C:404) Seminar in Child and Adolescent Intervention Research	3 s.h.
RCE:7440 (07C:440) Seminar in Family-Based Play Therapy Interventions	3 s.h.
Additional course work	27 s.h.

MINOR AREA

In collaboration with the advisor and the curriculum plan committee, each student plans a minor area and selects a minimum of 9 s.h. of course work for it.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of a portfolio the student has compiled during the program and its oral defense once course work has been completed.

INTERNSHIP

Students must complete a clinical or academic internship.

RCE:7465 (07C:465) Internship in Counselor Education	3 s.h.
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DISSERTATION

Work for the doctoral dissertation employs the student's independent skills in conducting original research. The dissertation process is supervised by the student's advisor. Depending on the student's research questions, the dissertation may require quantitative, qualitative, or mixed methods and may involve data collection or the secondary analysis of an existing data set. The thesis advisor and the examining committee approve the topic and procedures at a formal prospectus meeting. The final oral examination on the thesis is conducted by the examining committee.

RCE:7493 (07C:493) Ph.D. Thesis	10-15 s.h.
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ADMISSION

Applicants to any of the department's graduate programs must meet the department's general admission requirements; see "Admission" toward the end of this Catalog section.

Applicants should have a graduate g.p.a. of at least 3.00 and a Graduate Record Examination (GRE) General Test combined verbal and quantitative score of at least 300 on the revised test or at least 1,100 on the old test. They also should hold a master's degree in couple and family therapy/marriage and family therapy from a Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE)-accredited program or the equivalent.

Students are admitted for fall entry. All application materials should be received at the University by on or before December 31, when the faculty begins evaluating applications. The program requires an interview with the faculty, in person or by telephone. Generally, the interview is scheduled once complete application materials have been received.

M.A.: Rehabilitation and Mental Health Counseling

The Master of Arts program in rehabilitation and mental health counseling requires a minimum of 60 s.h. of graduate credit. The program prepares professional counselors to provide assistance in psychological

wellness, employment, independent living, and personal or economic development to persons with disabilities and other individuals who encounter barriers in meeting their own functional needs. It also prepares counselors in mental health counseling/psychiatric rehabilitation to obtain licensure as professionals who provide services in mental health settings.

Rehabilitation and mental health counselors work in a variety of settings, including public agencies such as state vocational rehabilitation programs and Veterans Affairs vocational rehabilitation programs; independent living centers; community-based rehabilitation centers and supported employment; community mental health centers; psychiatric rehabilitation programs; and private for-profit worker's compensation and insurance rehabilitation agencies. They provide interventions designed to help persons with disabilities adapt to the demands of their environments. They also prepare the environments to accommodate the individual's needs. Assessment, personal and vocational counseling, development of rehabilitation and treatment plans, case management, service coordination, psychosocial adjustment, job development, placement, and follow-up are typical services that rehabilitation and mental health counselors provide.

The M.A. program in rehabilitation and mental health counseling is accredited by the Council on Rehabilitation Education (CORE) and the Council for Accreditation of Counseling and Related Educational Programs (CACREP) in clinical mental health counseling.

Graduates of the M.A. program are eligible for certification by the Commission on Rehabilitation Counselor Certification (CRCC) and the National Board for Certified Counselors. By completing the program's course work, students also complete the courses they must take in order to apply for licensure as mental health counselors in Iowa.

Full-time students can complete the program in approximately 21 months (four semesters plus two summer sessions).

The M.A. curriculum blends academic work with supervised clinical experiences. Students take three semesters of practicum concurrently with academic courses. The program concludes with a full-time internship (40 hours per week) during a spring semester. Students are assigned to rehabilitation and community mental health agencies or facilities that meet CORE and CACREP accreditation standards and that have programs or clientele who match the student's interests and educational objectives. Clinical placements require criminal background checks.

Supervised practicums, internships, and comprehensive examinations are not offered during summer sessions.

The M.A. program in rehabilitation and mental health counseling requires the following work.

DEPARTMENT REQUIREMENTS

All of these:

RCE:5202 (07C:202) Introduction to Group Counseling	3 s.h.
RCE:5221 (07C:221) Theories of Counseling and Human Development Across the Life Span	3 s.h.
RCE:5250 (07C:250) Multiculturalism in Helping Professions (or equivalent)	3 s.h.

RCE:5270 (07C:270) Issues and Ethics in Counseling	3 s.h.
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RCE:5276 (07C:276) Research in Rehabilitation and Mental Health Counseling	3 s.h.
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RCE:5278 (07C:278) Applied Microcounseling	3 s.h.
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PROGRAM REQUIREMENTS

All of these:

RCE:5210 (07C:210) Rehabilitation Client Assessment	3 s.h.
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RCE:5241 (07C:241) Introduction to Rehabilitation and Mental Health Counseling	3 s.h.
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RCE:5247 (07C:247) Medical Aspects of Disability	3 s.h.
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RCE:5249 (07C:249) Psychiatric Disorders and Interventions	3 s.h.
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RCE:6341 (07C:341) Job Development Placement and Follow-up	3 s.h.
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RCE:6342 (07C:342) Psychosocial and Developmental Aspects	3 s.h.
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CLINICAL PRACTICE

All of these:

RCE:6348 (07C:348) Prepracticum in Rehabilitation and Mental Health Counseling	3 s.h.
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RCE:6349 (07C:349) Practicum in Rehabilitation and Mental Health Counseling	3 s.h.
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RCE:6350 (07C:350) Advanced Practicum in Rehabilitation and Mental Health Counseling	3 s.h.
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RCE:6352 (07C:352) Internship in Rehabilitation and Mental Health Counseling	9-12 s.h.
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COMPREHENSIVE EXAMINATION

The comprehensive examination consists of two exams totaling six hours: a three-hour departmental comprehensive examination and a three-hour written examination on the process and practice of rehabilitation and mental health counseling. Exams are offered only during fall and spring semesters.

ADMISSION

Applicants to any of the department's graduate programs must meet the department's general admission requirements; see "Admission" toward the end of this Catalog section.

No specific undergraduate major area of study is required for the M.A. program in rehabilitation and mental health counseling, but a major in one of the social sciences is considered good preparation. Applicants should have a good academic record and relevant experience, such as assisting individuals with disabilities. Postbaccalaureate work experience relevant to the field of rehabilitation and mental health counseling is preferred. The program encourages applications from persons traditionally underrepresented in the field, particularly those with a disability and/or members of minority or ethnic groups. Applicants also must meet the department's admission requirements (see "Admission" later in this section). A personal interview is required, either in person or by telephone.

Applications for full-time study are accepted for summer session (June) entry; application deadline for full-time study is March 1. Applications for part-time study are

accepted for fall and spring semesters and are considered when class space permits.

Students pursue a sequenced plan of study that begins in summer session. Although students may be admitted for any semester, the program highly recommends that full-time students begin in summer.

Ph.D.: Rehabilitation Counselor Education

The Doctor of Philosophy program in rehabilitation counselor education requires a minimum of 90 s.h. of graduate credit. The program prepares professionals for leadership roles in rehabilitation counselor education, research, administration, and service delivery systems. It provides rehabilitation counselors the opportunity to master knowledge; clinical, teaching, and supervisory skills; and research competencies at the most advanced levels.

Ph.D. students focus on three areas of advanced development: rehabilitation counselor education and supervision, research, and professional practice. The program is flexible, permitting students to pursue individualized plans of study within the required curriculum. Ph.D. graduates are expected to have sufficient knowledge and skill to teach at colleges and universities, supervise other professionals, and provide clinical services to clients. They also should have competencies to engage in and evaluate theoretical, qualitative, and quantitative research.

Each student is required to submit a curriculum plan. The rehabilitation counseling faculty reviews each student annually. Students must meet the department's requirements in order to continue in the program.

The 90 s.h. required for the degree may include credit for relevant course work completed for a master's degree. This combination of master's and doctoral course work ensures exposure to vocational and psychiatric rehabilitation as well as to independent living rehabilitation and community-based counseling processes, concepts, programs, and services.

Students who are not eligible for certification by the Commission on Rehabilitation Counselor Certification (CRCC) may be required to take courses to become eligible.

Most students complete their course work and comprehensive exam in three years and take a fourth year to complete the dissertation.

The Ph.D. program in rehabilitation counselor education requires the following work.

DEPARTMENT CORE

All of these:

RCE:7255 (07C:255) Advanced Career Development and Counseling (or equivalent)	3 s.h.
RCE:7353 (07C:353) Advanced Counseling and Psychotherapy	3 s.h.
RCE:7357 (07C:357) Advanced Group Counseling and Psychotherapy	3 s.h.
RCE:7400 (07C:400) Seminar: Ethics and Issues in Counseling	3 s.h.

PROGRAM REQUIREMENTS

Students are expected to have completed core rehabilitation counseling requirements during master's degree work (see "M.A.: Rehabilitation and Mental Health Counseling" above). The advisor and program faculty determine which master's-level courses must be taken to correct deficiencies. Students also must complete the following.

RCE:7360 (07C:360) Advanced Practicum in Counseling (section 001)	3 s.h.
RCE:7369 (07C:369) Advanced Seminar in Rehabilitation Counseling	3 s.h.
RCE:7380 (07C:380) Practicum in College Teaching	1-3 s.h.
RCE:7385 (07C:385) Teaching and Learning in Higher Education	3 s.h.
RCE:7450 (07C:450) Advanced Social Psychology of Disability	3 s.h.
RCE:7454 (07C:454) Supervision Theory and Practice	3 s.h.
RCE:7455 (07C:455) Practicum in Clinical Supervision	3 s.h.
RCE:7462 (07C:462) Advanced Practicum in Clinical Teaching	3 s.h.
PSQF:6217 (07P:217) Seminar in College Teaching	1-3 s.h.

STATISTICS AND RESEARCH DESIGN

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements. Course selections must be consistent with the following statistics and research design requirements and with the student's dissertation research.

All of these:

RCE:7338 (07C:338) Essentials of Qualitative Inquiry	3 s.h.
RCE:7438 (07C:438) Advanced Qualitative Research Seminar in Rehabilitation and Counselor Education	3 s.h.
RCE:7460 (07C:460) Seminar: Research in Counseling	3 s.h.
RCE:7461 (07C:461) Practicum in Research	3 s.h.
EALL:5150 (07X:150) Introduction to Educational Research (taken during first year in program)	3 s.h.
PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.
PSQF:6246 (07P:246) Design of Experiments	4 s.h.

One additional advanced quantitative or qualitative course approved by the advisor

MINOR AREA

Students plan a minor area in collaboration with their major advisor and curriculum plan committee. The minor area must be outside the department. Students select a minimum of 9 s.h. of course work in the minor area,

in collaboration with their minor advisor and with the approval of their curriculum plan committee.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three exams that total nine hours. They cover the department core (three hours), rehabilitation counseling—theory, practice, and research (three hours), and the minor area (three hours).

DISSERTATION

The dissertation is a major research study planned in collaboration with the student's major advisor. At least two rehabilitation counseling faculty members serve on the dissertation committee; one of them chairs or co-chairs the committee.

RCE:7493 (07C:493) Ph.D. Thesis 10-15 s.h.

ADMISSION

Applicants to any of the department's graduate programs must meet the department's general admission requirements; see "Admission" toward the end of this Catalog section.

Applicants to the Ph.D. program in rehabilitation counselor education should have a master's degree in rehabilitation counseling or a related area and a graduate g.p.a. of 3.00 or higher. One year of full-time work experience in rehabilitation or a related field is strongly encouraged. Applicants should submit a written statement of purpose for pursuing the Ph.D. in rehabilitation counselor education and a statement of personal career objectives, official score on the Graduate Record Exam (GRE) General Test, and three letters of recommendation. A personal interview is required.

Applications are accepted for fall, spring, or summer entry; fall entry is strongly advised. Faculty consideration of applications begins January 15 for fall entry, November 15 for spring entry, and April 1 for summer entry.

M.A.: School Counseling

The Master of Arts program in school counseling requires a minimum of 54 s.h. of graduate credit. The program prepares individuals to work effectively as counselors in K-12 school settings. It is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Successful graduates are eligible for K-12 school counselor licensure in Iowa. Students may apply to the National Board for Certified Counselors at the completion of their programs. They also may earn an endorsement in talented and gifted education or a certificate from the Belin-Blank Center for Gifted Education by taking additional course work.

The M.A. program in school counseling emphasizes gifted education. During the first few semesters, students take core cognate courses, including course work on gifted education, and the microcounseling clinical skills laboratory. Then they enter a counseling practicum followed by an internship. Students who enter without teaching licensure are required to take additional course work in education [EPLS:3000 (07B:103) Foundations of Education, EDTL:4900 (07U:100) Foundations of Special Education, and PSQF:6200 (07P:200) Educational Psychology or equivalent] to meet school counselor licensure standards. Students are expected to complete

at least 100 clock hours in practicum and 600 clock hours in internship activities in an approved school setting, under the supervision of an experienced licensed school counselor and a University faculty supervisor.

Students must complete program and department core courses as outlined on the Department of Rehabilitation and Counselor Education web site before enrolling in RCE:6300 (07C:300) Practicum in School Counseling for the spring session of their second year in the program. All students are required to complete a background check the spring before they enroll in the practicum. Students who are not licensed teachers must complete course work in education before enrolling in the practicum.

Each student's progress is reviewed periodically by the program faculty. Students who have successfully completed all prerequisites for RCE:6300 (07C:300) Practicum in School Counseling are reviewed in the semester before they take the practicum course, to assure that they are prepared for it. During the summer, students are evaluated to assure their readiness for the internship RCE:6321 (07C:321) Internship in Elementary School Counseling or RCE:6322 (07C:322) Internship in Secondary School Counseling, which requires assignment in approved schools for the fall and/or spring semesters.

The M.A. program in school counseling requires the following work.

REQUIRED COURSES

The following schedule of required courses reflects a three-year program of study. Students who do not have teacher licensure are required to complete at least three additional courses in education before the third year of classes.

RCE:4137 (07C:137) Introduction to Educating Gifted Students	3 s.h.
RCE:5200 (07C:200) Professional School Counselor	3 s.h.
RCE:5202 (07C:202) Introduction to Group Counseling	3 s.h.
RCE:5203 (07C:203) Career Development	3 s.h.
RCE:5204 (07C:204) School Culture and Classroom Management for School Counselors	3 s.h.
RCE:5221 (07C:221) Theories of Counseling and Human Development Across the Life Span	3 s.h.
RCE:5222 (07C:222) Counseling Children and Adolescents in Schools	3 s.h.
RCE:5223 (07C:223) Counseling Gifted and Talented Students	3 s.h.
RCE:5230 (07C:230) School Counseling Program Leadership and Management	3 s.h.
RCE:5250 (07C:250) Multiculturalism in Helping Professions	3 s.h.
RCE:5254 (07C:254) Assessment and Appraisal	3 s.h.
RCE:5256 (07C:256) Action Research: School-Based Field Research	3 s.h.
RCE:5278 (07C:278) Applied Microcounseling	3 s.h.
RCE:6300 (07C:300) Practicum in School Counseling	3 s.h.
RCE:6321 (07C:321) Internship in Elementary School Counseling	3 s.h.
RCE:6322 (07C:322) Internship in Secondary School Counseling	3 s.h.

EDTL:4940 (07U:140) Characteristics of Disabilities	3 s.h.
EPLS:6206 (07B:206) Research Process and Design	3 s.h.

COMPREHENSIVE EXAMINATION

All students are required to take comprehensive exams for the departmental core and for school counseling during their final semester of internship. Comprehensive exams include a written six-hour exam in the departmental core and school counseling. An oral exam also is required unless waived by the comprehensive exam committee.

ADMISSION

Applicants to any of the department's graduate programs must meet the department's general admission requirements; see "Admission" below. Applicants to the M.A. program in school counseling should have an undergraduate g.p.a. of 3.00 or higher. The department prefers that applicants have one year of teaching experience or successful experiences with children and/or adolescents, which they must document in a written statement. Graduate Record Examination (GRE) General Test scores must be on file at the University.

Applications are accepted for summer and fall entry and should be submitted by January 25th.

Admission

Applicants to any of the department's degree programs must satisfy the following admission requirements. Applicants also must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants must submit the following:

- a completed graduate application form;
- copies of official transcripts of all previous undergraduate and graduate college work;
- official report of Graduate Record Examination (GRE) General Test verbal and quantitative scores;
- a statement of the applicant's reasons for seeking an advanced degree in the department, including a statement of personal career objectives;
- three current letters of recommendation from persons qualified to assess the applicant's prospects for completing the M.A. or Ph.D. and to assess the applicant's commitment to the profession.

The department may request a personal or telephone interview.

The following admission standards are considered for individual program admission decisions.

M.A. applicants should have an undergraduate g.p.a. of at least 3.00.

Ph.D. applicants should have a graduate g.p.a. of at least 3.00; those who have not been granted a graduate degree should have an undergraduate g.p.a. of at least 3.00.

International applicants must score at least 550 (paper-based) or 80 (Internet-based) on the Test of English as a foreign language (TOEFL). The department may require applicants with lower TOEFL scores to complete University of Iowa course work in English language fluency.

TOEFL scores must be submitted with the application for admission.

Typically, doctoral students are not admitted unless they have completed a master's degree in counseling or a related field. Relevant work experiences are important. Students who are accepted without a related master's degree must complete core master's-level course work before taking advanced Ph.D. courses. Required remedial courses and experiences are determined in consultation with the advisor and are included in a student's curriculum plan.

The criteria listed above are minimum standards for admission. Final admission decisions are made by faculty committees. Some of the department's degree programs have additional admission requirements; see the descriptions of the individual degree programs earlier in this Catalog section.

APPLICATION

For application materials, visit Iowa Graduate Admissions and the Department of Rehabilitation and Counselor Education web site.

Applications must be complete before they can be reviewed. Applicants are responsible for providing a complete application dossier; to check on whether an application dossier is complete, contact the College of Education Office of Education Services.

Applicants are notified in writing after their applications have been reviewed. Applicants who are accepted must reply in writing in order to maintain their admission status.

MAINTAINING GOOD STANDING

All graduate students must meet the following standards in order to remain in their degree programs and advance to candidacy and remain a candidate for a degree:

- maintain a g.p.a. of at least 3.00;
- successfully complete a practicum, internship, or equivalent professional experience;
- maintain professional behavior consistent with the ACA Code of Ethics (American Counseling Association) for students enrolled in a counseling graduate program, or the AAMFT Code of Ethics (American Association for Marriage and Family Therapy) for graduate students in couples and family therapy, and any additional code of professional ethics adhered to in any agency in which the student completes a practicum or internship;
- demonstrate progress toward the degree through successful completion of semester hours specified in the curriculum plan and active registration each session (exceptions may be approved by the advisor).

Each student's academic and professional progress is reviewed annually. A written report is provided to the student and a copy is placed in his or her department file.

PROBATIONAL STATUS

M.A. and Ph.D. students who earn a cumulative g.p.a. lower than 3.00 are placed on probational status and are notified in writing. Students on probational status have two consecutive sessions to raise their grade-point average to the established standard. If that requirement is not met, the student may be removed from the program. Each

student is allowed one probational status during his or her program of study.

Financial Support

Students in the department may apply for a wide variety of graduate assistantships. For example, many of the University's student service units award graduate assistantships. Applicants for assistantships should contact the department or the coordinator of the particular graduate program they plan to enter.

Applicants seeking fellowships or assistantships should complete their applications as early as possible.

Facilities

An on-campus counseling suite serves as a laboratory for training. In addition, a wide variety of supervised clinical experiences are available in community agencies, schools, and colleges, as well as throughout the University. Internships may be completed at approved sites nationwide.

Courses

Lower-Level Undergraduate

RCE:1029 (07C:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

RCE:1030 (07C:030) Belin-Blank Center Seminar 1 s.h.
Presentations and discussions by University resource experts and Belin-Blank Center for Gifted Education staff. Requirements: Belin-Blank Center student.

RCE:2081 (07C:081) Making a Vocational-Educational Choice 2-3 s.h.
Vocational decision-making process, self-evaluation, exploration of the world of work; for students who are uncertain about their educational and vocational goals.

Upper-Level Undergraduate and Graduate

RCE:4081 (07C:181) ePortfolio Production 1-2 s.h.
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Requirements: able to perform basic computer functions and use a World Wide Web browser. Same as PSQF:4081 (07P:181), EALL:4081 (07X:181), EDTL:4081 (07E:181), EPLS:4081 (07B:181).

RCE:4119 (07C:119) Family Issues in Giftedness 1 s.h.
Family dynamics and issues that arise when one or more children are identified as gifted; parent/child, sibling, school/family relationships.

RCE:4120 (07C:120) Psychology of Giftedness 3 s.h.

Theories of learning, child development, motivation; issues unique to gifted education. Same as PSQF:4120 (07P:120).

RCE:4121 (07C:121) Identification of Students for Gifted Programs 3 s.h.

Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for grades K-12; ability, aptitude, achievement tests; current issues in the uses of various instruments. Same as PSQF:4121 (07P:121).

RCE:4123 (07C:123) Gender Issues and Giftedness 1 s.h.

Effect of gender on development of giftedness; differential needs of girls, boys; strategies for effective teaching, gender equity.

RCE:4124 (07C:124) Ethnic and Cultural Issues and Giftedness 1 s.h.

Effect of ethnicity and culture on development of giftedness; special needs of Black, Hispanic, Native American, and Asian gifted students; strategies for identification, programming.

RCE:4125 (07C:125) Counseling and Psychological Needs of the Gifted 1 s.h.

Psychological aspects of giftedness, counseling techniques appropriate for gifted children, adolescents; socio-emotional concerns, career development, underachievement. Same as PSQF:4125 (07P:125).

RCE:4126 (07C:126) Cognitive and Affective Needs of Underachieving Gifted 1 s.h.

Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as PSQF:4126 (07P:126).

RCE:4127 (07C:127) Research and Theory in Talent/Giftedness 1 s.h.

Biennial research symposium. Same as PSQF:4127 (07P:127).

RCE:4128 (07C:128) Advanced Leadership Seminar in Gifted Education 1 s.h.

Development of administrative policies and programming based on empirical research; for experienced leaders in gifted education.

RCE:4129 (07C:129) Creativity: Issues and Applications in Gifted Education 1 s.h.

Theories that underpin contemporary definitions of creativity; instruments developed to measure creativity; activities in the school environment that enhance or inhibit student creativity. Same as PSQF:4129 (07P:129).

RCE:4130 (07C:130) Human Sexuality 3 s.h.
How young adults experience, discuss, and engage in sex; short essays.

RCE:4131 (07C:131) Loss, Death, and Bereavement 3 s.h.

Psychological study of death, grief, loss, bereavement, and coping from a multidimensional and multidisciplinary perspective; loss and grief as natural experiences that are not often explicitly discussed; overview of topics relating to death, including multicultural attitudes toward death, death practices, theories on loss and bereavement, and grieving throughout the life cycle; hospice and palliative care, suicide, and making meaning of life out of death; development of critical thinking skills by engaging in empirically-based discussions.

RCE:4132 (07C:132) Introduction to Addictions and Impulse Control Disorders 3 s.h.

Exploration of addictions and impulse control disorders; legal, social, physical, and emotional issues related to addictions and impulse control disorders.

RCE:4137 (07C:137) Introduction to Educating Gifted Students 3 s.h.

Fundamental issues such as curriculum, counseling, family issues, gender and minority issues. Same as EDTL:4137 (07U:137).

RCE:4140 (07C:140) Foundations of Leadership for Community Agencies 3 s.h.

Preparation to become effective employees and leaders; emphasis on leadership roles in clinical and other human service or health care settings; how leadership transcends job title associated with high work performance; experiential activities that illustrate key didactic concepts and didactic lecture review, written assignments, experiential assignment, in-depth discussions illustrating key concepts.

RCE:4145 (07C:145) Marriage and Family Interaction 3 s.h.

Contemporary American marriage, family relationships; mate selection.

RCE:4162 (07C:162) Introduction to Couple and Family Therapy 3 s.h.

Evolution of the family therapy movement and issues related to functional and dysfunctional family systems; significant models of family therapy and specific techniques.

RCE:4173 (07C:173) Trauma Across the Lifespan 3 s.h.

Current theory and practice models related to trauma and crisis intervention; overview of multi-system level definitions of trauma experience (historical, individual, interpersonal, family, organizational, community, global); various approaches to trauma response theory; unique contributions that counselors offer (strength, resiliency, coping); commitments to multicultural and systems factors; macro- to micro-level understanding of trauma.

RCE:4174 (07C:174) Positive Psychology 3 s.h.

Promotion of human potential as a focus for counseling professionals that provides a supplement to diagnosis and treatment of pathology; how to achieve happiness, resilience, wellness, and life satisfaction through enhancement of human strengths and virtues.

RCE:4175 (07C:175) Motivational Interviewing 3 s.h.

Motivational Interviewing (Miller & Rollnick) and the stages of change model.

RCE:4176 (07C:176) Child Abuse: Assessment, Intervention, and Advocacy 3 s.h.

Preparation for work involving abused children or child abuse issues; appropriate for careers in counseling, education, health sciences, law, psychology, social work, and so forth; interactive approach.

RCE:4177 (07C:177) Life After Service: Veterans in College 3 s.h.

Introduction to various resources on campus related to increasing student veterans' success as college students; topics and assignments specifically tailored to military service-connected students (e.g., ROTC students, national guard or reserve military members, active duty veterans); topics include vocational rehabilitation, GI Bill, current events, and health care (sleep, TBI, traumatic stress responses, substance abuse); development of academic skills for writing, more effective studying, improved reading and note taking.

RCE:4178 (07C:178) Microcounseling 1,3 s.h.

Basic skills of listening, responding, empathy, focus; advanced skills of meaning, confrontation, reframing, directives, action skills.

RCE:4179 (07C:179) Sexuality Within the Helping Profession 3 s.h.

Relationship between sexuality and mental health; varied ethical and professional issues in sex therapy.

RCE:4180 (07C:180) Topical Seminar for Helping Professionals arr.

Topics for the continuing education of counselors and related professionals.

RCE:4185 (07C:185) Introduction to Substance Abuse 3 s.h.

Theories of addiction and pharmacology of psychoactive drugs; legal, familial, biological, multicultural, historical issues related to substance use and misuse.

RCE:4187 (07C:187) Introduction to Assistive Technology 3 s.h.

How assistive technology can be used for attainment of goals in education or work. Same as EDTL:4987 (07U:187).

RCE:4188 (07C:188) Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.

Experience in developing course materials for classes offered through the Belin-Blank Center for Gifted Education. Same as EDTL:4188 (07U:188).

RCE:4190 (07C:190) Group Processes for Related Professions 3 s.h.

Small-group procedures for personal and organizational development in educational settings; discussions of theoretical and ethical issues, multicultural considerations, and research findings supplemented with demonstrations; participation in a personal growth group.

RCE:4191 (07C:191) Advocacy: Awareness, Assertiveness, and Activism arr.

Introduction to advocacy skills—communicate, convey, negotiate or assert interests, desires, needs, and rights for self or others; opportunity to design and implement a plan of change; ecological model of human interaction that suggests a person must be viewed within context of his or her environment(s); how having power on a personal and social level impacts one's environment and is central to a person's well-being; advocacy as a central function of helping professions.

RCE:4192 (07C:192) Group Leadership in Human Sexuality 0-3 s.h.

How to teach human sexuality; how to help students achieve an open-minded yet responsible attitude toward their own and others' sexuality. Prerequisites: RCE:4130 (07C:130).

RCE:4193 (07C:193) Individual Instruction—Undergraduate arr.

RCE:4194 (07C:194) Interpersonal Effectiveness 3 s.h.

Paradigms and techniques that enhance interpersonal relationship skills.

RCE:4195 (07C:195) Ethics in Human Relations and Counseling 3 s.h.

Morality and ethics; ethical issues; models and techniques for effective ethical decision making in personal and professional interactions.

RCE:4197 (07C:197) Citizenship in a Multicultural Society 3 s.h.

Human relationships in the context of societal oppressions such as racism, sexism, able-bodyism, and heterosexism.

RCE:4199 (07C:199) Counseling for Related Professions 3 s.h.

Counseling theories and techniques; ethical and multicultural considerations; small-group discussions, demonstrations, lectures.

Graduate

RCE:5200 (07C:200) Professional School Counselor 3 s.h.

Professional identity of school counselors, K-12 school counseling program delivery systems, legal and ethical issues. Requirements: admission to school counseling program.

RCE:5202 (07C:202) Introduction to Group Counseling 3 s.h.

Research, theory, ethics, planning, and practice in group counseling; leadership styles and multicultural considerations; group participation. Prerequisites: RCE:5221 (07C:221). Corequisites: RCE:5278 (07C:278). Requirements: rehabilitation and counselor education enrollment.

RCE:5203 (07C:203) Career Development 3 s.h.

Preparation for counselors and student affairs professionals; career development concepts and theories, family and work, career counseling goals and objectives, exemplary techniques and materials, career program planning, evaluation procedures. Requirements: rehabilitation and counselor education enrollment.

RCE:5204 (07C:204) School Culture and Classroom Management for School Counselors 3 s.h.

American public elementary and secondary schools and the school counselor's role; classroom management for school counselors.

RCE:5210 (07C:210) Rehabilitation Client Assessment 3 s.h.

Process and practice of assessing persons with disabilities for rehabilitation plan development and decision making; multicultural and ethical considerations.

RCE:5221 (07C:221) Theories of Counseling and Human Development Across the Life Span 3 s.h.

Philosophical bases, ethical considerations, processes, issues, multicultural and life-span developmental considerations in counseling theories and techniques. Requirements: rehabilitation and counselor education M.A. enrollment.

RCE:5222 (07C:222) Counseling Children and Adolescents in Schools 3 s.h.

Theory and practice of school-based counseling interventions; child and adolescent development; prevention; special topics. Prerequisites: RCE:5221 (07C:221) or RCE:5278 (07C:278).

RCE:5223 (07C:223) Counseling Gifted and Talented Students 3 s.h.

Learning theories and best practices related to school counseling of gifted and talented students; academic, career, and personal/social development. Prerequisites: RCE:4137 (07C:137).

RCE:5226 (07C:226) Assessment of Giftedness 3 s.h.

Training and practice in assessment of gifted children. Same as PSQF:5226 (07P:226).

RCE:5230 (07C:230) School Counseling Program Leadership and Management 3 s.h.

Comprehensive K-12 school counseling program components and structures; program leadership, planning, accountability; behavioral consultation and collaboration; ethical, multicultural, family considerations. Corequisites: RCE:6321 (07C:321) or RCE:6322 (07C:322).

RCE:5237 (07C:237) Seminar in Gifted Education 2-3 s.h.

Teaching and counseling needs of gifted students K-12; intensive 10-day residential program. Requirements: work as teacher with Belin Fellowship.

RCE:5238 (07C:238) Advanced Seminar in Gifted Education 1 s.h.

Supervisory, administrative, and research issues; fellowships for seminar participants. Prerequisites: RCE:5237 (07C:237).

RCE:5241 (07C:241) Introduction to Rehabilitation and Mental Health Counseling 3 s.h.

Historical, philosophical, legislative, societal, and multicultural overview of rehabilitation and mental health process and practice in community-based settings; roles of rehabilitation and mental health professionals, nature of agencies, resources, contemporary issues and ethics.

RCE:5247 (07C:247) Medical Aspects of Disability 3 s.h.

Medical evaluation as part of the rehabilitation process; body systems, medical terminology, medical description of disabilities; functional limitations; projection of potential for rehabilitation and mental health applied to planning and placement.

RCE:5248 (07C:248) Diagnosis and Treatment Planning for Psychiatric Rehabilitation 3 s.h.

Psychiatric conditions, their diagnostic criteria using the DSM-IV-TR, treatment planning considerations; medical and psychiatric rehabilitation models, interrelationship in providing services to persons with psychiatric disabilities; functional assessment and client-driven rehabilitation planning for community reintegration. Requirements: rehabilitation and counselor education enrollment.

RCE:5249 (07C:249) Psychiatric Disorders and Interventions 3 s.h.

Description, classification, and theoretical perspectives related to psychiatric disorders; models of intervention in community-based settings.

RCE:5250 (07C:250) Multiculturalism in Helping Professions 3 s.h.

Theory and application of multicultural competency in the helping professions; ethical treatment of clients in the context of a multiculturally diverse society; knowledge, skill, self-awareness components relevant for helping practitioners. Requirements: rehabilitation and counselor education enrollment.

RCE:5254 (07C:254) Assessment and Appraisal 3 s.h.

Didactic experiences related to individual and group assessment and appraisal; for school professionals.

RCE:5256 (07C:256) Action Research: School-Based Field Research 3 s.h.

Field-based research experiences in school settings; students conceptualize, design, conduct, and articulate school-based research findings. Prerequisites: RCE:5254 (07C:254).

RCE:5262 (07C:262) Advanced Couple and Family Therapy 3 s.h.

Introduction to counseling theory, ethics, and techniques as applied to problems of marriage and the family over the life span; multicultural considerations. Requirements: advanced graduate standing. Recommendations: RCE:4162 (07C:162).

RCE:5270 (07C:270) Issues and Ethics in Counseling 3 s.h.

Ethical standards and decision making; current issues; ethical, legal, and multicultural considerations for counseling in agencies and schools; emphasis on professional practice.

RCE:5276 (07C:276) Research in Rehabilitation and Mental Health Counseling 3 s.h.

Current state of counseling practice and emphasis on accountability as a professional quality; need for counselors to be knowledgeable and skillful in identifying and using "what works" in counseling endeavors; introduction to major principles, concepts, and practices in social science research, including program evaluation; preparing counselors-in-training as future research consumers. Recommendations: rehabilitation and mental health counseling major.

RCE:5278 (07C:278) Applied Microcounseling 3 s.h.

Development of basic and advanced counseling skills; preparation for work in education and community settings.

RCE:5280 (07C:280) Topical Seminar in RCE arr.

Special topics dealing with contemporary problems of concern to counselors in specific settings.

RCE:6236 (07C:236) Counseling and Psychotherapy for Persons with Disabilities 3 s.h.

Preparation for future psychologists and counselors to work with persons with disabilities throughout the lifespan; examination of disability issues within the context of present and past theoretical constructs. Requirements: enrollment in psychological and quantitative foundations or rehabilitation and counselor education. Same as PSQF:6236 (07P:236).

RCE:6263 (07C:263) Consultation Theory and Practice 3 s.h.

Review of concepts and practice of consultation and collaboration in educational and human services settings; focus on mental health, organizational, behavioral, and instructional models. Same as PSQF:6263 (07P:263).

RCE:6293 (07C:293) Individual Instruction--Graduate arr.

RCE:6300 (07C:300) Practicum in School Counseling 3 s.h.

Supervised experience counseling and consulting in elementary and secondary school settings. Requirements: completion of school counseling core courses.

RCE:6321 (07C:321) Internship in Elementary School Counseling 3 s.h.

Supervised placement in an elementary school setting; performance of tasks, responsibilities of an elementary school counselor. Prerequisites: RCE:6300 (07C:300). Requirements: completion of all required school counseling courses.

RCE:6322 (07C:322) Internship in Secondary School Counseling 3 s.h.

Supervised placement in a secondary school setting; performance of tasks, responsibilities of a secondary school counselor. Prerequisites: RCE:6300 (07C:300). Requirements: completion of all required school counseling courses.

RCE:6323 (07C:323) Internship in Middle School Counseling 3 s.h.

Supervised placement in a middle school setting; performance of tasks and responsibilities of a middle school counselor. Prerequisites: RCE:6300 (07C:300). Requirements: completion of all required school counseling courses.

RCE:6341 (07C:341) Job Development Placement and Follow-up 3 s.h.

Obtaining appropriate jobs for individuals with disabilities who have received rehabilitation services; client, counselor, employer, job specifications.

RCE:6342 (07C:342) Psychosocial and Developmental Aspects 3 s.h.

Dynamics of adjustment and coping for persons with chronic illness or those with disabilities through the life span; somatopsychological, psychosocial, and developmental perspectives on disability.

RCE:6348 (07C:348) Prepracticum in Rehabilitation and Mental Health Counseling 3 s.h.

Counseling laboratory to promote knowledge, skills, and awareness of effective and ethical counseling methods, and fundamentals of helping relationships and case management. Prerequisites: RCE:5221 (07C:221). Corequisites: RCE:5278 (07C:278).

RCE:6349 (07C:349) Practicum in Rehabilitation and Mental Health Counseling arr.

Experience in a community agency serving individuals with disabilities and mental health disorders, supervised by a certified rehabilitation counselor in an approved site. Prerequisites: RCE:6348 (07C:348).

RCE:6350 (07C:350) Advanced Practicum in Rehabilitation and Mental Health Counseling 3-6 s.h.

Experience to enhance competency in agencies and with persons represented in student's specialty area. Prerequisites: RCE:6349 (07C:349).

RCE:6352 (07C:352) Internship in Rehabilitation and Mental Health Counseling arr.

Full-time clinical experience in rehabilitation and mental health settings; training in wide range of rehabilitation and mental health functions under supervision of a qualified M.A. counselor with appropriate credentials. Prerequisites: RCE:6350 (07C:350).

RCE:6393 (07C:393) M.A. Thesis arr.

RCE:6394 (07C:394) M.A. Equivalency Research 1-3 s.h.

Preparation for comprehensive examination.

RCE:7255 (07C:255) Advanced Career Development and Counseling 3 s.h.

Major concepts and research evidence about life-span vocational behavior; theories of vocational choice, adjustment, development in a multicultural world.

RCE:7311 (07C:311) Practicum in Counseling and Psychological Services for Gifted Students 1-6 s.h.

Prerequisites: CRSD:4178. Requirements: course work in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Same as PSQF:7311 (07P:311).

RCE:7338 (07C:338) Essentials of Qualitative Inquiry 3 s.h.

Principles, processes of qualitative research in education; methods of design, data collection and analysis, interpretation, trustworthiness. Requirements: Ph.D. enrollment and introductory research course.

RCE:7347 (07C:347) Home/School/Community: System Interventions 3 s.h.

Interventions used by school and support system personnel; focus on work with parents, siblings. Same as PSQF:7347 (07P:347).

RCE:7353 (07C:353) Advanced Counseling and Psychotherapy 3 s.h.

Theories, techniques, and ethics of counseling clients with personal and interpersonal problems; ethical and multicultural considerations.

RCE:7357 (07C:357) Advanced Group Counseling and Psychotherapy 3 s.h.

Theories and techniques of group counseling and psychotherapy; integration of theory, experience, and research in group counseling; ethical and multicultural considerations.

RCE:7360 (07C:360) Advanced Practicum in Counseling arr.

Supervised practice in counseling; intensive analysis of counselor ethics, styles, methods. Advanced graduate standing in counselor education and consent of instructor required. Prerequisites: RCE:5221 (07C:221). Requirements: Ph.D. enrollment, advanced graduate standing in counselor education, and counseling introductory practicum; and concurrent enrollment in RCE:5249 (07C:249) for rehabilitation counselor education student.

RCE:7361 (07C:361) Advanced Practicum in Couple and Family Therapy 1-3 s.h.

Opportunity to accumulate client contact and supervision hours towards graduation and licensure; conceptual and executive skills, observational skills and abilities to work as a member of a therapeutic team, awareness of how personal growth and development as a therapist impacts work with clients, comfort and motivation to learn multiple training levels provided, creation of collaborative and supportive atmosphere on all practicum levels. Requirements: enrollment in couple and family therapy program.

RCE:7369 (07C:369) Advanced Seminar in Rehabilitation Counseling 3 s.h.

Philosophy, theory, research base, practice of rehabilitation counseling, psychology; ethical and multicultural considerations; relationship to disability studies; psychological aspects of disability, client assessment, history, systems, contemporary issues.

RCE:7380 (07C:380) Practicum in College Teaching arr.

Supervised college teaching experience in counselor education courses; teaching in collaboration with faculty, observation and critiques of teaching, participation in course planning and evaluation procedures; ethical and multicultural considerations.

RCE:7385 (07C:385) Teaching and Learning in Higher Education 3 s.h.

Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as PSQF:7385 (07P:385), EPLS:7385 (07B:385), GRAD:7385 (650:385), EDTL:7385 (07S:384).

RCE:7388 (07C:388) Family Development 3 s.h.

Overview of research relating to family development, family structure, and cultural/ethnic diversity; how research can be applied to clinical practice; focus on strengths and challenges of families with varying structures, cultural dimensions in family functioning, developmental perspectives on family functioning, and how these factors can advance family systems based on research and practice.

RCE:7389 (07C:389) Seminar in Couple Intervention Research 3 s.h.

Overview of couple intervention and outcome research; focus on evidence-based couple therapies (i.e., Emotionally Focused Couple Therapy, Behavioral Couple Therapy, work of John Gottman); research addressing effectiveness and efficiency of couple interventions in treatment of couple distress issues highly comorbid with distress, including review of mental and physical health problems; research addressing factors associated with treatment outcomes.

RCE:7399 (07C:399) Supervision in Couple and Family Therapy 3 s.h.

Supervision of Master's-level couple and family therapy students; mentoring supervision received from supervision instructor; assignments reflect requirements for AAMFT Approved Supervisor designation; fulfills didactic requirement for AAMFT Approved Supervisor status. Requirements: enrollment in couple and family therapy program.

RCE:7400 (07C:400) Seminar: Ethics and Issues in Counseling 3 s.h.

Ethical, professional, and contemporary issues in counseling practice, education, and research. Requirements: rehabilitation and counselor education Ph.D. enrollment.

RCE:7404 (07C:404) Seminar in Child and Adolescent Intervention Research 3 s.h.

Review and analysis of pertinent literature in area of child and adolescent intervention research; stage 1-3 clinical trials and federal funding process of intervention research in family therapy and family psychology fields; focus on published outcome studies in areas of childhood disorders, Filial Therapy, Functional Family Therapy, Multisystemic Therapy, and Multi-Dimensional Family Therapy; published and unpublished outcome studies of six research groups within the last ten years and their federally funded research projects. Prerequisites: RCE:5262 (07C:262).

RCE:7438 (07C:438) Advanced Qualitative Research Seminar in Rehabilitation and Counselor Education 3 s.h.

Exploration of qualitative research at advanced theoretical, practical, and technical level, inside and outside a typical classroom environment; scholarly discussions. Prerequisites: RCE:7338 (07C:338).

RCE:7440 (07C:440) Seminar in Family-Based Play Therapy Interventions 3 s.h.

Inclusion of children in family therapy sessions; varied therapeutic strategies to effectively work with young children and their parents; employment of developmental lens (therapeutic techniques largely depend on children's age and developmental stage) and theoretical lens (many techniques are linked to certain theoretical approaches); development of therapeutic skills with application of varied therapeutic approaches in clinical work; does not train students to become play therapists and/or child therapists. Prerequisites: RCE:5262 (07C:262).

RCE:7444 (07C:444) Qualitative Research in the Multicultural Context 3 s.h.

Exploration of qualitative research in multicultural context; application of knowledge gained in introductory qualitative courses; utilization of qualitative skill sets for completion of a multicultural-focused project; multicultural field research project which may involve travel or virtual connections outside of regular class time; field experience projects with online problem-based learning activities, consultation, and virtual supervised small group work. Prerequisites: PSQF:6235 (07P:235) or RCE:5250 (07C:250) or RCE:7338 (07C:338).

RCE:7448 (07C:448) Integrated Developmental Theory and Counseling 3 s.h.

Advanced issues, theoretical perspectives, and research in human development across the life span; influential theories in human development; related implications for counseling, supervision, and research; integrated understanding of perspectives through position papers, reflection papers, and research proposal project. Requirements: graduate standing in rehabilitation and counselor education.

RCE:7450 (07C:450) Advanced Social Psychology of Disability 3 s.h.

Disability issues from individual and societal perspectives; psychosocial aspects of disability and disability studies; seminar. Requirements: Ph.D. enrollment.

RCE:7451 (07C:451) Advanced Multiculturalism 3 s.h.

Impact of culture, race, ethnicity, and intersections of identity on counseling in higher education and student affairs settings. Prerequisites: RCE:5250 (07C:250).

RCE:7454 (07C:454) Supervision Theory and Practice 3 s.h.

Conceptual models, ethics, multicultural considerations, research, and program design for counselor supervision and consultation.

RCE:7455 (07C:455) Practicum in Clinical Supervision arr.

Supervision of students enrolled in counseling practicum. Prerequisites: RCE:7454 (07C:454).

RCE:7457 (07C:457) Seminar: Professional Orientation to Counselor Education and Supervision 3 s.h.

Professional orientation issues in counselor education and supervision; related documents, bylaws, professional expectations.

RCE:7458 (07C:458) Seminar: Current Issues and Trends in Counselor Education and Supervision 3 s.h.

Recent trends, including debates and findings in literature related to best practices for the profession.

RCE:7459 (07C:459) Seminar: Leadership and Advocacy in Counselor Education and Supervision 3 s.h.

Leadership principles and theories, including applications to counselor education; student leadership potential and skills explored through self-reflective model.

RCE:7460 (07C:460) Seminar: Research in Counseling 3 s.h.

Methods, examples, ethics, multicultural issues, problems of counseling research. Requirements: Ph.D. enrollment.

RCE:7461 (07C:461) Practicum in Research arr.

Experience designing and implementing research relevant to student's plan of study, under supervision of rehabilitation and counselor education faculty member.

RCE:7462 (07C:462) Advanced Practicum in Clinical Teaching 1-3 s.h.

Preparation for doctoral students to conduct didactic and experiential learning opportunities with counselors in training. Prerequisites: RCE:7454 (07C:454).

RCE:7465 (07C:465) Internship in Counselor Education 1-3 s.h.

Supervised experience in professional counseling, counselor supervision, consultation, teaching counseling; field placement and seminar.

RCE:7493 (07C:493) Ph.D. Thesis arr.

Science Education

Coordinator

- Soonhye Park

Affiliated faculty

- Richard Cary (Teaching and Learning), George W. Cossman (Teaching and Learning), John Dunkhase (Teaching and Learning), M. Leslie Flynn (Teaching and Learning), Brian Hand (Teaching and Learning), Ted Neal (Teaching and Learning), Soonhye Park (Teaching and Learning), Edward L. Pizzini (Teaching and Learning), Daniel S. Sheldon (Teaching and Learning), John T. Wilson (Teaching and Learning), Robert E. Yager (Teaching and Learning)

Undergraduate major: science education

Graduate degrees: M.A.T. in science education; M.S. in science education; Ph.D. in science education

Web site: <http://www.education.uiowa.edu/teach/science/home>

The Science Education Program provides preparation in more than one discipline of science; a consideration of science from a philosophical, historical, and sociological perspective; an introduction to applied science (technology); and an education sequence.

Program planning in science education requires the cooperation and involvement of a variety of University departments and colleges. Most of the program's requirements are drawn from courses offered by these varied academic units.

Undergraduate Program of Study

- Major in science education (Bachelor of Science)

The major in science education is interdisciplinary. It is intended for students interested in education; it is not intended to prepare students for advanced study in one area of science. When graduates of the Science Education Program elect to pursue graduate study in a specific area of science, they often must complete additional course work in that discipline after they are admitted to the Graduate College.

Students majoring in science education earn a Bachelor of Science degree, which is awarded by the College of Liberal Arts and Sciences.

SPECIAL RULES

The Science Education Program may involve many faculty advisors and more than one college or department. Consequently, the following special rules apply to science education students.

At least 10 s.h. of graded credit in science must be earned at The University of Iowa.

No credit from the CLEP Natural Science General Examination may be applied toward the major in science education.

Courses for the major may not be taken pass/nonpass. Grades from all courses applied toward the science education major are used in computing a student's grade-point average in the major, both at The University of Iowa and overall.

Since mathematics forms an integral part of so many aspects of modern science, all-science education students are urged to complete appropriate advanced courses in both pure and applied mathematics (including statistics and computer science) so that they may be qualified to do graduate work and quantitative research later.

Bachelor of Science

The Bachelor of Science with a major in science education requires a minimum of 120 s.h., including at least 48-50 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The science education curriculum includes courses offered by science departments in the College of Liberal Arts and Sciences, science applications courses, and courses in the history, philosophy, and sociology of science. Students who complete the major gain:

- knowledge in two or more areas of science;
- a specified proficiency in mathematics as a tool of science (with more mathematics study required for the physical science emphases than for the biological ones);
- a view of science from a historical/philosophical/cultural perspective; and
- experience with the application of scientific knowledge.

The major offers five emphasis areas: all-science, biology, chemistry, earth science, and physics.

The all-science emphasis area is open only to students who will earn teacher licensure and would like equal preparation in biology, chemistry, earth science, and physics. Students who choose the all-science emphasis area do not choose a secondary emphasis area. They must complete all requirements for teacher licensure in order to graduate in the all-science emphasis area.

Students who do not choose the all-science emphasis area may elect whether or not to earn teacher licensure. They choose a primary and a secondary emphasis area from biology, chemistry, earth science, and physics, acquiring depth in the primary emphasis area equivalent to six semesters of sequential study and preparation in the secondary area equivalent to four semesters of sequential study.

All science education students must complete the requirements for their emphasis area(s) plus the broad field science block. Those who wish to earn teacher licensure also must complete the College of Education's Teacher Education Program (TEP), including the 48 s.h. professional education sequence; see "B.S. with Teacher Licensure" later in this section.

The major in science education requires the following course work.

ALL-SCIENCE EMPHASIS AREA

Students who choose the all-science emphasis area do not choose a secondary emphasis area. They complete a minimum of 48 s.h. for the major, including at least 36 s.h. in the following course work (at least 9 s.h. in each of the four science disciplines—biology, chemistry, earth science, and physics), plus 12 s.h. in the broad field science block.

They also must complete all requirements for teacher licensure (see "B.S. with Teacher Licensure" below).

Biology—at least 9 s.h. from these:

BIOL:1411 (002:031) Foundations of Biology	4 s.h.
BIOL:1412 (002:032) Diversity of Form and Function	4 s.h.
BIOL:2211 (002:099) Genes, Genomes, and the Human Condition	3 s.h.
BIOL:2673 (002:134) Ecology	3-4 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.

Chemistry—at least 9 s.h. from these:

CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.
CHEM:2021 (004:021) Basic Measurements	3 s.h.
CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
CHEM:2220 (004:122) Organic Chemistry II	3 s.h.

Earth science—at least 9 s.h. from these:

EES:1030 (012:003) Introduction to Earth Science	3-4 s.h.
EES:1040 (012:004) Evolution and the History of Life	3-4 s.h.
EES:1050 (012:005) Introduction to Geology	4 s.h.
EES:1080 (012:008) Introduction to Environmental Science	3-4 s.h.
EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:4831 (012:112) Geologic Field Methods	3 s.h.

Physics—at least 9 s.h. chosen as follows.

At least one of these:

ASTR:1070 (029:050) Stars, Galaxies, and the Universe	3-4 s.h.
PHYS:1200 (029:006) Physics of Everyday Experience	3 s.h.

No more than one of these:

PHYS:1511 (029:011) College Physics I	4 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.
PHYS:1701 (029:027) Physics I	4 s.h.

No more than one of these:

PHYS:1512 (029:012) College Physics II	4 s.h.
PHYS:1612 (029:082) Introductory Physics II	3-4 s.h.
PHYS:1702 (029:028) Physics II	4 s.h.

Additional requirements for the major:

Course work listed under "Broad Field Science Block" below	12 s.h.
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BIOLOGY EMPHASIS AREA

Students who choose biology as their primary emphasis area complete a minimum of 50 s.h. for the major, including 23-25 s.h. in the following biology course work plus at least 15 s.h. in a secondary emphasis area (chemistry, earth science, or physics) and 12 s.h. in the broad field science block. With their advisor's permission,

students may include a science applications course in their secondary emphasis area.

This sequence:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
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One of these:

BIOL:1311 (002:081) Human Genetics in the Twenty-First Century	3 s.h.
BIOL:2512 (002:128) Fundamental Genetics	4 s.h.

One of these:

BIOL:2374 (002:103) Biogeography	3 s.h.
BIOL:2673 (002:134) Ecology	3 s.h.

One of these:

BIOL:1370 (002:022) Understanding Evolution	3 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.

One of these:

BIOL:3343 (002:124) Animal Physiology	3 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.

One of these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3363 (002:117) Plant Developmental Biology	3 s.h.

Additional requirements for the major:

Course work in a secondary emphasis area (chemistry, earth science, or physics)	15 s.h.
Course work listed under "Broad Field Science Block" below	12 s.h.

CHEMISTRY EMPHASIS AREA

Students who choose chemistry as their primary emphasis area complete a minimum of 49 s.h. for the major, including 22 s.h. in the following chemistry course work plus at least 15 s.h. in a secondary emphasis area (biology, earth science, or physics) and 12 s.h. in the broad field science block. With their advisor's permission, students may include a science applications course in their secondary emphasis area.

All of these:

CHEM:1110 (004:011)-CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
CHEM:2220 (004:122) Organic Chemistry II	3 s.h.
CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.
CHEM:3250 (004:125) Inorganic Chemistry (spring)	2 s.h.

One of these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
CHEM:3110 (004:111) Analytical Chemistry I	3 s.h.
CHEM:4431 (004:131) Physical Chemistry I	3 s.h.

Additional requirements for the major:

Course work in a secondary emphasis area (biology, earth science, or physics)	15 s.h.
Course work listed under "Broad Field Science Block" below	12 s.h.

EARTH SCIENCE EMPHASIS AREA

Students who choose earth science as their primary emphasis area complete a minimum of 48 s.h. for the major, including at least 21 s.h. in the following earth science course work plus at least 15 s.h. in a secondary emphasis area (biology, chemistry, or physics) and 12 s.h. in the broad field science block. With their advisor's permission, students may include a science applications course in their secondary emphasis area.

Both of these:

EES:1040 (012:004) Evolution and the History of Life	4 s.h.
EES:1080 (012:008) Introduction to Environmental Science	4 s.h.

One of these:

EES:1030 (012:003) Introduction to Earth Science	3-4 s.h.
EES:1050 (012:005) Introduction to Geology	4 s.h.

One of these:

EES:3000 (012:100) Geologic Training Assignment	1-3 s.h.
EES:3300 (012:130) Sedimentary Geology	4 s.h.
EES:3840 (012:132) Structural Geology	4 s.h.
EES:4831 (012:112) Geologic Field Methods	3 s.h.

One of these:

EES:3020 (012:102) Earth Surface Processes	3 s.h.
EES:3210 (012:121) Principles of Paleontology	3 s.h.
EES:3360 (012:136) Soil Genesis and Geomorphology	3 s.h.

One of these:

EES:3140 (012:114) Energy and the Environment	3 s.h.
GEOG:1050 (044:005) Foundations of GIS	3 s.h.
GEOG:4010 (044:180) Field Methods in Physical Geography	3-4 s.h.

One of these:

EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:3080 (012:108) Introduction to Oceanography	2 s.h.

Additional requirements for the major:

Course work in a secondary emphasis area (biology, chemistry, or physics)	15 s.h.
Course work listed under "Broad Field Science Block" below	12 s.h.

PHYSICS EMPHASIS AREA

Students who choose physics as their primary emphasis area complete a minimum of 47 s.h. for the major, including at least 20 s.h. in the following physics course

work plus at least 15 s.h. in a secondary emphasis area (biology, chemistry, or earth science) and 12 s.h. in the broad field science block. With their advisor's permission, students may include a science applications course in their secondary emphasis area.

One of these sequences:

PHYS:1511 (029:011)-PHYS:1512 (029:012) College Physics I-II (if physics is a secondary emphasis area)	8 s.h.
PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II	8 s.h.
PHYS:1701 (029:027)-PHYS:1702 (029:028) Physics I-II	8 s.h.

One of these:

PHYS:2703 (029:029) Physics III	4 s.h.
PHYS:3710 (029:115) Intermediate Mechanics	3 s.h.

One of these:

ASTR:1070 (029:050) Stars, Galaxies, and the Universe (if physics is a secondary emphasis area)	3-4 s.h.
ASTR:1080 (029:052) Exploration of the Solar System (if physics is a secondary emphasis area)	3-4 s.h.
ASTR:1771 (029:061) General Astronomy I	4 s.h.

One of these:

PHYS:3811 (029:129) Electricity and Magnetism I	3 s.h.
PHYS:3850 (029:128) Electronics	4 s.h.

One of these:

PHYS:1200 (029:006) Physics of Everyday Experience (if physics is a secondary emphasis area)	3 s.h.
PHYS:1410 (029:044) Physics of Sound	3-4 s.h.

Additional requirements for the major:

Course work in a secondary emphasis area (biology, chemistry, or earth science)	15 s.h.
Course work listed under "Broad Field Science Block" below	12 s.h.

BROAD FIELD SCIENCE BLOCK

All science education students must complete the following broad field science block course work (12 s.h.) in addition to the requirements for their emphasis area(s).

This course:

SIED:4135 (097:135) The Nature of Science	4 s.h.
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One of these:

SIED:4102 (097:102) Societal and Educational Applications of Earth Science and Environmental	4 s.h.
SIED:4103 (097:103) Societal and Educational Applications of Biological Sciences	4 s.h.

One of these:

SIED:4105 (097:105) Societal and Educational Applications of Physical Sciences	4 s.h.
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SIED:4106 (097:106) Societal and Educational Applications of Chemical Concepts 4 s.h.

B.S. with Teacher Licensure

In order to earn licensure to teach in elementary and/or secondary schools, students must satisfy all requirements for the science education major and for graduation and must complete the College of Education's Teacher Education Program (TEP).

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

In order to be considered for admission to the TEP, students must have completed a minimum of 30 s.h. of course work with a cumulative g.p.a. of at least 3.00. Admission decisions are based on grade-point averages in science courses and other criteria relevant to teaching. A limited number of applicants are accepted to the TEP, so having the required grade-point average does not ensure admission. Contact the Office of Education Services for information about applying to the TEP.

The TEP requires the following professional education courses, which total a minimum of 48 s.h.

EDTL:3002 (07E:102) Technology in the Classroom	2-3 s.h.
EDTL:3071 (07S:171) Secondary Classroom Management	2 s.h.
EDTL:3090 (07S:190) Orientation to Secondary Education	1 s.h.
EDTL:3095 (07S:195) Teaching Reading in Secondary Content Areas	1 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.
PSQF:1075 (07P:075) Educational Psychology and Measurement	3 s.h.

These taken in sequence:

EDTL:4751 (07S:151) Science Teaching and Practice with Early Learners	2 s.h.
EDTL:4752 (07S:152) Methods of Teaching Science	3 s.h.
EDTL:4753 (07S:153) Instructional Issues in Teaching Science	3 s.h.
EDTL:4757 (07S:157) Assessment in the Science Classroom	2 s.h.
EDTL:4779 (07S:179) Secondary School Science Practicum (taken with EDTL:4753)	2 s.h.

These three taken concurrently:

EDTL:4087 (07S:187) Seminar: Curriculum and Student Teaching (section 91)	3 s.h.
EDTL:4091 (07S:191) Observation and Laboratory Practice in the Secondary School	6 s.h.
EDTL:4092 (07S:192) Observation and Laboratory Practice in the Secondary School	6 s.h.

And:

One college-level math course, excluding MATH:0100 (22M:001), MATH:0300 (22M:003), and MATH:1005 (22M:008)

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available to students majoring in science education.

Honors in the Major

The Science Education Program offers outstanding students the opportunity to graduate with honors in the major. Honors students in science education must maintain a cumulative University of Iowa g.p.a. of at least 3.33 and fulfill other requirements; contact the Science Education Program for more information about graduating with honors in the science education major.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Graduate Programs of Study

- Master of Arts in Teaching in science education
- Master of Science in science education
- Doctor of Philosophy in science education

For information about graduate programs in science education, see Teaching and Learning (p. 814) (College of Education) in the Catalog. The M.A.T., M.S., and Ph.D. are described under "Graduate Programs: Secondary Education."

Research

Each faculty member in science education is responsible for one or more areas of research. Major interests include studies of effective teaching and learning, science through writing, philosophy and sociology of science, individualized learning, social issues in science and technology, curriculum planning and development, professional development, intellectual development related to teaching and learning science, studies of effective use of hands-on activities, and evaluation and assessment of science instruction and programs.

Programs and Projects

A wide range of funded programs provides ample opportunity for students to be involved in innovative development and research in science education.

Science education faculty members collaborate on a number of international research projects in many countries. Activities include faculty exchanges and cross-national studies.

International students enrich the opportunities for graduate studies in Science Education. New international collaborative efforts are under way each year.

Courses

SIED:3001 (097:115) Introduction to Museum Studies 3 s.h.

Overview of museum history, function, philosophy, collection, and curatorial practices; governance and funding issues; exhibition evaluation and audience studies; examples from Museum of Art, Museum of Natural History, Old Capitol Museum, and Medical Museum. GE: Social Sciences. Same as EDTL:3001 (07S:112), ANTH:3001 (113:103), MUSM:3001 (024:102).

SIED:4102 (097:102) Societal and Educational Applications of Earth Science and Environmental arr.

Major ideas and principles of earth and environmental sciences; emphasis on common applications in today's world.

SIED:4103 (097:103) Societal and Educational Applications of Biological Sciences arr.

Basic conceptual themes of biology, how they have been derived; emphasis on a current social issue related to biology.

SIED:4105 (097:105) Societal and Educational Applications of Physical Sciences arr.

Major ideas of physics and how they have been derived; emphasis on how such ideas affect modern society.

SIED:4106 (097:106) Societal and Educational Applications of Chemical Concepts arr.

Principles of chemistry as applied in industry, communication, daily living.

SIED:4107 (097:107) Textile Science 3 s.h.

Fiber, yarn, and fabric science; fabric painting, dyeing, and other laboratories. Same as THTR:4207 (049:142).

SIED:4115 (097:119) Directed Study arr.

SIED:4135 (097:135) The Nature of Science 4 s.h.

Ideas on understanding and ways of thinking that are essential in a world shaped by science, technology, engineering, and mathematics; focus on increasing science literacy by examining the nature of science; comparison of characteristics specific to individual science disciplines; identification of great episodes and debates in history of science and habits that are essential for science literacy; scope and sequence of content and process skills for K-12 curriculum, instruction, and assessment.

Teaching and Learning

Chair

- John Hosp

Professors

- Greg Hamot, Brian Hand, Jo M. Hendrickson, Ellen Herman, John Hosp, Paul M. Retish, Pamela Ries, Bonnie Sunstein

Associate professors

- Clara Baldus, Rori Carson, Richard T. Cary, Mary Cohen, Carolyn Colvin, Laurie Croft, Linda G. Fielding, Geoffrey Hope, Youjia Hua, Nancy Langguth, Deborah Linebarger, Mark McDermott, Soonhye Park, Lia Plakans, Renita Schmidt, Leslie L. Schrier, Walter I. Seaman, Amy Shoultz, Amanda Thein, Suzanne Woods-Groves

Assistant professors

- Allison Bruhn, Kyong Mi Choi, Leslie Flynn, Pamela Wesely

Instructors

- Jane Cranston, Carol Girdler, Ted Neal

Adjunct professor

- John Achrazoglou

Professors emeriti

- Jack Bagford, Don D. Coffman, Alan R. Frank, Beatrice A. Furner, Dennis C. Harper, Jerry N. Kuhn, William H. Nibbelink, Kenneth H. Phillips, Edward L. Pizzini, Harold L. Schoen, Richard Shepardson, Douglas M. Trank, Robert E. Yager, Marilyn J. Zweng

Associate professors emeriti

- Alice M. Atkinson, George W. Cossman, John Dunkhase, Richard Elardo, Michael Everson, Bruce Fehn, Gary F. Hansen, John Kiraly Jr., Daniel S. Sheldon, John T. Wilson

Undergraduate major: elementary education (B.A., B.S., granted by the College of Liberal Arts and Sciences)

Graduate degrees: M.A.T. in science education; M.S. in science education; Ph.D. in science education; M.A. in teaching and learning; M.A.T. in teaching and learning; Ph.D. in teaching and learning

Web site: <http://www.education.uiowa.edu/teach>

Department of Teaching and Learning programs prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. All licensure programs are approved by the Iowa Department of Education. Undergraduate students pursuing a major in elementary education must meet the College of Liberal Arts and Sciences requirements for the Bachelor of Arts or Bachelor of Science; see the CLAS Academic Policies Handbook.

Teacher Education Program and Licensure/Certification

Undergraduate students must be admitted to the Teacher Education Program (TEP) before they may take required professional education courses. The application for admission should be submitted to the College of Education Office of Education Services. Deadlines for application are

March 1 and October 1 for admission to restricted course work in the following semester. Each program reviews applications and chooses a limited number of students for admission.

In order to be considered for admission, students must complete a minimum of 30 s.h. of earned college credit and must have a University of Iowa g.p.a. of at least 3.00 and a cumulative g.p.a. of at least 3.00. Some subject areas have additional admission criteria. A limited number of applicants are accepted into each Teacher Education Program, so a 3.00 g.p.a. does not ensure admission. Admission decisions are based on grade-point average in the major and other criteria relevant to teaching success.

The application process includes submission of an application form, a writing sample, two letters of recommendation, and an Iowa criminal history check request form. Applicants are required to submit PRAXIS I test scores in mathematics, reading, and writing. Scores from either the PRAXIS computer-based tests (C-PPST) or the PRAXIS Pre-Professional Skills Tests (PPST) are accepted. Applicants must have a Designated Institution Score Report with a minimum composite score of at least 522 and a minimum score of 170 on any single portion of the test; or a Praxis Core Test Designated Institution Score Report with minimum scores of 156 in reading, 162 in writing, and 150 in mathematics. Applicants also must provide verification that they have completed a 10-hour volunteer experience in a K-12 classroom setting.

If at any time after admission a student's University of Iowa and/or cumulative g.p.a. falls below 2.70, he or she is placed on probation for one semester. Students who do not attain a 2.70 g.p.a. during the probationary semester are dropped from the TEP. Students should consult a College of Education advisor in their program area or contact the Office of Education Services for more information on admission criteria.

Graduate students who apply to the Graduate College for a teacher licensure program must apply separately for admission to the Teacher Education Program. Deadlines for application to either program are October 1 or March 1 for admission to restricted course work in the following semester. Graduate and postbaccalaureate students may submit scores on the Graduate Record Exam (GRE) General Test instead of PRAXIS I scores. Applicants must have a verbal reasoning and quantitative reasoning composite score of at least 300 on the revised GRE (at least 1080 on the old GRE) and an analytical writing score of at least 3.0.

A limited number of applicants are accepted into each Teacher Education Program, so meeting the Graduate College admission requirements does not ensure admission. Admission decisions are based on grade-point average in the undergraduate major and other criteria relevant to teaching. Upon admission to the TEP, students are assigned an education advisor.

Admission to Student Teaching

Admission to the student teaching semester requires a separate application. Applications must be submitted one year before the student teaching semester. Applicants' credentials and academic and professional progress are reviewed to ensure that the student is qualified for placement in the profession. Verification that the student meets all specific program area requirements is made when the student applies for student teaching.

Consult a College of Education advisor or the Office of Education Services for information about admission and requirements for student teaching in specific licensure programs.

TEP: Elementary Education (Undergraduate)

- Major in elementary education (Bachelor of Arts, Bachelor of Science)

The College of Education offers the undergraduate major in elementary education for students earning a Bachelor of Arts or a Bachelor of Science degree from the College of Liberal Arts and Sciences. The program prepares students to teach kindergarten through grade 6. In Iowa, the elementary specialization areas are designated as kindergarten through grade 8.

The Bachelor of Arts or Bachelor of Science with a major in elementary education requires a minimum of 120 s.h., including at least 83-85 s.h. of credit for the major. Students must complete all requirements for graduation from the College of Liberal Arts and Sciences, including the General Education Program (p. 323). They also must complete all requirements for the elementary education major and the Teacher Education Program (TEP), including student teaching.

As a requirement for completion of an approved Teacher Education Program for initial teaching licensure, the state of Iowa requires a passing score on two tests: a test that measures pedagogy and a test that measures knowledge of at least one content area. Current requirements are for Praxis II tests that are specific to a student's program. The tests are required before recommendation for licensure or certification to any state.

The major in elementary education (B.A. or B.S.) requires the following work.

FOUNDATION COURSES

Students may complete the foundation courses before being admitted to the major in elementary education, but the courses are not prerequisite to admission to the major.

EDTL:3122 (07E:122) Creativity, Imagination, Play, and Human Development through the Arts	3 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
MATH:1120 (22M:006) Logic of Arithmetic	4 s.h.
PSQF:1075 (07P:075) Educational Psychology and Measurement	3 s.h.

COURSES FOR THE MAJOR

First Semester

EDTL:3002 (07E:102) Technology in the Classroom	2-3 s.h.
EDTL:3103 (07E:103) Assessment for Instructional Planning and Practice	3 s.h.
EDTL:3123 (07E:123) Reading and Responding to Children's Literature	3 s.h.
EDTL:3127 (07E:127) Methods and Materials: Physical Education, Health, and Wellness	2-3 s.h.

EDTL:3190 (07E:090) Orientation to Elementary Education	1-2 s.h.
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Second Semester

EDTL:3160 (07E:160) Literacy Learning and Teaching I	3 s.h.
EDTL:3163 (07E:163) Methods: Elementary School Mathematics	2-3 s.h.
EDTL:3170 (07E:170) Elementary Classroom Management	1-3 s.h.
EDTL:3174 (07E:174) Elementary Math Practicum	arr.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.

Third Semester

One of these:

EDTL:3154 (07E:154) Teaching and Learning in the Earth Sciences	3 s.h.
EDTL:3158 (07E:158) Teaching and Learning in the Biological Sciences	3 s.h.
EDTL:3159 (07E:159) Teaching and Learning in the Chemical/Physical Sciences	3 s.h.

All of these:

EDTL:3120 (07E:120) Methods and Materials: Music for the Classroom Teacher	2 s.h.
EDTL:3161 (07E:161) Social Studies for the Elementary Classroom Teacher	3 s.h.
EDTL:3164 (07E:164) Literacy Learning and Teaching II	3 s.h.
MATH:1140 (22M:081) Geometry for Elementary Teachers	3 s.h.

Fourth Semester

One of these:

EDTL:3154 (07E:154) Teaching and Learning in the Earth Sciences	3 s.h.
EDTL:3158 (07E:158) Teaching and Learning in the Biological Sciences	3 s.h.
EDTL:3159 (07E:159) Teaching and Learning in the Chemical/Physical Sciences	3 s.h.

All of these:

EDTL:3172 (07E:172) Elementary Reading Practicum	3-4 s.h.
EDTL:4171 (07E:171) Literacy Learning and Teaching III	3 s.h.
STAT:1010 (22S:002) Statistics and Society	3 s.h.

STUDENT TEACHING

Students seeking initial licensure must complete a minimum of 14 s.h. of student teaching.

EDTL:4190 (07E:190) Supervised Teaching in the Elementary School: Interactive Phase	7 s.h.
EDTL:4191 (07E:191) Supervised Teaching in the Elementary School: Pre- and Post-Active Phase	7 s.h.

ENDORSEMENTS

Students have the option of completing an endorsement in one of the following areas: art, English language

arts, English as a Second Language (ESL), hearing impaired, mathematics, middle school, music, physical education, reading, science, social sciences (history, social studies), special education (Instructional Strategist I: Mild/Moderate), and speech communication/theatre. Courses in the endorsement area may be taken pass/nonpass if they are offered with the pass/nonpass option. Requirement lists for each endorsement area are available from the Teacher Leader Center.

The University of Iowa also offers an added endorsement in talented and gifted education.

TRANSFER STUDENTS

Before they student teach, transfer students must complete the following courses at The University of Iowa.

All of these:

EDTL:3002 (07E:102) Technology in the Classroom	2 s.h.
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EDTL:3190 (07E:090) Orientation to Elementary Education	1-2 s.h.
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A practicum

Two of these:

EDTL:3123 (07E:123) Reading and Responding to Children's Literature	3 s.h.
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EDTL:3160 (07E:160) Literacy Learning and Teaching I	3 s.h.
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EDTL:3161 (07E:161) Social Studies for the Elementary Classroom Teacher	3 s.h.
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EDTL:3163 (07E:163) Methods: Elementary School Mathematics	2-3 s.h.
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EDTL:3164 (07E:164) Literacy Learning and Teaching II	3 s.h.
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Transfer students must follow the normal application procedures. In addition, they are asked to complete a disclosure statement describing all practicum experiences they have taken at other institutions and a release statement allowing the College of Education Office of Education Services to contact all institutions where they have done professional preparatory work.

TEP: Secondary Education (Undergraduate and Graduate)

The College of Education offers the Teacher Education Program in secondary education for undergraduate students in the College of Liberal Arts and Sciences. Students must complete all requirements for graduation from the College of Liberal Arts and Sciences, including the General Education Program (p. 323) and the requirements for their majors (see College of Liberal Arts and Sciences (p. 22) in the Catalog). They also must complete all requirements of the College of Education's Teacher Education Program.

Graduate students may be admitted to a program leading to teacher licensure/certification as "certification only" candidates in the Graduate College. They are subject to all Graduate College policies; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. Eligible graduate students also may complete initial teacher licensure/certification requirements by earning an M.A.T. in English

education, foreign language education, or science education, or an M.A. in social studies (program B).

Licensure/certification requires a major of at least 30 s.h. of course work in one of the secondary school subject areas listed below. Licensure/certification course requirements for each major are available from the Department of Teaching and Learning office. Candidates for secondary school teaching licensure/certification also may receive approval to teach in additional subject areas by completing an approved program of 12-24 s.h. or more of course work in those areas.

As a requirement for completion of an approved Teacher Education Program for initial teaching licensure, the state of Iowa requires a passing score on two tests: a test that measures pedagogy and a test that measures knowledge of at least one content area. Current requirements are for Praxis II tests that are specific to a student's program. The tests are required before recommendation for licensure or certification to any state.

The College of Education offers secondary school teacher preparation programs in the following areas.

Art

*Coaching

English

*English as a second language

*Hearing impaired

*Journalism

Mathematics

*Middle school

Music

*Reading

Science, including *physical science, biology, chemistry, *general science, physics, earth science, and 9-12 all science

Social science, including anthropology, economics, geography, history, political science, psychology, and sociology

*All social sciences

*Talented and gifted

World languages—Chinese, French, German, Italian, Japanese, Latin, Russian, Spanish

*Available as an additional approval area only; a major in one of the other areas is required for licensure.

An Iowa secondary teaching license qualifies holders to teach in grades 5-12. Students planning to teach art or music typically complete a program that prepares them for both elementary- and secondary-level licensure.

Secondary teacher preparation programs in mathematics and foreign language also offer a program that leads to licensure/certification as a subject matter specialist in grades K-8. This K-8 licensure/certification is available only in the same subject area as the secondary certification.

For more information and the name of an advisor, contact the Department of Teaching and Learning.

REQUIREMENTS

Undergraduates working toward licensure/certification to teach in secondary schools must complete the following requirements in addition to the requirements of their major. All course work must be completed before student teaching.

One introduction and practicum course in the major field	2-3 s.h.
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EDTL:3002 (07E:102) Technology in the Classroom (must be taken during student's first semester in the college)	2 s.h.
EDTL:3071 (07S:171) Secondary Classroom Management (required for art, mathematics, science, social studies education)	2 s.h.
EDTL:3090 (07S:190) Orientation to Secondary Education (must be taken during student's first semester in the college)	1 s.h.
EDTL:3095 (07S:195) Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college)	1 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.
PSQF:1075 (07P:075) Educational Psychology and Measurement	3 s.h.
One or more methods of teaching courses in the major field	3-9 s.h.
One college-level mathematics course, except MATH:0100 (22M:001), MATH:0300 (22M:003), and MATH:1005 (22M:008)	
Student teaching	12 s.h.

For initial licensure in all subject areas, student teaching must be an all-day, full-semester experience. Most students are placed in a district within a 60-mile radius of Iowa City. Placements outside this area require special approval and are considered on an individual basis. Special programs provide experience in districts with diverse populations, including Aldine, Texas (Houston area); Adams County, Colorado (Denver area); Rialto, California; and Clark County, Nevada (Las Vegas area). In most program areas, students also may apply to student teach at international sites for the second half of the semester.

Additional information about options for student teaching and application procedures is available from the Office of Education Services. Applications for student teaching must be submitted during the calendar year before the student teaching semester. The deadline is November 15 for students planning to student teach the following fall semester and February 15 for students planning to student teach the following spring semester.

TRANSFER STUDENTS

Transfer students must complete the following work before they student teach.

EDTL:3002 (07E:102) Technology in the Classroom	2-3 s.h.
EDTL:3090 (07S:190) Orientation to Secondary Education	1 s.h.
EDTL:3095 (07S:195) Teaching Reading in Secondary Content Areas	1 s.h.
Appropriate methods courses	
A practicum at The University of Iowa	
All course work in the major	

Transfer students must follow the normal application procedures. In addition, they are asked to complete a disclosure statement describing all practicum experiences they have taken at other institutions and a release statement allowing the College of Education Office of

Education Services to contact all institutions where they have done professional preparatory work.

Graduate Programs of Study: Overview

- Master of Arts in Teaching in science education
- Master of Science in science education
- Doctor of Philosophy in science education
- Master of Arts in teaching and learning
- Master of Arts in Teaching in teaching and learning
- Doctor of Philosophy in teaching and learning

The department offers graduate degree programs in three major areas: elementary education, secondary education, and special education.

Elementary education programs:

Developmental reading (offered in the M.A. in teaching and learning); and Language, literacy, and culture (offered in the Ph.D. in teaching and learning).

Secondary education programs:

Art education (offered in the M.A. in teaching and learning); English education (offered in the M.A. and M.A.T. in teaching and learning); Foreign language and English as a Second Language (ESL) education (offered in the M.A., M.A.T., and Ph.D. in teaching and learning); Language, literacy, and culture (offered in the Ph.D. in teaching and learning); Mathematics education (offered in the M.A., M.A.T., and Ph.D. in teaching and learning); Science education (offered in the M.A., M.A.T., and Ph.D. in science education); and Social studies education (offered in the M.A. and Ph.D. in teaching and learning).

The secondary education area also collaborates with the College of Liberal Arts and Sciences to offer an education option for graduate students earning an M.S. in mathematics; an M.A. and Ph.D. in music with a concentration in music education; and a joint B.A./M.A.T. in science education for undergraduates majoring in biology, chemistry, environmental sciences, or physics. In addition, the area offers an ESL endorsement for individuals who are enrolled in a Department of Teaching and Learning graduate degree program or who are licensed in-service teachers.

Special education:

Special education (offered in the M.A. and Ph.D. in teaching and learning); and A program leading to special education consultant authorization.

Each degree program is described below.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

REQUIRED PH.D. RESEARCH COURSES

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must

complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students choose from courses listed at Ph.D. Research Requirements.

REQUIRED PH.D. CORE COURSES

All Ph.D. students in the Department of Teaching and Learning must complete one or both of the following Ph.D. core courses, depending upon program requirements.

EDTL:7004 (07E:304) Schooling in the United States	3 s.h.
EDTL:7033 (07S:333) Seminar on Teacher Education	3 s.h.

REQUIRED PH.D. COGNATES

All Ph.D. students in the Department of Teaching and Learning must complete two approved cognate areas as part of their doctoral study plan. Most comprehensive exams in the department are designed to cover the student's core area plus two cognate areas, so selection of cognate areas is important. Cognates also may enhance students' employment possibilities, since they represent a minor area of study.

The following list of cognates offered by program areas in the department is not exhaustive; students may select cognates from this list, or they may customize their own cognate areas in consultation with their advisors.

Curriculum Theory and Development

Both of these:

EDTL:5086 (07S:186) Curriculum Foundations	2-3 s.h.
EDTL:7100 (07E:300) Design and Organization of Curriculum	3 s.h.

One of these:

EPLS:6265 (07B:265) Standards-Based Education and Accountability	3 s.h.
EPLS:6381 (07B:381) Analysis and Appraisal of Curriculum	3 s.h.
PSQF:6255 (07P:255) Construction and Use of Evaluation Instruments	3 s.h.

Foreign Language and ESL Education

Both of these:

EDTL:6400 (07S:200) Fundamentals of Second Language Assessment	3 s.h.
EDTL:6483 (07S:183) Second Language Classroom Learning	3 s.h.

One of these, chosen in consultation with faculty:

EDTL:6403 (07S:203) Second Language Planning in Education	3 s.h.
EDTL:6480 (07S:180) Issues in Foreign Language Education	3 s.h.
EDTL:6484 (07S:184) Reading in a Second Language	3 s.h.
EDTL:6497 (07S:197) Principles of Course Design for Second Language Instruction	3 s.h.

Gifted Education

Administrative strand—two of these, chosen in consultation with faculty:

EPLS:4110 (07B:110) Administration and Policy in Gifted Education	2 s.h.
EPLS:4111 (07B:111) Evaluation of Gifted Programs	1 s.h.
EPLS:4113 (07B:113) Staff Development for Gifted Programs	1 s.h.
RCE:4127 (07C:127) Research and Theory in Talent/Giftedness	1 s.h.

Programming strand:

EDTL:4066 (07E:166) Curriculum Concepts in Gifted Education	3 s.h.
EDTL:4199 (07E:199) Program Models in Gifted Education	3 s.h.

Psychology strand—two of these, chosen in consultation with faculty:

RCE:4120 (07C:120) Psychology of Giftedness	3 s.h.
RCE:4121 (07C:121) Identification of Students for Gifted Programs	3 s.h.
RCE:4137 (07C:137) Introduction to Educating Gifted Students	3 s.h.
RCE:5226 (07C:226) Assessment of Giftedness	3 s.h.
RCE:5237 (07C:237) Seminar in Gifted Education	2-3 s.h.

Global Education

All of these:

EDTL:6841 (07S:341) Infusing a Global Perspective into the Curriculum	3 s.h.
EPLS:5104 (07B:104) Education in the Third World	2-3 s.h.
EPLS:5195 (07B:195) Research in Cross-Cultural Settings	3 s.h.

Language, Literacy, and Culture

Both of these:

EDTL:7015 (07S:415) Ph.D. Seminar in Language, Literacy, and Culture	arr.
EDTL:7015 (07S:415) Ph.D. Seminar in Language, Literacy, and Culture (with a topic chosen in consultation with advisor)	arr.

General emphasis—one of these:

EDTL:7008 (07E:308) Seminar: Research and Current Issues	arr.
EDTL:7008 (07E:308) Seminar: Research and Current Issues (with a topic chosen in consultation with advisor)	arr.

Elementary emphasis—one of these:

EDTL:6104 (07E:204) Literature for Children II	3 s.h.
EDTL:6164 (07E:264) Early Literacy Development and Instruction	2-3 s.h.
EDTL:6165 (07E:265) Reading and Writing Across Intermediate Grades	3 s.h.

Secondary emphasis—one of these:

EDTL:3393 (07S:193) Reading and Teaching Adolescent Literature	3 s.h.
EDTL:6315 (07S:315) M.A. Seminar: English Education	arr.

Mathematics Education

Both of these:

EDTL:5535 (07S:235) Current Issues in Mathematics Education 1-3 s.h.

EDTL:7535 (07S:335) Seminar: Research in Mathematics Education arr.

Two of these:

EDTL:6530 (07S:230) Workshop in School Mathematics 1-3 s.h.

EDTL:6531 (07S:231) Technology in School Mathematics 2-3 s.h.

EDTL:6534 (07E:234) Foundations of Mathematics Education 2-3 s.h.

EDTL:6536 (07S:236) Teaching of Geometry 2-3 s.h.

EDTL:6539 (07S:239) Teaching of Algebra 2-3 s.h.

Science Education

All of these:

EDTL:6755 (07S:255) Practices of Inquiry in Science Learning Environments 3 s.h.

EDTL:6757 (07S:257) Learning in the Science Classroom 2-3 s.h.

EDTL:6759 (07S:259) Advanced Pedagogy 3 s.h.

Special Education

Three or four of these, depending on requirements of the major program:

EDTL:7040 (07E:340) Advanced Topics in Teaching and Learning arr.

EDTL:7945 (07U:345) Current Issues and Trends in Learning Disabilities 3 s.h.

EDTL:7948 (07U:348) Contemporary Research in Behavioral Disorders 3 s.h.

EDTL:7953 (07U:353) Seminar: Single Subject Design Research 3 s.h.

Graduate Programs of Study: Elementary Education

M.A.: Developmental Reading

The Master of Arts program in developmental reading requires a minimum of 33 s.h. of graduate credit with thesis and a minimum of 35 s.h. of graduate credit without thesis. The program prepares graduate students for positions as reading specialists in kindergarten and grades 1-12. The required course work develops the skills, knowledge, and competence needed for supervisory, curricular, and remedial teaching positions in reading. The program also builds a background in reading for students who want to specialize further in the area and eventually to teach and/or conduct research at a college or university.

Successful completion of this program, combined with one year of successful teaching experience that includes teaching reading as a significant part of the responsibility, qualifies the student for certification as a reading specialist.

The M.A. program in developmental reading requires the following work.

REQUIRED COURSES

All of these:

EDTL:4171 (07E:171) Literacy Learning and Teaching III 3 s.h.

EDTL:4394 (07S:194) Methods: Secondary Reading 2-3 s.h.

EDTL:6164 (07E:264) Early Literacy Development and Instruction 2-3 s.h.

EDTL:6165 (07E:265) Reading and Writing Across Intermediate Grades 3 s.h.

EDTL:6171 (07E:271) Advanced Reading Clinic Techniques 2-3 s.h.

EDTL:6172 (07E:272) Advanced Reading Clinic Practicum 2-3 s.h.

EDTL:7008 (07E:308) Seminar: Research and Current Issues (Reading) 3 s.h.

One of these:

PSQF:4106 (07P:106) Child Development 3 s.h.

PSQF:4130 (07P:130) Early Adolescent Development 3 s.h.

PSQF:4133 (07P:133) The Adolescent and Young Adult 3 s.h.

PSQF:6200 (07P:200) Educational Psychology 3 s.h.

Students who have completed educational psychology and/or human growth and development course work relating only to grades K-8 should choose PSQF:4130 (07P:130), PSQF:4133 (07P:133), or PSQF:6200 (07P:200) from the list above. Those who have completed work relating only to grades 5-12 should choose PSQF:4106 (07P:106) or PSQF:6200 (07P:200).

One of these:

EDTL:3938 (07U:138) Assessment of Learning Problems 3 s.h.

PSQF:4150 (07P:150) Introduction to Educational Measurement 3 s.h.

An approved literacy assessment course

One of these:

EDTL:5086 (07S:186) Curriculum Foundations 2-3 s.h.

EDTL:6167 (07E:267) Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms 3 s.h.

EDTL:7100 (07E:300) Design and Organization of Curriculum 3 s.h.

One of these:

EPLS:6383 (07B:383) Supervision and Evaluation 3 s.h.

EDTL:7165 (07E:365) Reading Clinic: Supervision arr.

Thesis (required for thesis option):

EDTL:6393 (07S:393) Master's Thesis 2 s.h.

ELECTIVES

Students, in consultation with their advisors, may select the remaining required semester hours as electives from areas such as curriculum, supervision, language arts, testing and evaluation, linguistics, or speech pathology.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of two three-hour exams. Each three-hour exam is based on an aspect of reading or literacy. With agreement of the student's advisor and committee, a comprehensive project may be substituted for the written examination in one or both areas.

ADMISSION

Applicants to the M.A. program in developmental reading must meet the admission requirements of the Graduate College. They must have an undergraduate g.p.a. of at least 3.00; hold an early childhood, elementary, or secondary school teaching certificate; and show evidence of completing two years of successful teaching experience.

Ph.D.: Language, Literacy, and Culture

The Doctor of Philosophy program in language, literacy, and culture requires a minimum of 88-90 s.h. of graduate credit. The program brings together scholarly traditions and contemporary theory in literacy and cultural studies. Course work provides both a broad background in relevant theoretic and research literature and opportunities to conduct original studies that explore the nature of literacy practices both in and out of school. Graduates find employment in university and college teaching, research, curriculum development, and administration of literacy programs.

REQUIRED COURSES

Course work for the Ph.D. includes an introductory seminar in language, literacy, and culture; at least 9 s.h. of additional doctoral seminars in the program; an approved cognate area (see "Required Ph.D. Cognates" under "Graduate Programs: Overview" above); and 9-12 s.h. of graduate course work outside the Department of Teaching and Learning (6 s.h. of that outside the College of Education). Students also earn 10-12 s.h. of dissertation credit.

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

In addition, all language, literature, and culture students must complete one of the following Department of Teaching and Learning core courses.

EDTL:7004 (07E:304) Schooling in the United States	3 s.h.
EDTL:7033 (07S:333) Seminar on Teacher Education	3 s.h.

COMPREHENSIVE EXAMINATION AND DISSERTATION

As students near the completion of their course work, they identify several key strands for review and synthesis. With guidance from their advisors, students prepare three forms of written and oral exams: they answer take home questions in two areas of literacy; they submit a substantive issues paper, typically a report of an

exploratory study or a review of research literature on a topic of special interest; and they design a syllabus for a literacy course and write a reflective commentary that demonstrates understanding of the relationship between theory and practice.

Following successful completion of all components of the comprehensive exam, students work with a faculty member to develop a proposal for a study that will make an original contribution to the understanding of some aspect of literacy. After the proposal has been approved, students conduct research and report their findings under the primary guidance of a dissertation chair.

For detailed information on the Ph.D. in language, literacy, and culture, see Our Programs on the Department of Teaching and Learning web site.

ADMISSION

Applicants to the Ph.D. program in language, literacy, and culture must meet the admission requirements of the Graduate College. They should have at least three years of experience teaching or tutoring language or literacy (reading, writing, English, language arts) and should have earned a master's degree in a literacy-related field. Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam (GRE) General Test scores; a sample of academic writing; and three letters of recommendation.

Applications for admission and for financial aid are reviewed by December 1 each year.

Graduate Programs of Study: Secondary Education

The Department of Teaching and Learning offers, or jointly administers with departments in the College of Liberal Arts and Sciences, advanced degree programs in the following fields of professional interest: art education; curriculum and supervision; English education; foreign language, second language, and English as a Second Language education; mathematics education; music education; science education; and social studies education.

M.A.: Art Education

The Master of Arts program in art education requires a minimum of 38 s.h. of graduate credit. The program prepares highly qualified teachers of art for elementary and secondary schools and community colleges. Its strong academic emphasis helps teachers who are creative artists to become highly literate in the history and language of art.

REQUIREMENTS

The M.A. plan of study includes a total of 18 s.h. in studio art and art history (either 12 s.h. of studio art and 6 s.h. of art history, or 12 s.h. of art history and 6 s.h. of studio art); a total of 8 s.h. in EDTL:6267 (07S:367) Seminar: Current Issues in Art Education; and a total of 12 s.h. in additional course work, specified after the student begins the program.

M.A. students also must complete a studio thesis or a written thesis.

ADMISSION

Applicants to the M.A. program in art education must meet the admission requirements of the Graduate College. They must have completed the equivalent of the minimum course work in art required for a University of Iowa B.A. or B.F.A. in art and must have a license/certificate to teach art. Applications must include a representative portfolio of the applicant's work, consisting of eight slide reproductions of artwork and one example of written work, which may be a paper previously written for a course or an original paper. Deficiencies in undergraduate art or courses recommended for teacher licensure/certification are evaluated following admission so that students can make up required course work concurrent with work for the degree.

M.A.: English Education

The Master of Arts program in English education requires a minimum of 30 s.h. of graduate credit. The program is intended for experienced teachers of English. It provides opportunities for professional development and preparation for department chairs, supervisors of English, and curriculum specialists for secondary schools.

M.A. students specialize in English education and in one or two other areas. The other area(s) may include reading, writing, curriculum, adolescent literature, or a literary area. Students and their advisors plan the program of study together. The only required course is EDTL:6315 (07S:315) M.A. Seminar: English Education. At the end of the program, students take a comprehensive examination in English education and in their chosen area(s), or they may choose to write a thesis.

Students must maintain a g.p.a. of at least 3.00 while enrolled in the program.

ADMISSION

Applicants to the M.A. program in English education must meet the admission requirements of the Graduate College. They should have taken extensive course work in English and should have taught English for at least two years. Application should be made to the College of Education.

M.A.T.: English Education

The Master of Arts in Teaching program in English education requires a minimum of 45 s.h. of graduate credit. The program is designed for students who have an undergraduate degree in English and few or no professional education courses. Successful completion of the program enables students to receive a credential to teach English in secondary schools.

The M.A.T. program in English education requires the following work.

ENGLISH

All of these:

EDTL:6315 (07S:315)/ENGL:6315 (08P:405) M.A. Seminar: English Education	arr.
CNW:4355 (08N:141) Approaches to Teaching Writing	3 s.h.
ENGL:3190 (08P:182) Language and Learning	2-3 s.h.
ENGL:3191 (08P:198) Reading and Teaching Adolescent Literature	3 s.h.

Students may take the following English courses as part of the M.A.T. program or as part of their undergraduate program.

A course in Shakespeare

Three courses in American literature

A course in British literature

A course in nonfiction or creative writing, in addition to CNW:4355 (08N:141)

EDUCATION

All of these:

EDTL:3002 (07E:102) Technology in the Classroom (must be taken during student's first semester in the college)	2 s.h.
EDTL:3090 (07S:190) Orientation to Secondary Education	1 s.h.
EDTL:4087 (07S:187) Seminar: Curriculum and Student Teaching	1-3 s.h.
EDTL:4091 (07S:191) Observation and Laboratory Practice in the Secondary School	arr.
EDTL:4092 (07S:192) Observation and Laboratory Practice in the Secondary School	arr.
EDTL:4314 (07S:114) Introduction and Practicum: Secondary English (must be completed before enrollment in EDTL:4315 and EDTL:4394)	3 s.h.
EDTL:4315 (07S:115) Methods: Secondary English	3 s.h.
EDTL:4394 (07S:194) Methods: Secondary Reading	2-3 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.
PSQF:6200 (07P:200) Educational Psychology	3 s.h.

COMPREHENSIVE EXAMINATION

The comprehensive examination involves a series of reflective projects supervised by English education faculty. The projects encompass issues explored throughout the course of study and involve integration of theory and practice.

ADMISSION

Applicants to the M.A.T. program in English education must meet the admission requirements of the Graduate College. They must have been granted a B.A. in English or the equivalent, with an undergraduate g.p.a. of at least 3.00. They also must take the Graduate Record Exam and meet all TEP application requirements. Since the M.A.T. is a credentialing program, candidates must not have qualified previously for a credential. Applicants are expected to have no more than 6 s.h. of course work in professional education courses before admission.

ESL Endorsement

An ESL endorsement enables an individual to teach English as a Second Language in K-12 in the state of Iowa. Because teaching endorsements are additional areas of expertise added to a teaching license, applicants must be

current students in a TEP program or licensed in-service teachers.

ADMISSION

Each applicant to the ESL endorsement program must submit a one-page essay explaining why he or she wishes to teach ESL; a transcript of all university-level course work; and evidence of having completed two semesters of foreign language beyond the language component of the College of Liberal Arts and Sciences General Education Program (p. 323) or a documented score of "advanced plus" on the oral proficiency interview (OPI) given in the language department. Applicants whose first language is not English must provide evidence of scoring 55 or higher on the Test of Spoken English (TSE) or 26 (Internet-based) on the speaking section of the Test of English as a Foreign Language (TOEFL).

Applicants are admitted to the ESL endorsement program twice a year; application deadlines are October 15 and March 15.

M.A.: Foreign Language and ESL Education

The Master of Arts program in foreign language and English as a Second Language (ESL) education requires a minimum of 33-36 s.h. of graduate credit. The program is designed for students who would like to pursue a foreign language and ESL education specialization in teaching (kindergarten through college) or in related fields (e.g., language laboratory directors, instructional materials designers, or evaluation specialists). It also offers enrichment in foreign language pedagogical knowledge for practicing teachers. Students may design programs with a special focus.

The program offers three specializations: second languages and ESL education; a target language area (may subsume language, linguistics, literature, history, geography, or civilization); and a cognate area. The cognate area may be teacher education, reading, instructional design, measurement and statistics, or another area selected in consultation with the advisor.

Students take at least 15 s.h. in second language education course work, 9 s.h. in graduate language or linguistics, and 9 s.h. in the cognate area. They must earn 9 s.h. in courses numbered 5000 or above. They also must complete a capstone project in consultation with the advisor.

Students must maintain a g.p.a. of at least 3.00 while enrolled in the program. Candidacy for the master's degree is reevaluated annually.

The M.A. program in foreign language and ESL education requires the following work, including these suggested courses.

FOREIGN AND SECOND LANGUAGES EDUCATION

Total of 15 s.h.

EDTL:6400 (07S:200) Fundamentals of Second Language Assessment	3 s.h.
EDTL:6483 (07S:183) Second Language Classroom Learning	3 s.h.
EDTL:6497 (07S:197) Principles of Course Design for Second Language Instruction	3 s.h.

At least 6 s.h. from these:

EDTL:6402 (07S:202) Second Language Program Management	3 s.h.
EDTL:6403 (07S:203) Second Language Planning in Education	3 s.h.
EDTL:6407 (07S:207) Reading in Non-Roman Scripts	3 s.h.
EDTL:6408 (07S:208) Designing Materials for Second Language Instruction	3 s.h.
EDTL:6409 (07S:209) Cultural Curriculum	3 s.h.
EDTL:6480 (07S:180) Issues in Foreign Language Education	3 s.h.
EDTL:6484 (07S:184) Reading in a Second Language	3 s.h.

TARGET LANGUAGE

In consultation with the advisor, students select at least 9 s.h. of graduate language courses in their area of interest.

COGNATE AREA

Students complete at least 9 s.h. of course work chosen in consultation with the advisor.

MASTER'S EXAMINATION

Students take a written exam during the semester in which they plan to graduate. The exam covers second language education and the two study areas selected by the student. It is written by the graduate committee, which consists of at least three faculty members, two of whom must be from foreign language education. The candidate and his or her advisor discuss and formalize the exam's content and process eight months before the exam.

ADMISSION

Applicants to the M.A. program in foreign language and ESL education must meet the admission requirements of the Graduate College. They must be proficient in English and in another language and must have earned at least 20 s.h. in undergraduate, upper-division foreign language course work. Applicants should submit a statement of purpose explaining their graduate study goals. A g.p.a. of at least 3.00 in undergraduate course work and some experience living, working, and/or studying in the culture of the applicant's chosen target language are preferred. International applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL) with a speaking score of 26 and a writing score of 25.

M.A.T.: Foreign Language and ESL Education

The Master of Arts in Teaching program in foreign language and English as a Second Language (ESL) education requires a minimum of 67 s.h. of graduate credit. The program is designed for superior liberal arts and sciences graduates who have had few or no professional education courses. Successful completion of the program leads to elementary and/or secondary teacher licensure. The M.A.T. is available in Chinese, French, German, Japanese, Latin, Spanish, and Russian.

M.A.T. students must complete at least 18 s.h. in graduate course work in the collaborating foreign language department in addition to professional education courses.

The M.A.T. in foreign language and ESL education requires the following work.

PROFESSIONAL EDUCATION

All of these:

EDTL:3002 (07E:102) Technology in the Classroom (must be taken during student's first semester in the college)	2 s.h.
EDTL:3090 (07S:190) Orientation to Secondary Education (must be taken during student's first semester in the college)	1 s.h.
EDTL:3095 (07S:195) Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college)	1 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.
PSQF:6200 (07P:200) Educational Psychology	3 s.h.

FOREIGN LANGUAGE TEACHING

All of these:

EDTL:6400 (07S:200) Fundamentals of Second Language Assessment	3 s.h.
EDTL:6483 (07S:183) Second Language Classroom Learning	3 s.h.
EDTL:6497 (07S:197) Principles of Course Design for Second Language Instruction	3 s.h.

Total of 21-27 s.h. from these:

EDTL:4087 (07S:187) Seminar: Curriculum and Student Teaching	1 s.h.
EDTL:4091 (07S:191) Observation and Laboratory Practice in the Secondary School	arr.
EDTL:4092 (07S:192) Observation and Laboratory Practice in the Secondary School	arr.
EDTL:4406 (07S:106) Foreign Language Education Practicum I	3 s.h.
EDTL:4407 (07S:107) Foreign Language Education Practicum II	3 s.h.
EDTL:4416 (07S:116) Learning to Teach Second Languages I	3 s.h.
EDTL:4417 (07S:117) Learning to Teach Second Languages II	3 s.h.

K-12 LICENSURE

The K-12 licensure option requires the following course.

EDTL:4089 (07S:189) Elementary School Special Subject Area Student Teaching	1-4 s.h.
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COMPREHENSIVE EXAMINATION

A comprehensive examination is required. The examination reflects candidate's depth and breadth of knowledge in foreign language and ESL education, including but not limited to theory and practice as well as knowledge of and proficiency in the target language and/or literature of the candidate's choice. The candidate and his or her advisor discuss the exam's content and format eight months before the exam.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have been granted a bachelor's degree with a major or a strong concentration in a second language and must have an undergraduate g.p.a. of at least 3.00. They also must meet all TEP application requirements.

Ph.D.: Foreign Language and ESL Education

The Doctor of Philosophy program in foreign language and English as a Second Language (ESL) education requires a minimum of 80 s.h. of graduate credit. The program provides students with the necessary content-area knowledge and research skills for independent research, program administration, and varied leadership positions in foreign language and ESL education. It is designed for individuals who have demonstrated success in foreign language and ESL teaching and who wish to prepare for positions in academia, government, or the private sector where in-depth knowledge of foreign language educational issues is required.

Most courses for the Ph.D. should be numbered 5000 or above. At least 30 s.h. must be taken in the core area of foreign language education. The student and his or her advisor discuss core area course work and cognate area specializations. The student's progress toward the degree and his or her scholarship development is reviewed by the program's faculty and discussed by the student and his or her advisor each year.

The Ph.D. program in foreign language and ESL education requires the following work. Students may be able to count some courses completed for the master's degree toward the 80 s.h. required for the Ph.D.

DEPARTMENT PH.D. REQUIREMENTS

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

All Ph.D. students in the foreign language and ESL education must complete both of the following Ph.D. core courses.

EDTL:7004 (07E:304) Schooling in the United States	3 s.h.
EDTL:7033 (07S:333) Seminar on Teacher Education	3 s.h.

In addition, all doctoral students in the Department of Teaching and Learning must complete an approved cognate area; see "Required Ph.D. Cognates" under "Graduate Programs: Overview" above.

FOREIGN LANGUAGE EDUCATION CORE

All students must complete these (21 s.h.):

EDTL:6400 (07S:200) Fundamentals of Second Language Assessment	3 s.h.
EDTL:6403 (07S:203) Second Language Planning in Education	3 s.h.

EDTL:6409 (07S:209) Cultural Curriculum	3 s.h.
EDTL:6483 (07S:183) Second Language Classroom Learning	3 s.h.
EDTL:6484 (07S:184) Reading in a Second Language	3 s.h.
EDTL:6497 (07S:197) Principles of Course Design for Second Language Instruction	3 s.h.
EDTL:7406 (07S:306) Proposal Writing for Second Language Research	3 s.h.

CORE ELECTIVES

Students may take the following courses in addition to, but not instead of, the courses listed under "Foreign Language Education Core" above. Students must have their advisor's consent to substitute other courses as electives.

EDTL:6402 (07S:202) Second Language Program Management	3 s.h.
EDTL:6407 (07S:207) Reading in Non-Roman Scripts	3 s.h.
EDTL:6408 (07S:208) Designing Materials for Second Language Instruction	3 s.h.
EDTL:6480 (07S:180) Issues in Foreign Language Education	3 s.h.
SLA:6920 (164:211) Multimedia and Second Language Acquisition	3 s.h.

COMPREHENSIVE EXAMINATION

In order to qualify to take the comprehensive examination, students must successfully complete the required course work and an extended research activity. After successful completion of the required course work and the research activity, and upon recommendation of the program's faculty, the student is eligible to sit for the comprehensive examination. Completion of the required course work and research activities does not guarantee advancement to the examination.

After passing the comprehensive examination, students consult with their advisor to choose a Ph.D. dissertation committee of at least five faculty members, who approve the dissertation proposal. The student then conducts research under the primary guidance of the advisor.

ADMISSION

Applicants to the Ph.D. program in foreign language and ESL education meet the admission requirements of the Graduate College. They should have at least two years of experience teaching foreign language or ESL and should hold a master's degree or have completed a significant amount of graduate course work in a foreign language or foreign language education. Applicants must have a g.p.a. of at least 3.00 in graduate course work. International applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL) with a speaking score of 26 and a writing score of 25.

Application materials should include a statement of purpose explaining the applicant's professional goals, transcripts of all undergraduate and graduate work, Graduate Record Exam (GRE) General Test scores, a sample of academic writing, and three letters of recommendation.

Ph.D.: Language, Literacy, and Culture

The Doctor of Philosophy program in language, literacy, and culture requires a minimum of 88-90 s.h. of graduate credit. The program brings together scholarly traditions and contemporary theory in literacy and cultural studies. Course work provides a broad background in relevant theoretic and research literature and opportunities to conduct original studies that explore the nature of literacy practices both in and out of school. Graduates find employment in university and college teaching, research, curriculum development, and administration of literacy programs.

REQUIRED COURSES

Ph.D. students complete an introductory seminar in language, literacy, and culture; at least 9 s.h. of additional doctoral seminars in the program; approved cognate areas (see "Required Ph.D. Cognates" under "Graduate Programs: Overview" above); and 9-12 s.h. of graduate course work outside the Department of Teaching and Learning (6 s.h. of that outside the College of Education). Students also earn 10-12 s.h. of dissertation credit.

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

In addition, all language, literacy, and culture students must complete one of the following Department of Teaching and Learning core courses.

EDTL:7004 (07E:304) Schooling in the United States	3 s.h.
EDTL:7033 (07S:333) Seminar on Teacher Education	3 s.h.

COMPREHENSIVE EXAMINATION AND DISSERTATION

As students near the completion of their course work, they identify several key strands for review and synthesis. With guidance from their advisors, students prepare for three forms of written and oral exams: they answer take-home questions in two areas of literacy; they submit a substantive issues paper, typically a report of an exploratory study or a review of research literature on a topic of special interest; and they design a syllabus for a literacy course and write a reflective commentary that demonstrates understanding of the relationship between theory and practice.

Following successful completion of all components of the comprehensive exam, students work with a faculty member to develop a proposal for a study that will make an original contribution to the understanding of some aspect of literacy. After the proposal has been approved, students conduct research and report their findings under the primary guidance of a dissertation chair.

For detailed information on the Ph.D. program in language, literacy, and culture, see Our Programs on the Department of Teaching and Learning web site.

ADMISSION

Applicants to the Ph.D. program in language, literacy, and culture must meet the admission requirements of the Graduate College. They should have at least three years of experience teaching or tutoring language or literacy (reading, writing, English, language arts) and should have earned a master's degree in a literacy-related field. Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam (GRE) General Test scores; a sample of academic writing; and three letters of recommendation.

Applications for admission and for financial aid are reviewed December 1 each year.

M.A.: Mathematics Education

The Master of Arts program in mathematics education requires a minimum of 32 s.h. of graduate credit. The program provides students with advanced specialization in mathematics and education as a better foundation for K-12 teaching.

REQUIRED COURSES

M.A. students take a minimum of 9 s.h. of course work in mathematics approved by the advisor. They also take a minimum of four courses in mathematics education, which must include EDTL:5535 (07S:235) Current Issues in Mathematics Education and three courses chosen in consultation with the advisor.

Students choose a cognate area, usually enrolling in three or more courses in the area. Suggested areas include educational psychology, educational statistics and measurement, history or philosophy of education, pure or applied mathematics, instructional design and technology, counselor education, curriculum, administration, and special education. Courses are chosen in consultation with a faculty member from the cognate area.

Students also complete a sufficient number of electives in mathematics and education, chosen with the approval of the advisor, to complete 32 s.h. of credit.

COMPREHENSIVE EXAMINATION

Students take three 2-hour comprehensive exams: one in mathematics education, the second in mathematics, and the third in the cognate area.

ADMISSION

Applicants to the M.A. program in mathematics education must meet the admission requirements of the Graduate College. Except in unusual cases, they should hold a professional license/certificate to teach school mathematics. A combined score of 1000 on the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test is preferred.

M.S.: Mathematics with Education Option

The Master of Science in mathematics with education option requires a minimum of 32 s.h. of graduate credit. The program prepares licensed/certified teachers with advanced specialization in mathematics and mathematics education. It is administered by the Department of

Mathematics (p. 469) (College of Liberal Arts and Sciences).

M.S. students must earn a minimum of 24 s.h. in the Department of Mathematics, including the core master's program for either pure mathematics or applied mathematics as described below. They also must complete two courses in mathematics education.

PURE MATHEMATICS

One of these sequences:

MATH:5200 (22M:115) & MATH:5210 (22M:116) Introduction to Analysis I-II	8 s.h.
MATH:6200 (22M:210) & MATH:6210 (22M:211) Analysis I-II	6 s.h.

One of these sequences:

MATH:5000 (22M:120) & MATH:5010 (22M:121) Abstract Algebra I-II	8 s.h.
MATH:6000 (22M:205) & MATH:6010 (22M:206) Introduction to Algebra I-II	6 s.h.

And:

MATH:5400 (22M:132) General Topology	4 s.h.
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APPLIED MATHEMATICS

All of these:

MATH:4060 (22M:151) Discrete Mathematical Models	3 s.h.
MATH:4610 (22M:140) Continuous Mathematical Models	3 s.h.
MATH:4820 (22M:174) Optimization Techniques	3 s.h.
MATH:5600 (22M:142) Nonlinear Dynamics with Numerical Methods	4 s.h.
MATH:5700 (22M:144) Partial Differential Equations with Numerical Methods	4 s.h.
MATH:5800 (22M:170) Numerical Analysis: Nonlinear Equations and Approximation Theory	4 s.h.
MATH:5810 (22M:171) Numerical Analysis: Differential Equations and Linear Algebra	4 s.h.

COMPREHENSIVE EXAMINATION

Students take a comprehensive examination of six hours over the required courses in either pure mathematics or applied mathematics, and education. The examination assesses the candidate's knowledge of mathematics and of the relevance of specific concepts in teaching secondary school mathematics.

ADMISSION

Application should be made to the Department of Mathematics.

M.A.T.: Mathematics Education

The Master of Arts in Teaching program in mathematics education requires a minimum of 49 s.h. of graduate credit. The program is designed primarily for students who decide they would like to become teachers and have already completed a B.S. or B.A. in mathematics. It features advanced work in mathematics along with the courses required for certification. It is a means by which students can obtain both a Master's degree and certification. This degree program assumes the student

has completed a baccalaureate degree in mathematics equivalent to one that would be completed at The University of Iowa, but has no previous course work in education. More course work may be advised if there are mathematics courses the students has not taken as part of their undergraduate mathematics baccalaureate degree program to render their degree equivalent to one from The University of Iowa.

The M.A.T. program in mathematics education requires the following work.

EDUCATION

The first three courses should be taken during the first semester of registration.

EDTL:3002 (07E:102) Technology in the Classroom	2-3 s.h.
EDTL:3090 (07S:190) Orientation to Secondary Education	1 s.h.
EDTL:3095 (07S:195) Teaching Reading in Secondary Content Areas	1 s.h.

All of these:

EDTL:3071 (07S:171) Secondary Classroom Management	2-3 s.h.
EDTL:3532 (07S:133) Introduction and Practicum: Mathematics	3 s.h.
EDTL:3534 (07S:134) Methods: Middle School Mathematics	3 s.h.
EDTL:4535 (07S:135) Methods: High School Mathematics	3 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.
PSQF:6200 (07P:200) Educational Psychology	3 s.h.

The following courses are taken concurrently and constitute the student teaching semester:

EDTL:4087 (07S:187) Seminar: Curriculum and Student Teaching	1-3 s.h.
EDTL:4091 (07S:191) Observation and Laboratory Practice in the Secondary School	arr.
EDTL:4092 (07S:192) Observation and Laboratory Practice in the Secondary School	arr.

And:

One additional graduate-level mathematics education course in consultation with an advisor

GRADUATE MATHEMATICS REQUIREMENTS

If necessary, courses fulfilling The University of Iowa mathematics major with at least one additional mathematics graduate course (one of the following).

MATH:4050 (22M:150) Introduction to Discrete Mathematics	3 s.h.
MATH:4060 (22M:151) Discrete Mathematical Models	3 s.h.
MATH:4120 (22M:107) History of Mathematics	3 s.h.

COMPREHENSIVE EXAMINATION

The comprehensive exam includes a required two-part Master's level exam in mathematics and mathematics education. At the discretion of the examining committee, this exam may consist of two parts and is both written and oral. The mathematics and mathematics education comprehensive examinations will not duplicate course examinations, but will assess both mathematics education and the mathematics specialization area chosen by the student.

ADMISSION

Applicants to the M.A.T. program in mathematics education must meet the admission requirements of the Graduate College. They also must take the Graduate Record Exam and meet all TEP application requirements. Candidates should have completed a baccalaureate degree program in mathematics equivalent to that which is offered through the College of Liberal Arts and Sciences at The University of Iowa. An undergraduate g.p.a. of at least 3.00 is required for admission and must be maintained throughout the enrollment period.

Ph.D.: Mathematics Education

The Doctor of Philosophy program in mathematics education requires a minimum of 80-90 s.h. of graduate credit. The program prepares supervisors, teacher education personnel, community college personnel, and researchers in mathematics education. It is administered by the College of Education.

The Ph.D. program in mathematics education requires the following work. Students must update graduate course work done more than 10 years before admission to the program.

REQUIRED COURSES

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

All doctoral students in mathematics education must complete one of the following Ph.D. core courses.

EDTL:7004 (07E:304) Schooling in the United States	3 s.h.
EDTL:7033 (07S:333) Seminar on Teacher Education	3 s.h.

In addition, all doctoral students in the Department of Teaching and Learning must complete an approved cognate area; see "Additional Requirements" below.

Ph.D. students in mathematics education must complete a minimum of 24 s.h. of graduate work in the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science, as approved by the advisor. Electives are encouraged in the pure mathematics and applied mathematics sequences.

Students who completed their mathematics requirement at another institution must complete at least 6 s.h. of additional course work in mathematics at The University of Iowa, chosen with the advisor's approval.

Students also must complete at least six courses in mathematics education, including EDTL:5535 (07S:235) Current Issues in Mathematics Education and EDTL:7535 (07S:335) Seminar: Research in Mathematics Education.

ADDITIONAL REQUIREMENTS

Students concentrate in two additional comprehensive examination areas in either the mathematical sciences or education. A minimum of three courses usually are required for a comprehensive examination area, but candidates should consult with faculty members in the areas selected to determine which courses they should take in order to adequately prepare for the examinations.

Students must complete a total of at least 36 s.h. in College of Education courses; this include the course work listed above. All Ph.D. students must complete an approved cognate area; a partial list of potential cognate areas is available from the M.A. program in mathematics education.

Upon completing the program, the student must have a cumulative g.p.a. of 3.00 or higher on all graduate work in mathematics, all University of Iowa graduate work in mathematics, all graduate work, and all University of Iowa graduate work.

COMPREHENSIVE EXAMINATION

Students take three written comprehensive examinations, one in mathematics education and two in other fields of education or mathematics; an oral examination follows the written examinations.

DISSERTATION

Students must earn 10 s.h. of dissertation credit in EDTL:7493 (07S:493) Ph.D. Thesis. Each candidate completes a dissertation on a research problem in mathematics education. A prospectus of the proposed research must be presented to the dissertation committee before the candidate undertakes the study. Upon completion of the dissertation, the candidate defends the dissertation in an oral examination.

ADMISSION

Applicants to the Ph.D. program in mathematics education must meet the admission requirements of the Graduate College. They must have an undergraduate major in mathematics or the equivalent; a current teaching license/certificate and at least two years of teaching experience are strongly preferred. A faculty review committee makes admission decisions.

M.A.: Music Education

The Master of Arts in music with concentration in music education provides students with deeper insights into music, the theory and practice of music education, and the role of music in the school curriculum. The degree requires 33 s.h. of graduate credit and is offered with or without thesis.

The program is administered by the School of Music (p. 488) (College of Liberal Arts and Sciences) in cooperation with the College of Education. Application should be made to the School of Music.

Ph.D.: Music Education

The Doctor of Philosophy in music with concentration in music education prepares students for teaching, research,

and administrative posts. Graduates find employment as college teachers of music education classes and activities; as band, chorus, and orchestra directors; and as administrators of music departments and schools of music. Some apply their skills in public schools as music supervisors, research and curriculum consultants, and directors of city or district school music programs.

The program is administered by the School of Music (p. 488) (College of Liberal Arts and Sciences) in cooperation with the College of Education. Application should be made to the School of Music.

M.A.T.: Science Education

The Master of Arts in Teaching program in science education requires a minimum of 48 s.h. of graduate credit. The program is designed primarily for graduates of bachelor's degree programs in science who decide that they would like to become teachers. It features advanced work in science along with the courses required for certification, enabling students to earn a master's degree and teaching certification at the same time.

The program assumes students have completed considerable course work in science (at least 56 s.h.) as undergraduates, but no previous course work in education. Students' science course work should be equivalent to that required by the University of Iowa Science Education (p. 809) Program.

The M.A.T. program in science education requires the following work.

PROFESSIONAL EDUCATION FOUNDATION SEQUENCE

All of these:

EDTL:3002 (07E:102) Technology in the Classroom (must be taken during student's first semester in the college)	2 s.h.
EDTL:3071 (07S:171) Secondary Classroom Management	2 s.h.
EDTL:3090 (07S:190) Orientation to Secondary Education (must be taken during student's first semester in the college)	1 s.h.
EDTL:3095 (07S:195) Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college)	1 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.
PSQF:6200 (07P:200) Educational Psychology	3 s.h.

Science education courses are taken in the following sequence.

EDTL:4751 (07S:151) Science Teaching and Practice with Early Learners	2 s.h.
EDTL:4752 (07S:152) Methods of Teaching Science	3 s.h.

These two taken concurrently:

EDTL:4753 (07S:153) Instructional Issues in Teaching Science	3 s.h.
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EDTL:4779 (07S:179) Secondary School Science Practicum 2 s.h.

These three taken concurrently:

EDTL:4087 (07S:187) Seminar: Curriculum and Student Teaching 3 s.h.

EDTL:4091 (07S:191) Observation and Laboratory Practice in the Secondary School 6 s.h.

EDTL:4092 (07S:192) Observation and Laboratory Practice in the Secondary School 6 s.h.

ELECTIVES

A minimum of one graduate course in biology, chemistry, earth science, or physics is required. Students who have satisfied portions of the required science course work listed above must take additional science course work to meet the minimum requirement of 48 s.h.

COMPREHENSIVE EXAMINATION

Students complete comprehensive examinations before their student teaching semester. Two comprehensive exams, one in science education and one in a science specialization area, are required. They may not duplicate course examinations in these areas. The science education exam, under the guidance and supervision of the examining committee, consists of two parts, written and oral. Detailed requirements for the science education comprehensive examination are available from the Department of Teaching and Learning office.

ADMISSION

Applicants to the M.A.T. program in science education must meet the admission requirements of the Graduate College. They must have a bachelor's degree with a major or equivalent in one of the sciences. A g.p.a. of at least 3.00 is required for admission and must be maintained throughout the program. Applicants must meet all TEP application requirements.

Joint B.A./M.A.T.: Science Education

College of Liberal Arts and Sciences students who want to teach science and are working toward a Bachelor of Arts degree with a major in biology, chemistry, environmental sciences, or physics may apply to the joint Bachelor of Arts/Master of Arts in Teaching program offered by the College of Liberal Arts and Sciences and the College of Education. The joint program enables students to earn a B.A. and an M.A.T. in five years by beginning to earn graduate credit during their fourth year of undergraduate study and by counting up to 18 s.h. of qualifying credit toward both degrees.

B.A. students are admitted to the joint program before their fourth year. They may begin taking education courses during their third year, but they may not earn graduate credit for them until their fourth and fifth years, after they have been admitted to the joint program. Students take 30 s.h. of course work during the fifth year and must complete all remaining requirements for both degrees that year.

SCIENCE SPECIALIZATION (BROAD FIELD SCIENCE BLOCK)

The following courses are required for the undergraduate degree in science education at The University of Iowa.

They need not be repeated by M.A.T. candidates who need one or more advanced courses in their major science area, or by students from other interdisciplinary science discipline programs that prepare teachers for grades 6-9.

SIED:4135 (097:135) The Nature of Science 4 s.h.

Two of these (unless completed during undergraduate study):

SIED:4102 (097:102) Societal and Educational Applications of Earth Science and Environmental 3 s.h.

SIED:4103 (097:103) Societal and Educational Applications of Biological Sciences 3 s.h.

SIED:4105 (097:105) Societal and Educational Applications of Physical Sciences 3 s.h.

SIED:4106 (097:106) Societal and Educational Applications of Chemical Concepts 3 s.h.

Education courses required for the joint program are listed under "M.A.T.: Science Education" above. Requirements for the B.A. degree are listed under Biology (p. 122), Chemistry (p. 139), Environmental Sciences (p. 288), and Physics and Astronomy (p. 520) (College of Liberal Arts and Sciences) in the Catalog.

M.S.: Science Education

The Master of Science program in science education requires a minimum of 38 s.h. of graduate credit. The program is designed for teachers and supervisors (K-college) and professionals in related fields, such as medical education, college teaching, museum program management, and outreach programs. It is intended to provide experience in understanding teaching and learning and the research processes required to advance the field.

M.S. students complete course work in four areas: science education, education, research, and science. Their individual programs of study are approved by the science education faculty.

The M.S. program in science education requires the following work.

REQUIRED COURSES

All of these:

EDTL:6755 (07S:255) Practices of Inquiry in Science Learning Environments (no substitute for this course) 3 s.h.

EDTL:6757 (07S:257) Learning in the Science Classroom (no substitute for this course) 3 s.h.

EDTL:6759 (07S:259) Advanced Pedagogy (no substitute for this course) 3 s.h.

EDTL:7755 (07S:355) Independent Study in Science Education Research (taken twice for 3 s.h. each) 6 s.h.

Two science content courses chosen with the advisor 6 s.h.

A minimum of 13 s.h. chosen from these:

EDTL:6756 (07S:256) Science Education: The Nature of Science 3 s.h.

EDTL:6758 (07S:258) Writing in the Science Classroom 3 s.h.

EDTL:7100 (07E:300) Design and Organization of Curriculum 3 s.h.

PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.
PSQF:6200 (07P:200) Educational Psychology	3 s.h.
PSQF:6220 (07P:220) Quantitative Educational Research Methodologies	3 s.h.
PSQF:6275 (07P:275) Constructivism and Design of Instruction	3 s.h.
RCE:7338 (07C:338) Essentials of Qualitative Inquiry	3 s.h.

One additional qualitative or quantitative research methods course chosen in consultation with the advisor

May include one of these:

EDTL:7004 (07E:304) Schooling in the United States	3 s.h.
EDTL:7033 (07S:333) Seminar on Teacher Education	3 s.h.

MASTER OF SCIENCE EXAMINATION

Students must complete a thesis [EDTL:6393 (07S:393) Master's Thesis], for which they earn 2-4 s.h. of credit. A final oral examination is administered on campus in which the candidate defends his or her thesis. This examination includes a critical inquiry into the purposes, methods, and results of the thesis research investigation.

The final examination is conducted by a committee of no fewer than three members of the graduate faculty. In some cases, the committee must include a member from outside science education; consult the department.

ADMISSION

Applicants to the M.S. program in science education must meet the admission requirements of the Graduate College. They should hold an undergraduate major in a science area (or combination of science areas), in science education, or in elementary education with a science emphasis. The department recommends that applicants have teaching licensure/certification unless they are preparing for careers in allied health, museums, or community colleges.

Ph.D.: Science Education

The Doctor of Philosophy program in science education requires a minimum of 85 s.h. of graduate credit. The program is designed for individuals who aspire to positions as college and university science educators; major supervisors in national, state, and local systems; teachers in small liberal arts colleges; instructors of general education science courses at major universities; research directors in science education; and professionals in medical and/or allied health education.

The Ph.D. program in science education requires the following work.

DEPARTMENT PH.D. REQUIREMENTS

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at

Ph.D. Research Requirements. Course selections must be consistent with other requirements for the degree.

All doctoral students in science education must complete one or both of the following Ph.D. core courses. Students may not substitute other courses for these.

EDTL:7004 (07E:304) Schooling in the United States	3 s.h.
EDTL:7033 (07S:333) Seminar on Teacher Education	3 s.h.

In addition, all doctoral students in the Department of Teaching and Learning must complete an approved cognate area; see "Required Ph.D. Cognates" under "Graduate Programs: Overview" above.

SCIENCE EDUCATION

All of these (15 s.h.):

EDTL:6754 (07S:254) Theory and Research on Curriculum Materials in Science (no substitute for this course)	3 s.h.
EDTL:6757 (07S:257) Learning in the Science Classroom	3 s.h.
EDTL:6759 (07S:259) Advanced Pedagogy	3 s.h.
Graduate-level science education courses chosen in consultation with advisor	6 s.h.

EDUCATION

All of these (12 s.h.):

EDTL:7100 (07E:300) Design and Organization of Curriculum	3 s.h.
EALL:5150 (07X:150) Introduction to Educational Research	3 s.h.
PSQF:6200 (07P:200) Educational Psychology	3 s.h.
PSQF:6275 (07P:275) Constructivism and Design of Instruction	3 s.h.

RESEARCH IN SCIENCE EDUCATION

Both of these (21 s.h.):

EDTL:7750 (07S:350) Seminar: Science Education (taken three times for 1 s.h. each)	3 s.h.
EDTL:7755 (07S:355) Independent Study in Science Education Research (taken six times for 3 s.h. each)	18 s.h.

SCIENCE AREA

Students complete a family of courses (total of 12 s.h.) in a major science area.

DISSERTATION

Ph.D. students earn 10 s.h. of thesis credit in EDTL:7493 (07S:493) Ph.D. Thesis.

ADMISSION

Applicants to the Ph.D. program in science education must meet the admission requirements of the Graduate College. They should have completed a bachelor's degree in a science area (or combination of science areas), in science education, or in elementary education with a science emphasis; have a cumulative g.p.a. of at least 3.00 on undergraduate and graduate work; and have a combined score of at least 1000 on the verbal and quantitative portions of the Graduate Record Exam (GRE) General Test. Applicants must submit three letters of recommendation; a statement of purpose describing their reasons for pursuing

graduate work and their goals for graduate study; and an example of their academic writing.

M.A.: Social Studies Education

The Master of Arts program in social studies education requires 38 s.h. of graduate credit. The program provides an opportunity for interdisciplinary work in education, history, social science, or related areas for classroom teachers, high school department chairs, supervisors, and others interested in advancing their competence in history and the social sciences and greater proficiency in teaching and supervision.

Students choose one of two programs. Program A provides interdisciplinary study in education, history, social science, or related areas for classroom teachers or others interested in advancing their competence in instruction and their subject area. Program B is for individuals who have a bachelor's degree in history or a social science and who wish to obtain a teaching license/certificate while earning the M.A. degree. Program B students must apply to both the Graduate College and the College of Education.

PROGRAM A REQUIREMENTS

Program A students distribute the program's required 38 s.h. among three concentration fields in history and social sciences (or related areas), social studies education, and general education, with at least 9 s.h. in each of three fields. They must earn at least 9 s.h. in courses numbered 5000 or above distributed among the three concentration fields.

Students who choose the thesis option complete a research or investigative problem. If the thesis is research or investigation in history, social science, or a related area, the thesis director is a member of the appropriate department. If the thesis is an investigative problem in social studies education, the thesis director is a College of Education faculty member.

PROGRAM A COMPREHENSIVE EXAMINATION

The required comprehensive examination consists of three two-hour written exams, one on each of the three concentration fields.

PROGRAM B REQUIREMENTS

Program B students should have completed considerable work in the social sciences and/or history as undergraduates. Students in the College of Education's Teacher Education Program for secondary education in social studies may not apply credit they have earned in required licensure courses to the 38 s.h. required for the M.A., even though the credit counts toward state teaching licensure.

Program B students who completed EDTL:4811 (07S:111) Introduction and Practicum: Secondary Social Studies and/or EDTL:4870 (07S:170) Methods: Secondary Social Studies as undergraduate or postbaccalaureate students at The University of Iowa are required to retake these courses during the M.A. program and immediately before student teaching. Required teaching licensure course work completed at other colleges or universities is reviewed on a case-by-case basis.

Program B students who were accepted to the undergraduate Teacher Education Program before they received a baccalaureate must complete a college-level math course.

For licensure, students admitted to the M.A. in social studies education must complete 30 s.h. in a history or social science area; the 30 s.h. may include previous undergraduate and/or graduate-level course work. Required professional education course work not completed as part of the baccalaureate degree must be completed for licensure.

Students also must complete 15 s.h. in an additional history or social science licensure area; previous undergraduate course work may apply.

Students must complete all of the following professional education courses, unless they completed some of them as part of their bachelor's degree. In such cases, the semester-hour requirement for Program B is reduced accordingly, but it never falls below 38 s.h. All students must take the course work required for meeting all Iowa Department of Education requirements for teacher licensure/certification.

Professional education courses:

EDTL:3002 (07E:102) Technology in the Classroom (must be taken during student's first semester in the college)	2 s.h.
EDTL:3071 (07S:171) Secondary Classroom Management (for students admitted March 2008 and after)	2 s.h.
EDTL:3090 (07S:190) Orientation to Secondary Education (must be taken during student's first semester in the college)	1 s.h.
EDTL:3095 (07S:195) Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college)	1 s.h.
EDTL:4087 (07S:187) Seminar: Curriculum and Student Teaching	3 s.h.
EDTL:4091 (07S:191) Observation and Laboratory Practice in the Secondary School	6 s.h.
EDTL:4092 (07S:192) Observation and Laboratory Practice in the Secondary School	6 s.h.
EDTL:4811 (07S:111) Introduction and Practicum: Secondary Social Studies	3 s.h.
EDTL:4870 (07S:170) Methods: Secondary Social Studies	3 s.h.
EDTL:4900 (07U:100) Foundations of Special Education	3 s.h.
EDTL:6833 (07S:233) History and Foundations of Social Studies Education	3 s.h.
EDTL:6841 (07S:341) Infusing a Global Perspective into the Curriculum	3 s.h.
EDTL:6877 (07S:277) Seminar: Social Studies Education	3 s.h.
EPLS:3000 (07B:103) Foundations of Education	3 s.h.
EPLS:4180 (07B:180) Human Relations for the Classroom Teacher	3 s.h.
PSQF:6200 (07P:200) Educational Psychology	3 s.h.

Subject area specialization courses: a minimum of 9 s.h. of course work in history or a social science is required; students should take at least one course taught by the instructor who will serve on the examining committee.

PROGRAM B COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three two-hour exams: one on the subject area specialization, one on

general professional education, and one on social studies education.

ADMISSION

Applicants to the M.A. program in social studies education must meet the admission requirements of the Graduate College. They should have a bachelor's degree in education, history, or one of the social sciences from an accredited institution; a cumulative g.p.a. of at least 3.00; a g.p.a. of at least 3.00 in history and/or social science courses; a combined verbal and quantitative score of at least 300 on the Graduate Record Examination (GRE) General Test; and two letters of recommendation. Evidence of writing ability in a completed major paper or essay also is required. Typically, applicants to Program A are expected to hold a secondary teaching license/certificate.

After declaring a social studies education major, M.A. students must maintain a g.p.a. of at least 3.00.

Ph.D.: Social Studies Education

The Doctor of Philosophy program in social studies education requires a minimum of 90 s.h. of graduate credit. The program prepares secondary department chairs, supervisors, curriculum directors, teacher education personnel, and college instructors in the social sciences and in social studies education.

The required 90 s.h. of credit includes course work and the dissertation (10 s.h.).

REQUIRED COURSES

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

In addition, all Ph.D. students in the Department of Teaching and Learning must complete one or both of the following Ph.D. core courses.

EDTL:7004 (07E:304) Schooling in the United States	3 s.h.
EDTL:7033 (07S:333) Seminar on Teacher Education	3 s.h.

Seminars and courses numbered 5000 or above are required in each of the study areas that constitute the major. Students must take 9 s.h. of required courses in social studies education, including EDTL:6833 (07S:233) History and Foundations of Social Studies Education, EDTL:6841 (07S:341) Infusing a Global Perspective into the Curriculum, and EDTL:6877 (07S:277) Seminar: Social Studies Education.

The remaining course work must be distributed among approved cognate areas (see "Required Ph.D. Cognates" under "Graduate Programs: Overview" above), history, social sciences or related areas, and professional education, depending on the student's background and goals.

COMPREHENSIVE EXAMINATION

Students take three three-hour examinations, one in each of the study areas. Depending on the distribution of course work, the nine hours of written examinations may be

rearranged. The Ph.D. examining committee consists of five members, who are selected according to the nature of the student's Ph.D. program and distribution of course work. An oral examination is conducted by the committee following the written exam.

DISSERTATION

Ph.D. candidates must complete a dissertation on a research problem in social studies education. The candidate must present a prospectus of the proposed research to the dissertation committee before undertaking the study. Upon completion, the candidate defends the dissertation in an oral exam.

ADMISSION

Applicants to the Ph.D. program in social studies education must meet the admission requirements of the Graduate College. They must have a bachelor's degree in history, the social sciences, or education; a master's degree in history, the social sciences, or education; a cumulative g.p.a. of at least 3.00; and a combined verbal and quantitative score of at least 310 on the Graduate Record Examination (GRE) General Test. At least two years of teaching experience is strongly preferred. Applicants who did not write a thesis as part of their M.A. must submit seminar papers or field research as equivalents.

Graduate Programs of Study: Special Education

Special education programs are offered in K-6 and 7-12 Instructional Strategist I: Mild/Moderate, and K-12 Instructional Strategist II: BD/LD. These programs are designed to prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. All teacher licensure/certification programs are approved by the Iowa Department of Education.

A program leading to special education licensure/certification in Instructional Strategist I: Mild/Moderate (K-6) is available to undergraduates (see "Teacher Education Program and Licensure/Certification" at the beginning of this section). Undergraduates who wish to pursue careers in special education should contact the Department of Teaching and Learning.

Special Education Consultant Authorization

The Special Education Consultant authorization program requires a minimum of 38 s.h., including credit required for the Master of Arts and the teaching endorsement program. The program prepares consultants to serve in special education programs.

Students who already hold an M.A. in special education and an endorsement congruent with their desired consultant authorization must complete the following three courses.

EDTL:7100 (07E:300) Design and Organization of Curriculum	3 s.h.
PSQF:6263 (07P:263) Consultation Theory and Practice	3 s.h.
PSQF:7347 (07P:347) Home/School/Community: System Interventions	3 s.h.

Students without an M.A. in special education must complete an M.A. and teaching endorsement program in special education congruent with their desired consultant authorization, plus the three courses listed above [EDTL:7100 (07E:300), PSQF:6263 (07P:263), and PSQF:7347 (07P:347)], for a total of at least 38 s.h. of credit.

ADMISSION

Applicants to the Special Education Consultant authorization program must have been admitted to the M.A. program or to a certification program in special education. They must hold or meet the requirements for the special education teaching endorsement congruent with their desired consultant authorization. Teaching endorsements must be documented by copies of teaching credentials.

Applicants also must have completed four years of successful teaching experience, two of which must be congruent with their desired consultant authorization. They must provide evidence of successful teaching (e.g., written statements from school personnel documenting years of teaching, type of students served, and success as a classroom teacher).

Documentation of certifications and teaching experience should be submitted with the application for admission to the Graduate College.

M.A.: Special Education

The Master of Arts program in special education requires a minimum of 32 s.h. of graduate credit. The program prepares individuals to deliver appropriate levels of service to students with disabilities at the elementary and secondary levels, in either public or private settings. Applicants with a master's degree and special education certification may request admission in order to obtain an additional area of special education licensure/certification (i.e., professional improvement). Students typically receive licensure/certification in at least one area upon completing the program. Contact the Department of Teaching and Learning for specific program requirements.

ADMISSION

Applicants to the M.A. program in special education must meet the admission requirements of the Graduate College. They must have an undergraduate g.p.a. of at least 3.00 (and/or at least 3.00 on a minimum of 12 s.h. of graduate course work). A combined verbal and quantitative score of at least 1000 on the Graduate Record Exam (GRE) General Test is preferred. Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Application materials must include a completed Graduate College application form; copies of official transcripts for all college course work; an official report of Graduate Record Examination test scores; three current letters of recommendation; and evidence of experience and/or teacher licensure/certification. An interview may be requested.

Final admission decisions are made by the special education graduate admissions committee.

Ph.D.: Special Education

The Doctor of Philosophy program in special education requires a minimum of 90 s.h. of graduate credit. The

program prepares students for teaching and research positions in higher education, and for curriculum, supervisory, and research positions in state and local education agencies. The program permits students to study and practice extensively in their special education interest area and in an interest area outside of special education.

The Ph.D. curriculum includes an emphasis on research skills, all facets of special education, an approved cognate area (see "Required Ph.D. Cognates" under "Graduate Programs: Overview" above), and at least one specialization area.

All College of Education Ph.D. students must complete EALL:5150 (07X:150) Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed at Ph.D. Research Requirements.

In addition, all doctoral students in special education must complete one of the following Ph.D. core courses.

EDTL:7004 (07E:304) Schooling in the United States	3 s.h.
EDTL:7033 (07S:333) Seminar on Teacher Education	3 s.h.

All Ph.D. students in special education must complete the following courses.

EDTL:7943 (07U:343) Proseminar: Issues, Trends, and Research in Special Education	3 s.h.
EDTL:7944 (07U:344) Proseminar: Issues, Trends, and Research in Special Education II	3 s.h.

Students also must complete an interdisciplinary minor in a discipline outside of special education (minimum of 12 s.h.). In addition, they are required to write the comprehensive examination and complete a doctoral dissertation, earning a minimum of 10 s.h. in EDTL:7493 (07S:493) Ph.D. Thesis.

ADMISSION

Applicants to the Ph.D. program in special education must meet the admission requirements of the Graduate College. They must have master's degree or equivalent in special education; those without an M.A. thesis must have completed an equivalent project. Applicants should have a graduate g.p.a. of at least 3.50 and a combined verbal and quantitative score of at least 1000 on the Graduate Record Exam (GRE) General Test. Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants should have at least one year of full-time teaching experience with exceptional children; several years are preferred.

Application materials must include a completed Graduate College application form; copies of official transcripts for all college course work; an official report of Graduate Record Examination test scores; three current letters of recommendation; and evidence of experience and/or teacher licensure/certification. An interview may be requested.

Final admission decisions are made by the special education graduate admissions committee.

Financial Support

Elementary Education

A number of teaching assistantships are available for graduate students in elementary education. Assignments vary. Some involve supervising undergraduate majors enrolled in practicums; others involve teaching sections of undergraduate methods courses and supervising student teachers. Most assistantships are classified as one-half-time, which permits students to register for a maximum of 12 s.h. of credit per semester. Graduate assistants must register for at least 6 s.h. per semester.

All assistantships are awarded on a competitive basis. Applicants must have been admitted to regular status in the Graduate College and to an advanced program in the College of Education. For information about assistantships, contact the chair of the Department of Teaching and Learning.

Secondary and Special Education

A limited number of assistantships are available for graduate students in secondary and special education. Assignments vary. Some involve teaching undergraduate courses or supervising practicum experiences; others consist primarily of research activities. Graduate assistants may register for a maximum of 12 s.h. and a minimum of 6 s.h. per semester.

Graduate students in secondary education also may be eligible for assistantships in some College of Liberal Arts and Sciences departments. Students with appropriate credentials should apply directly to the specific department or consult the College of Education advisor in the appropriate field.

Traineeships in selected licensure/certification and master's degree programs are available to full-time special education students.

Courses

Elementary Education, Lower-Level Undergraduate

EDTL:1050 (07E:050) Opportunities in Education 2 s.h.

Introduction for underrepresented students to the teaching profession and its widely varied opportunities; faculty, students, recipients of awards in education; tours of Iowa City schools; reflection on and personal integration of class learning experiences, consideration of future plans.

EDTL:1129 (07E:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

EDTL:2821 (07E:021) Oral Interpretation 3 s.h.

Weekly performances to develop and define communication skills for professional careers in teaching and business; poetry, prose, monologue, storytelling, duo interpretation, reader's theatre, and demonstration speeches. Requirements: for COMM:2821 (036:021) — g.p.a. of at least 2.30 and minimum 30 s.h. of credit. Same as COMM:2821 (036:021).

Elementary Education, Upper-Level Undergraduate and Graduate

EDTL:3002 (07E:102) Technology in the Classroom 2-3 s.h.

EDTL:3103 (07E:103) Assessment for Instructional Planning and Practice 3 s.h.

Fundamentals of using assessment data to make instructional planning decisions that preservice educators need in their advanced course work and classrooms; practical application with curriculum-based procedures; emphasis on classroom-based procedures used to make educational decisions to plan instruction for students, particularly those who are experiencing academic difficulty. Requirements: admission to TEP.

EDTL:3114 (07E:114) Parent-Child Relationships 3 s.h.

Roles and relationships within and between families, culture, and society; identify (family) resources and concerns based on children's development, abilities.

EDTL:3120 (07E:120) Methods and Materials: Music for the Classroom Teacher 2 s.h.

Development of music skills, techniques, knowledge of methods and materials for teaching music to young children; for elementary education majors. Requirements: admission to TEP.

EDTL:3122 (07E:122) Creativity, Imagination, Play, and Human Development through the Arts 3 s.h.

Different theories related to human development and visual arts; use of visual arts to make meaning out of experience from the time people began making symbolic marks; ways to integrate visual arts into everyday life; cognitive and physical processes involved in making, understanding, and looking at visual art through studio experiences; theories of cognitive development; role of visual art in education; introduction to art production, art history, art criticism, and aesthetics.

EDTL:3123 (07E:123) Reading and Responding to Children's Literature 3 s.h.

Reading and teaching of children's literature; becoming more knowledgeable readers of children's literature; using children's literature in elementary classroom for aesthetic, personal, social, and critical purposes; wide range of literary texts in different genres and multiple ways readers might experience these texts given particular teaching approaches; ways in which readers interact with texts and with each other to make meaning as they read and discuss literature. Requirements: admission to elementary TEP.

- EDTL:3127 (07E:127) Methods and Materials: Physical Education, Health, and Wellness** 2-3 s.h.
Methods, curriculum. Requirements: admission to TEP.
- EDTL:3130 (07E:130) Adaptive Physical Education for the Elementary Classroom Teacher** 2 s.h.
Create and deliver quality, inclusive physical education for students with mental, physical, or emotional disabilities; identify and evaluate the needs of disabled students, plan units and lessons with appropriate modifications for all learners, write an IEP, comply with IDEA in a physical education setting. Prerequisites: EDTL:3127 (07E:127).
- EDTL:3131 (07E:131) Movement Education** 2 s.h.
Movement education as a basis for psychomotor and cognitive development in children; summary of basic growth and motor development; in-depth instruction on theory and application of movement education curriculum, and practice on design and execution of movement education lessons. Prerequisites: EDTL:3127 (07E:127).
- EDTL:3139 (07E:139) American Government and Civics for the Elementary Classroom Teacher** 3 s.h.
Foundations and processes of American government as related to development of civic literacy in elementary students and their teachers; founding documents, legal precedents, social and economic changes throughout American history; research-based teaching and learning processes from social studies education. Requirements: admission to TEP.
- EDTL:3141 (07E:141) Elementary School Mathematics: Number and Operations** 3 s.h.
Problem-solving approach to current trends in math education and process of teaching math; current math content knowledge assessed at start and end of course; opportunities to strengthen number and operations content knowledge; how children in grades K-5 think about and learn math; core ideas of learning, teaching, planning, and assessing number and operations concepts and skills; research-based pedagogical strategies that help children develop math concepts and procedures. Requirements: admission to TEP.
- EDTL:3142 (07E:142) Elementary School Mathematics: Geometry and Measurement** 3 s.h.
Problem-solving approach to current trends in math education; current math content knowledge assessed at start and end of course; opportunities to strengthen geometry and measurement content knowledge; how children in grades K-5 think about and learn math; core ideas of learning, teaching, planning, and assessing geometry and measurement concepts and skills; research-based pedagogical strategies that help children in elementary school develop math concepts and procedures. Requirements: admission to TEP.
- EDTL:3143 (07E:143) Methods of Art Education in Elementary Schools** 3-4 s.h.
Application of studio methods to teaching children in Saturday Children's Art Class Program. Same as ARTE:3143 (01E:143).
- EDTL:3146 (07E:146) Elementary School Mathematics: Data/Probability and Algebra** 3 s.h.
Problem-solving approach to current trends in math education and process of teaching math; current math content knowledge assessed at start and end of course; opportunities to strengthen data analysis/probability and algebra content knowledge; how grade K-5 children think about and learn math; core ideas of learning, teaching, planning, and assessing data/probability and algebra concepts and skills; research-based pedagogical strategies that help children develop math concepts and procedures. Requirements: admission to TEP.
- EDTL:3154 (07E:154) Teaching and Learning in the Earth Sciences** 3 s.h.
Meaningful and practical learning experiences to foster elementary science learning environments that engage learners in scientific practices and understanding of earth sciences; essential concepts in earth sciences; instruction to promote elementary student learning; learning, teaching, subject matter, curriculum, and assessment. Prerequisites: EPLS:3000 (07B:103), EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), and PSQF:1075 (07P:075). Requirements: admission to TEP.
- EDTL:3158 (07E:158) Teaching and Learning in the Biological Sciences** 3 s.h.
Meaningful and practical learning experiences to foster elementary science learning environments that engage learners in scientific practices and understanding of biological sciences; essential concepts in biological sciences; instruction to promote learning of essential concepts; learning, teaching, subject matter, curriculum, and assessment. Prerequisites: EPLS:3000 (07B:103), EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), and PSQF:1075 (07P:075). Requirements: admission to TEP.
- EDTL:3159 (07E:159) Teaching and Learning in the Chemical/Physical Sciences** 3 s.h.
Meaningful and practical learning experiences that foster elementary science learning environments and engage learners in scientific practices and understanding of physical sciences; essential concepts in physical sciences; instruction to promote student learning of essential concepts; learning, teaching, subject matter, curriculum, and assessment. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075). Requirements: admission to TEP.
- EDTL:3160 (07E:160) Literacy Learning and Teaching I** 3 s.h.
Theoretical foundations and practical skills to become reflective professionals who can design and implement effective reading and language arts instruction; authentic formative assessment for economically, academically, culturally, racially, and linguistically diverse children in grades K-3; for preservice elementary teachers. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075). Requirements: admission to elementary TEP.
- EDTL:3161 (07E:161) Social Studies for the Elementary Classroom Teacher** 3 s.h.

Individual growth and change due to environment, economy, and technology; focus on developing teacher's understanding of social and behavioral sciences and how they relate to geography, history, and government in student's growth toward democratic citizenship; emphasis on need to develop intellectually stimulating curricula based on Iowa Core in behavioral science; lesson and curriculum development from research-based best practices in teaching social studies and driven by Iowa Core goals and objectives; technology as a teaching tool and focus of investigation in today's society. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075). Requirements: admission to elementary TEP.

EDTL:3163 (07E:163) Methods: Elementary School Mathematics 2-3 s.h.

Content; techniques of teaching and means of assessment for K-6 mathematics. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075). Corequisites: EDTL:3174 (07E:174). Requirements: admission to TEP.

EDTL:3164 (07E:164) Literacy Learning and Teaching II 3 s.h.

Theoretical foundations and practical skills to become reflective professionals who can design and implement effective reading and language arts instruction; authentic formative assessment for economically, academically, culturally, racially, and linguistically diverse children in grades 3-6; for preservice elementary teachers. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075). Requirements: admission to elementary TEP.

EDTL:3168 (07E:168) History for the Elementary Classroom Teacher 3 s.h.

Development of historical literacy in elementary students and their teachers; connecting children to the past using family histories; interactions and patterns in world history; diverse perspectives in U.S. history; using primary sources to investigate state and local history. Requirements: admission to TEP.

EDTL:3170 (07E:170) Elementary Classroom Management 1-3 s.h.

Activities, techniques, strategies, theories related to effective classroom management. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075). Corequisites: EDTL:3174 (07E:174).

EDTL:3172 (07E:172) Elementary Reading Practicum 3-4 s.h.

Experience in teaching literacy to elementary students; opportunity to learn from an experienced teacher within a functioning classroom; supervisor with classroom experience mentors and supports students at practicum site; on-site practicum experiences preceded by on-campus seminar experience with practicum coordinator and supervisors; for preservice teachers. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075).

EDTL:3174 (07E:174) Elementary Math Practicum arr.

Experience in teaching mathematics to elementary students; opportunity to learn from an experienced teacher within a functioning classroom; supervisor with classroom experience mentors and supports students at practicum site; on-site practicum experiences preceded by on-campus seminar experience with practicum coordinator and supervisors; for preservice teachers. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075). Corequisites: EDTL:3163 (07E:163) and EDTL:3170 (07E:170).

EDTL:3175 (07E:175) Elementary Social Studies/Science Practicum 2 s.h.

Experience in teaching social studies and science to elementary students; opportunity to learn from an experienced teacher within a functioning classroom; mentoring and support from supervisor with classroom experience at practicum site; onsite practicum experiences preceded by on-campus seminar with practicum coordinator and supervisors; assignments designed to enrich and augment onsite experiences and tied to student's current methods courses; for preservice teachers. Requirements: admission to TEP.

EDTL:3176 (07E:176) Teaching Elementary School Science 3 s.h.

Advanced science methods for elementary education majors seeking a science specialization.

EDTL:3180 (07E:180) Drama in the Classroom 3 s.h.

Theories of community, culture, identity in relation to language arts teaching and learning; emphasis on incorporating multiple literacies, both oral and print, into language arts curricula; action research involving oral literacy. Same as THTR:3610 (049:101).

EDTL:3190 (07E:090) Orientation to Elementary Education 1-2 s.h.

Overview of elementary education expectations, including options for student teaching; classroom observation, lesson planning, performance indicators, INTASC standards, classroom management, information about mandatory child abuse reporting, blood-borne pathogens, professional ethics.

EDTL:3620 (07E:145) Methods and Materials: General Music 3 s.h.

Methods for teaching general music in elementary and secondary schools. Prerequisites: EDTL:3002 (07E:102), EDTL:3090 (07S:190), and EDTL:3610 (07S:096).

EDTL:4024 (07E:124) Differentiating Projects with Technology 1 s.h.

Use of digital tools to enrich student presentations; PowerPoint slide shows, presentations uploaded to World Wide Web, interactive multimedia presentations via HyperStudio.

EDTL:4026 (07E:126) Reading for High-Ability Students 1 s.h.

Purposes and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curricula, role of reading in social and emotional development of gifted students.

EDTL:4028 (07E:128) Differentiating through Advanced Technology 1 s.h.

Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically advanced students; production and editing of digital video, computer graphics, advanced web-publishing and communication techniques; skill development.

EDTL:4029 (07E:129) Developing Leadership Skills for Gifted and Talented Students, K-12 1 s.h.

EDTL:4065 (07E:165) Social Studies for High-Ability Learners 1-2 s.h.

Intersection of unique challenges presented by talented students and challenges of designing, implementing, and assessing quality inquiry-based social studies instruction; background in social studies or social studies education not required.

EDTL:4066 (07E:166) Curriculum Concepts in Gifted Education 3 s.h.

Analyzing and refining understanding of curriculum in context of: needs of gifted and talented students, rationale for and implementation of curriculum differentiation, and curriculum principles for and applications to gifted and talented; designed for preservice and inservice educators, as well as those interested in curriculum development, design, and delivery.

EDTL:4081 (07E:181) ePortfolio Production 1-2 s.h.

Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Requirements: able to perform basic computer functions and use a World Wide Web browser. Same as PSQF:4081 (07P:181), EALL:4081 (07X:181), RCE:4081 (07C:181), EPLS:4081 (07B:181).

EDTL:4085 (07E:185) Current Readings and Research in Gifted Education 1 s.h.

Research in the field of gifted education and talent development; applications of research to ensure best practices in providing services and programs for high-ability learners.

EDTL:4096 (07E:196) Topics in Teaching and Learning arr.

EDTL:4153 (07E:153) Gifted and General Education Collaboration 1 s.h.

Need for differentiated learning experiences throughout the school day for gifted students; how classroom teachers and gifted/talented resource teacher collaborate to provide appropriate instructional services to gifted students; collaborative models, planning process, and recommendations for both direct and indirect services. Requirements: access to the Internet.

EDTL:4171 (07E:171) Literacy Learning and Teaching III 3 s.h.

Elaborates on content from EDTL:3160 (07E:160) and EDTL:3164 (07E:164); issues in theoretically sound reading and writing assessment, instruction in K-8 classrooms where local, state, and national goals play increasing roles; reading and writing processes; teaching and learning of reading and writing; focus on role of language and conversation in learning, content area reading instructional strategies, classroom-based reading and writing assessment, special issues in teaching, and learning with textbooks. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075).

EDTL:4190 (07E:190) Supervised Teaching in the Elementary School: Interactive Phase arr.

Student teaching at the elementary level (K-9). Corequisites: EDTL:4091 (07S:191). Requirements: application to the Office of Teacher Education and Student Services.

EDTL:4191 (07E:191) Supervised Teaching in the Elementary School: Pre- and Post-Active Phase arr.

Corequisites: EDTL:4190 (07E:190). Requirements: application to the Office of Teacher Education and Student Services.

EDTL:4192 (07E:192) Special Area Student Teaching arr.

Supervised teaching and observation in specific areas of elementary curriculum (see ISIS for areas offered).

EDTL:4193 (07E:193) Independent Study arr.

Requirements: senior standing.

EDTL:4199 (07E:199) Program Models in Gifted Education 3 s.h.

Development and refinement of preservice and inservice educators' understanding of academic programs; needs of gifted and talented students, including diverse and often underrepresented groups of students; rationale for and implementation of a comprehensive program model for gifted students. Requirements: Internet access.

Elementary Education, Graduate

EDTL:5104 (07E:104) Remedial Methods in Speech and Hearing 2 s.h.

Emphasis on elementary grades; usually taken in conjunction with EDTL:4192 (07E:192), which provides approximately 70 hours of supervised clinical practice in elementary schools. Recommendations: primarily for communication sciences and disorders majors.

EDTL:6104 (07E:204) Literature for Children II 3 s.h.

Current theory, research, and practice in reading and responding to children's literature; genre and topic vary. Same as ENGL:6104 (08P:204).

EDTL:6164 (07E:264) Early Literacy Development and Instruction 2-3 s.h.

Understanding of early reading and writing experiences; relationship of reading to other communication areas; knowledge of instructional approaches, techniques, materials, assessment procedures; interrelationship of home and school experiences; identification of current and crucial issues and relevant research.

EDTL:6165 (07E:265) Reading and Writing Across Intermediate Grades 3 s.h.

Issues in teaching, learning, and assessment of students grades 4-9; fostering positive literate identities, literacy engagement, strategies for reading, writing, and critically responding to texts in a range of genres and formats and across content areas.

EDTL:6167 (07E:267) Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms 3 s.h.

Theoretical and practical organization of developmentally appropriate curricula and teaching methods to promote learning.

EDTL:6171 (07E:271) Advanced Reading Clinic Techniques 2-3 s.h.

Instructional procedures for children and early adolescents with severe learning problems in reading; causes of reading disorders; educational prognosis for severely disabled readers. Corequisites: EDTL:6172 (07E:272).

EDTL:6172 (07E:272) Advanced Reading Clinic Practicum 2-3 s.h.

Practice in selecting and using instructional procedures that address the needs and interests of struggling literacy learners, with emphasis on teaching to students' strengths; how to fit clinical teaching techniques into an overall literacy instructional program. Corequisites: EDTL:6171 (07E:271).

EDTL:6293 (07E:293) Individual Instruction arr.

EDTL:6534 (07E:234) Foundations of Mathematics Education 2-3 s.h.

History of U.S. mathematics education; learning theory applied to teaching, learning mathematics; curriculum design; curriculum/standards and achievement patterns in the United States and other countries; equity; research literature.

EDTL:6955 (07E:255) Social and Behavioral Interventions 3 s.h.

Design, implementation, and evaluation of function-based interventions for students with significant behavioral challenges; functional behavior assessment, multi-component intervention design, and single-subject methodology to test effects of intervention in a K-12 school.

EDTL:7004 (07E:304) Schooling in the United States 3 s.h.

Governance, finance, and policy structures that have influenced teaching and learning in public schools.

EDTL:7008 (07E:308) Seminar: Research and Current Issues arr.

Review of literature, critical analysis of reported research, and study of current issues and problems for a specific curricular area; topics vary.

EDTL:7040 (07E:340) Advanced Topics in Teaching and Learning arr.

Topics vary.

EDTL:7092 (07E:392) Field Service Project arr.

Individual field service project in a specific curricular area; for advanced students.

EDTL:7093 (07E:391) Research Project arr.

Individual research projects in a specific curricular area; for advanced students.

EDTL:7100 (07E:300) Design and Organization of Curriculum 3 s.h.

Major issues, modern selection, sequential arrangement, organization of content; relationship of time allotments to implementation; utilization of instructional equipment; appraisal procedures; staff participation in curriculum development.

EDTL:7165 (07E:365) Reading Clinic: Supervision arr.

Supervised experience in guiding and improving teacher performance in clinical practicums.

Secondary Education, Upper-Level Undergraduate and Graduate

EDTL:3001 (07S:112) Introduction to Museum Studies 3 s.h.

Overview of museum history, function, philosophy, collection, and curatorial practices; governance and funding issues; exhibition evaluation and audience studies; examples from Museum of Art, Museum of Natural History, Old Capitol Museum, and Medical Museum. GE: Social Sciences. Same as SIED:3001 (097:115), ANTH:3001 (113:103), MUSM:3001 (024:102).

EDTL:3026 (07S:130) Workshop for Secondary School Journalism/Communication Teachers 1-3 s.h.

Workshops on journalism/mass media curriculum, audio/video production, photojournalism, publication design, journalistic writing techniques, advising student publications. Same as JMC:3210 (019:102).

EDTL:3060 (07S:160) Pre-Intern Fall 4 s.h.

First course in the Regents collaborative Iowa Teacher Intern License Pathway program. Requirements: admission to the ITILP program.

- EDTL:3061 (07S:161) Pre-Intern Spring** 4 s.h.
Second course in the Regents collaborative Iowa Teacher Intern License Pathway program. Prerequisites: EDTL:3002 (07E:102), EDTL:3103 (07E:103), EDTL:3190 (07E:090), EPLS:3000 (07B:103), and PSQF:1075 (07P:075).
- EDTL:3062 (07S:162) Pre-Intern Summer I** 4 s.h.
Third course in the Regents collaborative Iowa Teacher Intern License Pathway program. Prerequisites: EDTL:3060 (07S:160) and EDTL:3061 (07S:161).
- EDTL:3063 (07S:163) Pre-Intern Summer II** 6 s.h.
Fourth course in the Regents collaborative Iowa Teacher Intern License Pathway program. Prerequisites: EDTL:3060 (07S:160), EDTL:3061 (07S:161), and EDTL:3062 (07S:162).
- EDTL:3064 (07S:164) Intern Year** arr.
Fifth course in the Regents collaborative Iowa Teacher Intern License Pathway program. Prerequisites: EDTL:3060 (07S:160), EDTL:3061 (07S:161), EDTL:3062 (07S:162), and EDTL:3063 (07S:163).
- EDTL:3071 (07S:171) Secondary Classroom Management** 2-3 s.h.
Characteristics of the classroom environment and their implications for organization and management; concepts and principles teachers can use when thinking about managerial tasks in the classroom; for prospective middle and secondary school teachers. Prerequisites: EDTL:3090 (07S:190). Requirements: admission to TEP.
- EDTL:3090 (07S:190) Orientation to Secondary Education** 1 s.h.
Overview, including options for student teaching, classroom observation, lesson planning, classroom management, performance indicators, INTASC standards, blood borne pathogens, professional ethics.
- EDTL:3095 (07S:195) Teaching Reading in Secondary Content Areas** 1 s.h.
Integration of reading strategies into secondary content areas for teacher candidates in secondary education.
- EDTL:3204 (07S:109) Art Education Studio** 3-4 s.h.
Art training related to processes of elementary, secondary school art teaching; studio methods applied to teaching children, adolescents. Requirements: concurrent enrollment in EDTL:3290 (07S:090) for Teacher Education Program student.
- EDTL:3205 (07S:105) Methods of Art Education in Secondary Schools** 4 s.h.
Art education theory and methods at secondary levels; art curriculum, unit, and lesson planning; evaluation, motivation, instructional materials; observational techniques.
- EDTL:3290 (07S:090) Introduction and Practicum: Art** 2-3 s.h.
Practice of learning from an experienced art teacher in an art classroom and setting; observations in an art classroom side-by-side with experience and insight gained through participating and teaching in the Saturday Art Workshop Program. Requirements: admission to TEP.
- EDTL:3382 (07S:182) Language and Learning** 2-3 s.h.
How language reflects and constructs learners' identities and cultures; readings related to oral and written language, native and second language development, linguistic diversity; discussion of the relationship of language theory to schools of language instruction. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. Same as ENGL:3190 (08P:182).
- EDTL:3393 (07S:193) Reading and Teaching Adolescent Literature** 3 s.h.
Reading and evaluation of literature suitable for junior and senior high school students. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. Same as ENGL:3191 (08P:198).
- EDTL:3532 (07S:133) Introduction and Practicum: Mathematics** 3 s.h.
Experience designing and teaching lessons with varied instructional intent and use of multiple instructional strategies; study and practice methods of managing classroom learning environment; significant time spent in cooperating schools, on-campus meetings. Requirements: admission to TEP.
- EDTL:3534 (07S:134) Methods: Middle School Mathematics** 3 s.h.
Subject matter content, teaching and assessment techniques for grades 5-9 math; how students learn mathematics; mathematics curricular planning for all students.
- EDTL:3605 (07S:143) Instrumental Techniques** 2 s.h.
Same as MUS:3605 (025:105).
- EDTL:3610 (07S:096) Introduction and Practicum: Music** 2 s.h.
Experience observing and assisting music teachers and students in elementary or secondary schools; six hours per week in the school plus on-campus class meetings. Requirements: admission to TEP.
- EDTL:3630 (07S:140) Band Methods and Materials** 3 s.h.
High school and elementary school music methods required for teaching certificate; for instrumental music education majors. Same as MUS:3630 (025:164).
- EDTL:3635 (07S:145) Instrumental Conducting** 3 s.h.
Advanced skills for instrumental conducting, score analysis, rehearsal techniques, literature selection. Prerequisites: MUS:3625 (025:107). Same as MUS:3635 (025:108).
- EDTL:3640 (07S:147) Choral Methods** 3 s.h.
Organization, implementation of effective choral music programs for all ages. Same as MUS:3640 (025:109).
- EDTL:3645 (07S:148) Choral Conducting and Literature** 3 s.h.

Advanced skills appropriate to choral conducting, analysis, literature selection studied and implemented to develop a secure approach to choral art; students preparing to teach in the elementary or secondary schools must register under EDTL:3645 (07S:148). Prerequisites: EDTL:3640 (07S:147) and MUS:3625 (025:107). Same as MUS:3645 (025:110).

EDTL:3660 (07S:150) String Methods and Materials 3 s.h.

Methods for teaching bands in schools. Offered fall semesters. Same as MUS:3660 (025:112).

EDTL:4021 (07S:121) Science for High Ability Students 1 s.h.

Unique challenges and opportunities confronted by teachers of students with above average ability and interest in science; theory and practice; development of program outlines for science programs.

EDTL:4022 (07S:122) Math Programming for High Ability Students 1 s.h.

Unique challenges and opportunities confronted by teachers of high-ability students; theory and practice, development of program outlines for implementation. Same as PSQF:4122 (07P:122).

EDTL:4025 (07S:125) Differentiated Instruction for the Gifted 1 s.h.

Program options for K-12 gifted students; student abilities and needs linked with various curriculums; case studies, school materials.

EDTL:4032 (07S:132) Middle School Curriculum and Methods 3 s.h.

Junior high and middle school development compared; characteristics of exemplary programs, disciplinary and interdisciplinary trends; variety of teaching methods (group and individual); hands-on activities. Requirements: admission to TEP.

EDTL:4072 (07S:172) Thinking Skills 1 s.h.

Factors involved in teaching thinking skills as a total concept; the relationship of critical and creative thinking; review of published programs.

EDTL:4073 (07S:173) Programming/Curriculum for High Ability Students 1 s.h.

Programming and curriculum for K-12 students identified as gifted or highly able; in-class differentiations, special projects for pull-out programs, facilitating research projects, mentoring in advanced programming.

EDTL:4074 (07S:174) Differentiation at the Secondary Level 1 s.h.

Importance of differentiation for gifted learners in middle school and high school; differentiation through advanced placement programs as well as broader perspectives on differentiation; essentials for differentiation understood and applied to a lesson that will be implemented with students.

EDTL:4087 (07S:187) Seminar: Curriculum and Student Teaching 1-3 s.h.

Discussions, role-playing, group and individual reports, analysis of critical incidents, classroom management, videotapes of student classroom performance pertinent to participants' student teaching experiences. Requirements: student teaching.

EDTL:4089 (07S:189) Elementary School Special Subject Area Student Teaching arr.

Supervised teaching experience in a single subject in grades 1-6.

EDTL:4091 (07S:191) Observation and Laboratory Practice in the Secondary School arr.

Student teaching experience in performing the duties of regular classroom teachers under supervision of experienced personnel in secondary schools.

EDTL:4092 (07S:192) Observation and Laboratory Practice in the Secondary School arr.

Continuation of EDTL:4091 (07S:191).

EDTL:4314 (07S:114) Introduction and Practicum: Secondary English 3 s.h.

Experience observing and assisting English or speech teachers and students in secondary schools; 12 hours per week in the school plus on-campus class meetings.

EDTL:4315 (07S:115) Methods: Secondary English 3 s.h.

Organizational techniques, methods, materials for teaching high school English; experience in simulated teaching situations during laboratory sessions, integrated with lectures and discussions. Prerequisites: EDTL:4314 (07S:114). Same as ENGL:4810 (08P:190).

EDTL:4355 (07S:155) Approaches to Teaching Writing 3 s.h.

Theories, practices, strategies, and history of writing and teaching writing. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing. Same as CNW:4355 (08N:141).

EDTL:4394 (07S:194) Methods: Secondary Reading 2-3 s.h.

Methods and materials used in teaching developmental reading in all junior and senior high school content areas. Prerequisites: EDTL:4314 (07S:114).

EDTL:4406 (07S:106) Foreign Language Education Practicum I 3 s.h.

Skill development for teaching languages in the early grades; curriculum design, test creation, microteaching with inservice teachers. Prerequisites: EDTL:4410 (07S:110). Corequisites: EDTL:4416 (07S:116).

EDTL:4407 (07S:107) Foreign Language Education Practicum II 3 s.h.

Practice in lesson design, classroom management techniques, evaluation skills during work with inservice foreign language teachers. Prerequisites: EDTL:4410 (07S:110). Corequisites: EDTL:4417 (07S:117).

EDTL:4410 (07S:110) Teaching K-12 Second Language Learners 3 s.h.

Second language learning and teaching in the multicultural classroom; influence of school setting, societal context. Requirements: admission to TEP.

EDTL:4416 (07S:116) Learning to Teach Second Languages I 3 s.h.

Approaches, methods, and techniques of teaching the modalities of listening, speaking, reading, and writing in a second language. Corequisites: EDTL:4406 (07S:106).

EDTL:4417 (07S:117) Learning to Teach Second Languages II 3 s.h.

Curriculum design, classroom management, student evaluation, technology, using context to teach culture in second languages. Prerequisites: EDTL:4410 (07S:110) or EDTL:6483 (07S:183). Corequisites: EDTL:4407 (07S:107).

EDTL:4418 (07S:118) ESL Practicum I 4 s.h.

Skill development for teaching English as a second language; curriculum design, test creation, microteaching with inservice teachers.

EDTL:4467 (07S:167) Methods for Teaching English to Speakers of Other Languages in K-12 Settings 4 s.h.

Exploration of approaches, methods, and practices in teaching English to speakers of other languages in K-12 school settings; communicative and content-based approaches to language learning with practical application of theory and research; issues concerning linguistically diverse learners covered with pedagogical implications; skills in teaching approaches for English language learners; lesson and unit planning, materials evaluation and adaptation, and assessment for placement, diagnosis, exit, and evaluation of English language learners.

EDTL:4468 (07S:168) Instruction of English Language Learners for K-12 Classrooms 3 s.h.

Preparation to work with English Learners (ELLs) in K-12 settings; dramatic increase in this population over recent decade; need for teachers to understand sociocultural and linguistic challenges faced by ELLs and their families; proficiency in instructional and differentiation strategies for instructing ELLs; ELL variation and cultural considerations, English language development standards, second language teaching and learning, differentiation for ELLs, effective practice for ELL instruction and assessment; for students in teacher preparation program.

EDTL:4498 (07S:198) Language Structure for Teaching English Language Learners 4 s.h.

Exploration of theory, rules, and examples to gain practical understanding of the system of language structure; focus on working with English language learners from a variety of first language backgrounds in educational settings; principles of discourse, phonology, morphology, syntax, pragmatics, and semantics that build a framework for discussion of applications and analysis of student and teacher language; address English language learners' development in P-12 settings; strategies to evaluate learner language; increase awareness of language challenges for English language learners that can occur in spoken and written educational instruction and materials. Requirements: admission to TEP.

EDTL:4535 (07S:135) Methods: High School Mathematics 3 s.h.

Subject matter content, teaching and assessment techniques for grades 9-12 math; how students learn mathematics; mathematics curricular planning for all students. Prerequisites: EDTL:3534 (07S:134).

EDTL:4630 (07S:144) Psychology of Music 2 s.h.

Cognition of music, affective response, aesthetic response, musical ability.

EDTL:4640 (07S:149) Introduction to Music Research 2-3 s.h.

Preparation for conducting research on music behavior.

EDTL:4751 (07S:151) Science Teaching and Practice with Early Learners 2 s.h.

Introduction to students, schools, the purpose of schooling children in science, learning theories, science curricula, contemporary science education issues, effective science teaching.

EDTL:4752 (07S:152) Methods of Teaching Science 3 s.h.

Developing, writing, and orally defending a robust research-based framework for teaching science that includes student goals, student actions, content, materials, activities, teaching behaviors and strategies, contemporary learning theories, self-evaluation. Prerequisites: EDTL:4751 (07S:151).

EDTL:4753 (07S:153) Instructional Issues in Teaching Science 3 s.h.

Articulating, experiencing, practicing a research-based framework for teaching science in the real world of students, schools, teaching. Prerequisites: EDTL:4752 (07S:152). Corequisites: EDTL:4779 (07S:179).

EDTL:4757 (07S:157) Assessment in the Science Classroom 2 s.h.

Exploration of ways in which students are assessed in science classrooms; methods used to assess student learning and theoretical backgrounds; formative/summative assessment techniques, including technology-based assessment; development of assessment around three guiding questions: Where are you trying to go? Where are you now? How can you get there?; ways in which assessment theories guide teaching and learning. Requirements: admission to Teacher Education Program.

EDTL:4779 (07S:179) Secondary School Science Practicum arr.

Supervised teaching experience in a single subject; secondary school setting.

EDTL:4811 (07S:111) Introduction and Practicum: Secondary Social Studies 3 s.h.

Experience observing and assisting social studies teachers and students in secondary schools; nine hours per week in the school plus on-campus class meetings. Requirements: admission to TEP.

EDTL:4870 (07S:170) Methods: Secondary Social Studies 3 s.h.

Analysis of the teaching-learning process; organization of social studies content for teaching purposes; evaluation of learning procedures and new strategies; practicum work includes microteaching, computer-assisted modules, lesson plan development, writing test items.

EDTL:5080 (07S:280) Workshop: Teacher Training for Advanced Placement Courses 1-2 s.h.
Focus on a particular academic content area.

EDTL:5086 (07S:186) Curriculum Foundations 2-3 s.h.

Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. Same as SLA:5501 (164:173).

EDTL:5535 (07S:235) Current Issues in Mathematics Education 1-3 s.h.

Recent curriculum developments, experimental programs, research relevant to classroom instruction, trends in education that may have a significant impact on mathematics programs.

EDTL:5600 (07S:241) Graduate Music Education Workshop 1 s.h.

For inservice music teachers; topics vary. Same as MUS:5600 (025:220).

EDTL:5601 (07S:242) Graduate Music Education Workshop II 1 s.h.

Varied topics; for inservice music teachers. Same as MUS:5601 (025:234).

EDTL:5610 (07S:206) Foundations of Music Education Curricula 3 s.h.

Curriculum development, instructional materials, analysis of current teaching methods and techniques in school music programs; historical foundations of music education.

Secondary Education, Graduate

EDTL:6267 (07S:367) Seminar: Current Issues in Art Education 3-4 s.h.

Analysis of literature in art education and related disciplines. Same as ARTE:6267 (01E:367).

EDTL:6315 (07S:315) M.A. Seminar: English Education arr.

Significant developments in English education; primary and collateral readings. Same as ENGL:6315 (08P:405).

EDTL:6393 (07S:393) Master's Thesis arr.

EDTL:6400 (07S:200) Fundamentals of Second Language Assessment 3 s.h.

How to write language tests; discussion of fundamental issues in development of new tests or selection of existing tests. Same as SLA:6503 (164:270).

EDTL:6402 (07S:202) Second Language Program Management 3 s.h.

Preparation for supervising, administering foreign language programs at all levels; for precollegiate language teachers and graduate students. Same as SLA:6504 (164:271).

EDTL:6403 (07S:203) Second Language Planning in Education 3 s.h.

Sociology and politics of national policies involving language, internationally; development of a research-based policy perspective on language issues in the country in which the student intends to teach.

EDTL:6407 (07S:207) Reading in Non-Roman Scripts 3 s.h.

Theory and practice of reading in languages that use non-Roman alphabets, syllabary, logographic systems; reading in first and second language contexts; instructional and literacy development issues. Prerequisites: EDTL:4171 (07E:171) or EDTL:6484 (07S:184). Same as SLA:6975 (164:226).

EDTL:6408 (07S:208) Designing Materials for Second Language Instruction 3 s.h.

Critical perspective on creating and using media for second language learning and teaching; research on materials design, development of media. Prerequisites: EDTL:6483 (07S:183). Same as SLA:6505 (164:272).

EDTL:6409 (07S:209) Cultural Curriculum 3 s.h.

Culture's role in foreign/second language teaching; definition, pedagogy, assessment, and materials that allow culture to be taught and learned. Same as SLA:6970 (164:229).

EDTL:6480 (07S:180) Issues in Foreign Language Education 3 s.h.

Theoretical perspectives of pivotal research issues at the forefront of foreign language education; systems available to foreign language professionals for disseminating research. Same as SLA:6500 (164:170).

EDTL:6483 (07S:183) Second Language Classroom Learning 3 s.h.

Synthesis of empirical findings on children's and adults' learning of a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as ASIA:6483 (039:177), SLA:6506 (164:171).

EDTL:6484 (07S:184) Reading in a Second Language 3 s.h.

Current theory, research, practice in second language reading field; role of textual features and the reader in reading comprehension. Same as SLA:6501 (164:172).

EDTL:6497 (07S:197) Principles of Course Design for Second Language Instruction 3 s.h.

Contemporary views of second language curriculum design; guidelines necessary for the creation of prototypical curriculum units to be transposed into classroom-ready forms; for individuals interested in foreign language materials development. Same as SLA:6502 (164:174).

EDTL:6530 (07S:230) Workshop in School Mathematics 0-3 s.h.

Recent developments in school mathematics teaching methods and curriculum relevant to a selected issue; one to three weeks of intensive examination, experience.

EDTL:6531 (07S:231) Technology in School Mathematics 2-3 s.h.

Methods, materials, issues, pedagogy, assessment; use, evaluation of technology for mathematics teaching and learning; implications for organization, development of course content.

EDTL:6536 (07S:236) Teaching of Geometry 2-3 s.h.

Current developments in teaching middle school/junior high and high school geometry; selection, organization of content; research on teaching and learning.

EDTL:6539 (07S:239) Teaching of Algebra 2-3 s.h.

Current developments in curriculum and instructional methods in secondary school algebra; classroom use of the history of algebra, use of technologies, implications of current research for the algebra classroom.

EDTL:6570 (07S:270) Foundation of School Mathematics Curriculum 3 s.h.

Elementary and secondary background developments in school and mathematics curriculum; definitions, historical perspective, reform, theories of knowledge, implementation, evaluation, international perspectives, issues in mathematics curriculum.

EDTL:6600 (07S:244) Individual Projects in Music Education 1-2 s.h.

Projects of special concern to individual music teachers in public schools.

EDTL:6754 (07S:254) Theory and Research on Curriculum Materials in Science 3 s.h.

Theoretical perspectives and empirical research on design and use of science curriculum materials; contemporary theoretical assumptions about active and participatory relationships between curriculum materials, teachers, and students in particular institutional contexts; exploration of heuristics for development of effective science curriculum materials and recent research on how elementary, middle, and secondary teachers evaluate, adapt, and enact them through professional practice; for students with research and/or development interests based in K-16 contexts.

EDTL:6755 (07S:255) Practices of Inquiry in Science Learning Environments 3 s.h.

Contemporary perspectives on inquiry-based science teaching and learning, implications for theory and research; readings, discussions, presentations, and writing to examine and build upon policy-level science education reform discourse, sociological and organizational theory, empirical research in science education.

EDTL:6756 (07S:256) Science Education: The Nature of Science 3 s.h.

Relationship between scientists' work and current theoretical and practical portrayals of the nature of science in K-16 education.

EDTL:6757 (07S:257) Learning in the Science Classroom 2-3 s.h.

Assumptions about learning and about learning theories and their impact on pedagogical actions; how some concepts are planned and implemented.

EDTL:6758 (07S:258) Writing in the Science Classroom 3 s.h.

Literacy in the science classroom; theoretical and pedagogical perspectives; practical classroom activities that lead to effective writing and increased learning.

EDTL:6759 (07S:259) Advanced Pedagogy 3 s.h.

Theoretical and practical perspectives on pedagogy; how to assess practice, provide feedback, and build learning pathways for teachers.

EDTL:6833 (07S:233) History and Foundations of Social Studies Education 3 s.h.

Historical, philosophical, social foundations of social studies education; recent debates over content and instructional processes; student research proposals.

EDTL:6841 (07S:341) Infusing a Global Perspective into the Curriculum 2-3 s.h.

Rationales, conceptualizations, and themes in global perspectives in education, implications for curriculum change; elements of perspective consciousness, cultural universals, cultural diversity, cross-cultural awareness, global systems, global history, global issues; application and evaluation of ideas within fields of study and varied teaching situations.

EDTL:6877 (07S:277) Seminar: Social Studies Education arr.

Periodical literature, trends, curricular developments, research in various aspects of social studies education; for master's and doctoral candidates in social studies education.

EDTL:7015 (07S:415) Ph.D. Seminar in Language, Literacy, and Culture arr.

Historical, recent research and theory in literacy education; topics vary.

EDTL:7033 (07S:333) Seminar on Teacher Education 3 s.h.

History, structure, and politics of teacher education; current practice and agendas for reform; new developments in teacher assessment.

EDTL:7070 (07S:370) Introduction to Qualitative Methods in Literacy Research 3 s.h.

Conceptual and practical exploration of qualitative research design methods, including data collection, analysis, and reporting; understanding proposal writing.

EDTL:7071 (07S:371) Critical Discourse Analysis in Educational Research 3 s.h.

Critical discourse analysis (CDA) as theory and method; social and power relations, identities, and knowledge through written, visual, and spoken texts in social settings, such as schools, families, communities; theoretical and methodological traditions of CDA in educational research; critical approaches to analyzing spoken, written, and visual texts. Prerequisites: EDTL:7070 (07S:370) or EPLS:7373 (07B:373) or PSQF:7331 (07P:331) or RCE:7338 (07C:338).

- EDTL:7072 (07S:372) Advanced Methods of Literacy Research: Qualitative Data Analysis and Reporting** 3 s.h.
 Procedures and techniques for writing research proposals at the doctoral level; written research proposal dealing with a question in second language teaching and learning.
 Advanced course in traditional and contemporary qualitative data analysis methods and varied forms of reporting to understand, critique, and conduct research about literacy learning and teaching. Prerequisites: EDTL:7070 (07S:370) or EPLS:7373 (07B:373) or PSQF:7331 (07P:331) or RCE:7338 (07C:338).
- EDTL:7073 (07S:373) Ethnographic Methods, Theories, and Texts** 3 s.h.
 Practical and theoretical background for conducting ethnographic field studies in literacy, schooling, language, or a field of student's choice; methods, methodologies, and perspectives from anthropology, sociology, folklore, journalism, literary criticism, cultural, critical, and composition theory; read historical and contemporary ethnography, consider ethnographic forms of expression (films, graphics, fiction, poems); roles, responsibilities, and ethics of writer, reader, viewer, and informant; tools, methods, and writer's techniques to develop an ethnographic portfolio. Prerequisites: EDTL:7070 (07S:370) or EPLS:7373 (07B:373) or PSQF:7331 (07P:331) or RCE:7338 (07C:338).
- EDTL:7075 (07S:375) Educational Ethnography** 3 s.h.
 Study of culture and social organization; how ethnographers become participant-observers of varying degrees in the social setting they study; opportunities to explore ethnographic research methods; focus on ethnography in educational settings; methods used in a variety of contexts including communities, businesses, families, and other social organizations; ethnography committed to social justice; social theory, issues of power and privilege, unequal access to socioeconomic and educational opportunities.
- EDTL:7380 (07S:385) Practicum in College Teaching** arr.
- EDTL:7385 (07S:384) Teaching and Learning in Higher Education** 3 s.h.
 Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as PSQF:7385 (07P:385), EPLS:7385 (07B:385), GRAD:7385 (650:385), RCE:7385 (07C:385).
- EDTL:7405 (07S:305) Research Methods in Second Language Teaching and Learning** 3 s.h.
 Overview of common research methods used to study second language (L2) teaching and learning and related fields; variety of readings from current L2 publications, presentations, video testimonials by active L2 researchers, discussions of readings, and activities designed to process and apply concepts; field research methods; designing a rigorous research study on topic of student's choice; speaking and writing with confidence about research methods used in other studies.
- EDTL:7406 (07S:306) Proposal Writing for Second Language Research** 3 s.h.
- EDTL:7410 (07S:310) Mixed Methods Research** 3 s.h.
 Introduction to mixed methods research in education; knowledge and skills necessary to conduct mixed methods study; history and language of mixed methods research; identification and processing arguments for and against mixed methods research; extend understanding of research in education; how to assess strengths and weaknesses of published mixed methods studies; investigation of one or more mixed methods research designs in depth; application of mixed methods research design to a research proposal. Prerequisites: EALL:5150 (07X:150). Requirements: formal introduction to quantitative and qualitative research methods, and familiarity with basic steps of research process. Recommendations: direct experience conducting research studies not required. Same as EPLS:7392 (07B:392).
- EDTL:7493 (07S:493) Ph.D. Thesis** arr.
- EDTL:7535 (07S:335) Seminar: Research in Mathematics Education** arr.
 Analysis of current research, research methodology, curriculum developments in mathematics education; topics vary.
- EDTL:7600 (07S:201) Seminar: Current Topics in Music Education** 2-3 s.h.
 Major areas of professional and research interest.
- EDTL:7640 (07S:279) Advanced Research in Music Education** 3 s.h.
 Design, performance, analysis, and reporting of music research.
- EDTL:7707 (07S:407) Research: Science Education** arr.
 Planning of individual research projects by M.S. and Ph.D. students.
- EDTL:7750 (07S:350) Seminar: Science Education** 0-2 s.h.
 Discussion of completed faculty and doctoral candidates' research, national issues, program features.
- EDTL:7751 (07S:451) Advanced Qualitative Data Analysis** 3 s.h.
 Varied approaches to qualitative data analysis and philosophical foundations; analysis and interpretation of qualitative data; writing qualitative research findings. Prerequisites: EDTL:7070 (07S:370) or EPLS:7373 (07B:373) or PSQF:7331 (07P:331) or RCE:7338 (07C:338).
- EDTL:7755 (07S:355) Independent Study in Science Education Research** 2-3 s.h.
- EDTL:7756 (07S:356) Research Apprenticeship in Science Education** 3 s.h.

Practical experiences in science education research in a collaborative, team-oriented environment; apprenticeship model of instruction in which students' participation in authentic tasks and their learning are mutually constitutive; engagement in actual research practices to produce an empirically-based product; development of expertise with some aspect of research methodology determined by instructor; for graduate students with interests in research or development based in K-16 contexts.

EDTL:7774 (07S:374) Qualitative Research with Computer-Aided Qualitative Data Analysis Software 3 s.h.

Qualitative data analysis using computer-aided qualitative data analysis software (CAQDAS); emphasis on methodological approaches to data analysis, and practical and experiential aspects of using CAQDAS to conduct these stages of analysis; opportunity to work with ATLAS.ti, NVivo, Dedoose, and the Coding Analysis Toolkit (CAT); capstone product is a research report based upon qualitative analysis; students strongly encouraged to analyze data from their own research.

Special Education, Upper-Level Undergraduate and Graduate

Courses at the 3000 level are open to students in education and related disciplines.

EDTL:3905 (07U:110) Teaching Deaf and Hard of Hearing Students 3-4 s.h.

Issues in deaf education; management techniques, communication strategies, teaching strategies, instructional materials, hands-on activities, assessments, parent involvement; use of technology, ethnic and cultural diversity, classroom management, pre-reading techniques, literacy development, educational program options. Taught in English and/or American Sign Language. Requirements: for 4 s.h. option — concurrent enrollment in ASL:2002 (158:014), if not taken as a prerequisite. Same as ASLE:3905 (158:110).

EDTL:3915 (07U:115) Introduction: Strategist I (Elementary) 1-2 s.h.

Teaching students with mild disabilities in elementary resource placements; current trends and issues, basic and theoretical approaches, implications of federal and state statutes, multidisciplinary team approaches to providing appropriate educational programming; students complete a practicum with an elementary special education teacher. Requirements: admission to TEP.

EDTL:3933 (07U:133) The Culturally Different in Diverse Settings 3 s.h.

Diversity in society; laws—past and present, experiences, incidents, how they affect society.

EDTL:3938 (07U:138) Assessment of Learning Problems 3 s.h.

Effective use of varied formal and informal assessment techniques for students with learning and behavior problems; techniques that inform teaching decisions. Requirements: admission to TEP and Elementary Strategist I program.

EDTL:3963 (07U:163) Inclusive Theatre 3 s.h.

Introduction to implementation of performance opportunities for special populations (defined as those with cognitive or physical disability) and underrepresented populations. Same as THTR:3605 (049:163).

EDTL:3976 (07U:176) Reading Intervention for Students At Risk 3 s.h.

Reading instructional approaches for students at risk for, or with reading disabilities; students enrolled in lab apply content while working with a reading disability student; use of effective teaching principles and research-based practices for designing and delivering instruction in reading (including oral and silent reading), vocabulary development, reading fluency, comprehension. Requirements: admission to TEP.

EDTL:4137 (07U:137) Introduction to Educating Gifted Students 3 s.h.

Fundamental issues such as curriculum, counseling, family issues, gender and minority issues. Same as RCE:4137 (07C:137).

EDTL:4188 (07U:188) Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.

Experience in developing course materials for classes offered through the Belin-Blank Center for Gifted Education. Same as RCE:4188 (07C:188).

EDTL:4189 (07U:189) Practicum in Gifted/Talented Education 1 s.h.

Experience developing course materials for classes offered through the Belin-Blank Center for Gifted Education.

EDTL:4900 (07U:100) Foundations of Special Education 3 s.h.

Students with disabilities, gifted and talented; strategies for effective treatment, collaboration between regular and special education teachers; remediation of academic, behavioral, social problems.

EDTL:4921 (07U:121) Transition and Related Issues 3 s.h.

Curriculums, programs, and delivery systems that help persons with disabilities move from preschool to elementary, elementary to middle school, middle school to high school, and to postsecondary life; emphasis on ecological and task analysis, transition planning strategies, interagency collaboration, self-determination, access to resources and support services.

EDTL:4922 (07U:122) Supervised Teaching: Elementary Strategist I 7 s.h.

Student teaching at the elementary level in a program for students with mild to moderate disabilities. Requirements: elementary education major.

EDTL:4934 (07U:134) Parent-Teacher Communication 1-3 s.h.

Realities of working with parents; interpersonal skills; options for parent support services. Same as PSQF:4134 (07P:134).

EDTL:4936 (07U:136) Home/School/Community Partnerships 3 s.h.

Issues related to collaboration among families, educators, community members in implementing school programs. Same as PSQF:4136 (07P:136).

EDTL:4940 (07U:140) Characteristics of Disabilities 3 s.h.

Etiologies of mild/moderate disabilities; current educational trends; educational alternatives; importance of multidisciplinary team; psychological and social-emotional characteristics of individuals.

EDTL:4950 (07U:150) Behavioral and Social Interventions 3 s.h.

Individual behavioral management, behavioral change strategies, and social interaction strategies, methods, and techniques for individuals with exceptional learning needs.

EDTL:4967 (07U:167) Diversity, Career Exploration, and Transition I 1-3 s.h.

Hands-on, interactive experience to learn what is involved in working with young adult students with multiple learning and cognitive disabilities; three whole-group classroom sessions and required attendance at one of two REACH courses (career exploration or life skills III transition course).

EDTL:4969 (07U:169) Diversity, Career Exploration, and Transition II 1-3 s.h.

Hands-on, interactive experience to learn what is involved in working with young adult students with multiple learning and cognitive disabilities, and assist them with transitioning into the workplace; three whole-group classroom sessions and required attendance in one of two REACH courses (internship prep or job search strategies).

EDTL:4982 (07U:182) Instructional Decision Making in Education 3 s.h.

Overview of and practical application with curriculum-based procedures for assessment and evaluation; classroom-based measures to make educational decisions for instruction of students, particularly those experiencing academic difficulty.

EDTL:4983 (07U:183) Academic and Behavioral Strategies for Students with Learning Disabilities and Behavioral Disorders 3 s.h.

Merge theory and practices for assessing, planning interventions, delivering instruction, and monitoring progress for individuals who have learning disabilities and emotional/behavioral disorders.

EDTL:4984 (07U:184) Academic Skills for Students with Special Needs 3 s.h.

Introduction to appropriate methodology for teaching academic skills to students with significant learning difficulties; how to teach students effectively regardless of the label that might be applied to them or the setting to which they might be assigned; effective application of classroom-based measurement, curriculum development, and instructional strategies for teaching academic skills to education students with special needs.

EDTL:4987 (07U:187) Introduction to Assistive Technology 3 s.h.

How assistive technology can be used for attainment of goals in education or work. Same as RCE:4187 (07C:187).

EDTL:4990 (07U:190) Interdisciplinary Issues in Disabilities 1-3 s.h.

Critical issues related to interdisciplinary delivery of services to persons with developmental disabilities; observation and participation in staffing and consultation; opportunity for related community experiences.

EDTL:5961 (07U:261) Foundation of Applied Behavior Analysis 3 s.h.

Foundation knowledge and basic principles of behavior analysis in philosophical assumptions of behavior analysis, behavioral terminologies, verbal operants, and measurement concepts; first in a four-course sequence to prepare Chinese-speaking students to sit for the Board Certified Assistant Behavior Analyst (BCaBA) certification exam sponsored by the Behavior Analyst Certification Board (BACB). Corequisites: EDTL:7953 (07U:353).

EDTL:5962 (07U:262) Function of Behaviors and Interventions 4 s.h.

Functional assessment/analysis and interventions designed to change behaviors; describing and implementing components of functional behavioral assessment; using results of a functional assessment to develop a program to teach appropriate behavior and/or decrease inappropriate behaviors; development of an instructional program to teach desired behaviors; third in a four-course sequence to prepare Chinese-speaking students to sit for the Board Certified Assistant Behavior Analyst (BCaBA) certification exam sponsored by the Behavior Analyst Certification Board (BACB). Prerequisites: EDTL:5961 (07U:261) and EDTL:7953 (07U:353).

EDTL:5963 (07U:263) Ethics and Professional Conduct of Behavior Analysts 2 s.h.

Issues related to ethical and professional conduct of behavior analysts when working with clients according to BACB Professional Disciplinary and Ethical Standards and Guidelines for Responsible Conduct for Behavior Analysts; responsible conduct of a behavior analyst, behavior analyst's responsibility to client, assessing behavior, behavior analyst and individual behavior change program; fourth in a four-course sequence to prepare Chinese-speaking students to sit for the Board Certified Assistant Behavior Analyst (BCaBA) certification exam sponsored by the Behavior Analyst Certification Board (BACB). Prerequisites: EDTL:5961 (07U:261), EDTL:5962 (07U:262), and EDTL:7953 (07U:353).

EDTL:5964 (07U:264) Behavior Analyst Practicum 1-4 s.h.

Development, implementation, and evaluation of techniques that produce behavior changes in clients; discussion of key issues related to techniques of applied behavior analysis; review of various theoretical, conceptual, historical, legal, and practical aspects of behavior analysis; provides a portion of the supervisory component as required by the Behavior Analyst Certification Board (BACB).

Special Education, Graduate

EDTL:6906 (07U:206) Practicum with Exceptional Persons arr.

Practicum experience with students with disabilities; experiences differ depending upon student's program of study.

EDTL:6909 (07U:209) Seminar: Graduate Supervised Teaching 1 s.h.

For students enrolled in graduate student teaching practicum. Requirements: special education major.

EDTL:6936 (07U:236) Administration of Students with Special Needs 3 s.h.

Foundation for and skill practice in tasks performed by directors of special education and others administering to needs of special education students, and economically and socially deprived students; for prospective school administrative personnel. Same as EPLS:6236 (07B:236).

EDTL:6950 (07U:250) Strategist I Student Teaching: Elementary arr.

Student teaching in an elementary mild and moderate special education program.

EDTL:6951 (07U:251) Strategist I Student Teaching: Secondary arr.

Student teaching in a secondary mild and moderate special education program.

EDTL:6953 (07U:253) Strategist II Student Teaching: Elementary arr.

Student teaching in K-8 learning disabilities or behavior disorders.

EDTL:6954 (07U:254) Strategist II Student Teaching: Secondary arr.

Student teaching in secondary learning disabilities or behavior disorders.

EDTL:6975 (07U:275) Explicit Instruction 3 s.h.

Empirically supported methods for teaching reading and mathematics K-12 to students with mild-moderate disabilities; assessment and curricular adaptations to individual needs.

EDTL:7932 (07U:392) Field Service Project in Special Education Internship arr.

Part-time or full-time experience as an intern in school districts or area education agencies; develops skills in supervision and administration of special education.

EDTL:7943 (07U:343) Proseminar: Issues, Trends, and Research in Special Education 2-3 s.h.

Conceptual and practical development of research across special education and related disciplines; empirical review of the literature; focus on professional writing skills.

EDTL:7944 (07U:344) Proseminar: Issues, Trends, and Research in Special Education II 2-3 s.h.

Recent research from a variety of special education areas reviewed by students; simulated comprehensive examinations. Prerequisites: EDTL:7943 (07U:343).

EDTL:7945 (07U:345) Current Issues and Trends in Learning Disabilities 3 s.h.

Readings and discussions of current issues and trends in learning disabilities (e.g., definition, prevalence, interventions, subtyping, assessment).

EDTL:7948 (07U:348) Contemporary Research in Behavioral Disorders 3 s.h.

In-depth analysis of current research in behavioral disorders; emphasis on evaluating its methodology and contribution to the field.

EDTL:7952 (07U:252) Seminar: Behavioral Assessment and Evaluation 3 s.h.

Broadens skills of graduate students who engage in research with exceptional persons; research designs are usually taught in the Department of Psychological and Quantitative Foundations, but because of the nature of handicapping conditions and the low incidence of some handicaps, the single-subject design yields better research information. Same as PSQF:7352 (07P:352).

EDTL:7953 (07U:353) Seminar: Single Subject Design Research 3 s.h.

Reviews of single subject research, development of student proposals; focus on special education, applied research.

UI REACH

Director

- Pamela Ries (Teaching and Learning)

Web site: <http://www.education.uiowa.edu/services/reach/>

Postsecondary Program of Study

UI REACH (Realizing Educational and Career Hopes) is a two-year transition certificate program at The University of Iowa for students with multiple intellectual, cognitive, and learning disabilities. UI REACH provides a campus experience that empowers young adults to become independent, engaged members of the community and to reach their full potential. The program also strives to maintain contact with its alumni, encouraging them to become independent adults by using the living and career-related skills they learned in the program.

UI REACH offers courses on academic skill building, career preparation, student and community life skills, and socialization. Courses are taught by College of Education instructors.

UI REACH students live in a University of Iowa residence hall, where they receive support from specially trained resident assistants. A fully inclusive college environment provides students with age-appropriate community opportunities and interactions with other University of Iowa students.

A limited number of UI REACH alumni may elect to participate in the program's third-year option. Participation during the third year involves full-time course work; emphasis is on additional courses and internships that promote self-sufficiency, independent living, and self-determination.

For more information, visit the UI REACH web site.

Courses

REA:0001 (205:001) Academic Success 2 s.h.

Tools that help students succeed in academic courses; basic organization, efficient note taking, study and test-taking skills; participation in activities that increase awareness of classroom dynamics; solutions for test anxiety; ways to approach diverse learning experiences; how class content relates to study hall and residential facilities; seminar.

REA:0010 (205:002) Social Skills I 2 s.h.

Basic interpersonal skills needed to succeed in academic, social, and employment environments; structured learning process for gaining discrete social skills necessary to initiate and maintain conversations in a variety of settings; awareness of feelings and cues in conversation to respond appropriately and have successful reciprocal interactions; lectures, modeling, role play, and practice in the community.

REA:0020 (205:004) Computers and Technology I 2 s.h.

Training in computer literacy and practical skills for computer use in everyday life; computer parts and functions, the Windows operating system, computer applications; use of the personal computer to improve personal, academic and workplace productivity; group discussion, demonstrations, and multimedia experience support diverse learning styles.

REA:0021 (205:005) Computers and Technology II 2 s.h.

Builds on REA:0020 (205:004); fundamental computer competencies and strategies to simplify everyday life and enhance workplace performance; opportunity to improve practical skills for the workplace, communication with others, and daily life; tools for improving personal organization and communication and for meeting academic, entertainment, and workplace needs; group discussion, demonstration, independent exploration, and a multimedia experience support diverse learning styles.

REA:0030 (205:007) Health and Wellness I--Exploration 2 s.h.

Importance of health and wellness, personal relationships, sexuality and making healthy choices; overview of health and wellness topics college students face—nutrition, substance use, risky behaviors, personal relationships, sexual health, mental health.

REA:0031 (205:008) Health and Wellness II--Healthy Lifestyles 2 s.h.

Health and wellness personalized for students; help in assessing individual health and wellness decisions and behaviors to improve current and long-term health and wellness; small group discussion, individual assessments, real-life exploration, interactions with health educators, one-on-one student support; second in a series.

REA:0033 (205:010) Personal Relationships and Sexuality 1 s.h.

Help in maintaining current relationships and establishing new ones with family, friends, coworkers, teachers, significant others, and strangers; emotions, interpersonal communication skills, social cues, appropriate workplace relationships, risk prevention, responsible sexual behavior; influence of family values, culture, peer pressure, other factors in one's decisions about sexual behavior; disability awareness related to relationships, pregnancy prevention, the process of pregnancy; group discussion, one-on-one counseling support, role-playing, guided real-world experiences.

REA:0040 (205:011) Personal Finance and Math I 2 s.h.

Understanding of numbers, operations, and managing personal finances; computation strategies, problem-solving strategies, skills for good consumers; opportunity to practice math skills in the community and the workplace; first in a series.

REA:0041 (205:012) Personal Finance and Math II 2 s.h.

Skills and knowledge needed for managing personal finances; banking, budgeting, insurance, how to be a good consumer; students plan for their financial future by studying paycheck information, actual income, and tax responsibility; research on independent living costs; second in a series.

REA:0050 (205:013) Lifetime Reading 1 s.h.

Enhancement of leisure reading toward enjoyment of reading as a lifetime activity; trip to the library to discover interesting genres and subjects; individual and group activities to review and talk about books; how to discuss components of books such as plot, characters.

REA:0051 (205:014) Practical Writing 1 s.h.

Writing tools for success in daily living; experience with a range of writing forms, beginning with short organizational forms such as to-do and grocery lists and progressing to family correspondence and business letters; observation and demonstration of writing techniques in group activities; help with self-expression in written formats, with focus on organization and communication with others; students practice writing techniques in class, in their residence halls, and in the community; seminar.

REA:0052 (205:015) Literature and the Arts 1 s.h.

Exposure to literature and the arts and the experience of connection and life enhancement that arts activities provide; reading and discussing literature, field trips to museums, musical performances, plays; opportunity to review and identify leisure activities to enjoy throughout life.

REA:0060 (205:017) Tools for Life I: Critical Thinking and Decision Making 1 s.h.

Introduction to strategies, key elements, and resources for critical thinking; problem-solving and critical-thinking strategies and skills for responsible, independent decision making in personal, university, career, and community contexts; small-group discussion, case studies, role-playing, and applied practice in real-world situations related to daily, personal, academic, and career decisions.

REA:0061 (205:018) Tools for Life II: Problem Solving 1 s.h.

Introduction to strategies and methods of problem solving; evaluation of scenarios from academic, social, and work environments; discussion of students' personal and current experiences; focus on development of interpersonal communication skills, relationship building, independence, career selection.

REA:0062 (205:025) Social Skills II 2 s.h.

Continuation of REA:0010 (205:002); more advanced relationship skills that require self-regulation; self-awareness; applying skills for communicating under stress; structured learning process including repetitive practice and modeling as key components.

REA:0070 (205:050) Life Skills I-- Transitions 2 s.h.

Components of successful independent and community living; personal safety issues, effective communication skills for interacting with peers and college personnel, how to access broad community resources for living, work, and leisure; students develop a plan for personal daily routines; classroom activities, practical experiences on campus and in the community.

REA:0071 (205:051) Life Skills II-- Community Life 2 s.h.

Review of previously learned skills for making the transition to independent living in the college environment; use of a personal planner for managing daily routines and schedules, planning for independent living after graduation; classroom activities, practical experiences on campus and in the community.

REA:0072 (205:052) Life Skills III--On Your Own 2 s.h.

Goal setting and planning for independent living after college; how to use daily living skills from college in students' planned home communities; skills required for finding and managing a home or apartment, using community resources and agencies, and meeting basic needs; how to be interdependent and independent in the community.

REA:0073 (205:053) Life Skills IV-- Transition Planning 2 s.h.

Work on transition plan during spring semester of final year—goal setting and planning for independent living after college; how to use daily living skills from college in students' planned home communities; using community resources and agencies; meeting basic needs; how to be interdependent and independent in student's home community; identification of transition team members; plan and lead transition meeting.

REA:0074 (205:054) Household Management II 3 s.h.

Continuation of REA:0075 (205:055); preparation for independent apartment living; experiential training, assessment to determine support needs; apartment living, personal care, value shopping and budgeting, preparing meals, successful community living.

REA:0075 (205:055) Household Management I 3 s.h.

Independent living skills introduced in the life skills and health and wellness courses; hands-on experience in room care, clothing care, food/kitchen safety, meal planning and nutrition, food preparation, simple recipes, grocery shopping, event planning.

REA:0076 (205:057) Community Leisure and Advocacy 1 s.h.

Utilizing community resources while promoting self-advocacy and leadership; student support for transitioning from a university setting to community living; exploration of community resources related to recreation, entertainment, and independent living using multiple media sources for information gathering; field trips to investigate local resources; research related resources within students' home communities. Requirements: enrollment in UI REACH Program.

- REA:0078 (205:058) Historical Documentary Making** 2 s.h.
History of disabilities (learning and physical disabilities); ground work for making a historical documentary; desktop documentary software used by student teams to produce documentaries on history of disability rights movement. Requirements: enrollment in REACH program.
- REA:0079 (205:059) Service Learning** 2 s.h.
Classroom-based learning combined with community service; available resources and ways to better a community; assessment of community needs, research volunteer organizations, service-learning opportunities within the community.
- REA:0080 (205:016) Exploring Issues in Society** 1 s.h.
Diversity and social justice issues; some social implications of being a person with a disability (e.g., negative treatment from others due to stigma, ignorance, stereotypes); guidance toward empowerment in self-advocacy at work, at school, and in community life; overview of cognitive and learning disabilities, Americans with Disabilities Act and other legislation that promotes equality, history of the disability rights movement, current social trends affecting people with disabilities; perspectives from America's history of social, cultural, and religious unity, celebration, and conflict.
- REA:0081 (205:019) Personal Leadership** 1 s.h.
Builds on concepts learned in REA:0080 (205:016); self-advocacy and awareness of individual strengths as empowerment for leadership roles in the community; qualities of a leader, value of mentors, importance of community service; elements of work-life balance; opportunities to participate in life-long service learning and leadership.
- REA:0090 (205:006) Current Events** 1 s.h.
Forum to increase knowledge and ability to comment on current events; voting and political process, civic responsibilities in the local and federal elections process, how students can participate; use of various forms of media (i.e., print, broadcast, Internet) to develop critical thinking skills related to awareness of current events and their impact; personal safety issues; effective communication skills for interacting with peers and college personnel.
- REA:0091 (205:020) Psychology** 1 s.h.
Basic concepts of psychology, with focus on daily life and understanding behavior; situations encountered as persons with an intellectual disability; differences between a psychologist, psychiatrist, and counselor; role of professionals; individual differences and social influences on behavior; introduction to scientific method, conducting basic experiments.
- REA:0094 (205:056) Introduction to Spanish: Language and Culture** 2 s.h.
Introduction to Spanish language and culture; emphasis on basic conversational phrases, functional vocabulary, and cultural awareness; diversity of 21st-century Spanish-speaking world.
- REA:0100 (205:030) Career Exploration** 4 s.h.
Opportunity to explore, enhance, or broaden work interests, skills, and potential career opportunities; interest inventories, review of vocational experiences, interactive employer presentations, informational interviews, job site experiences; focus on self-assessment of one's individual vocational strengths.
- REA:0101 (205:031) Job Search Strategies** 2 s.h.
Fundamental tools and techniques for getting a job; students create a résumé, including references and updated work history; interview techniques, information gathering, thank-you letters, work-related vocabulary, appropriate behaviors and attitudes for a successful job search; role playing, demonstrations, real-world practice.
- REA:0102 (205:032) Entrepreneurism** 2 s.h.
Characteristics, advantages, and disadvantages of self-employment; legal aspects of forming a business, marketing, acquiring start-up funding and other resources; financial obligations and monitoring of funds required for a successful business; students write a business plan.
- REA:0103 (205:047) Job Search Strategies II** 2 s.h.
Continuation of REA:0101 (205:031); update résumés, references, and cover pages; appropriate behaviors and attitudes for successful job search; seek and apply for jobs with assistance from instructor.
- REA:0200 (205:033) Business Support Seminar** 1 s.h.
Aspects of careers in business support; office procedures, word processing skills, oral and written communication, records management, business terminology.
- REA:0201 (205:034) Creative Arts Seminar** 2 s.h.
Aspects of careers in creative arts; availability of employment, professional association memberships, vocabulary used in the creative arts work environment.
- REA:0202 (205:035) Education Career Seminar** 1 s.h.
Aspects of careers in education; additional training typically required for careers in education, child/student needs, lesson planning.
- REA:0203 (205:036) Health Services Seminar** 1 s.h.
Aspects of careers in health services; office procedures and equipment, customer service skills, terminology used in health care environments.
- REA:0204 (205:037) Hospitality Seminar** 1 s.h.
Aspects of careers in hospitality; customer service skills, phone and counter etiquette, vocabulary used in the hospitality industry.
- REA:0205 (205:038) Human Services Seminar** 1 s.h.
Aspects of careers in human services; types of human services environments, interpersonal relationships and boundaries, paperwork requirements, terminology commonly used in human services environments.
- REA:0207 (205:040) Marketing/Sales Seminar** 1 s.h.

Aspects of careers in marketing and sales; customer service skills, use of retail equipment, marketing techniques and the importance of product appearance, pricing and advertising, vocabulary used in a retail sales environment.

REA:0208 (205:041) Parks and Natural Resources Seminar 1 s.h.

Aspects of careers in parks and natural resources management; operation and maintenance of equipment, safety procedures, customer service skills, typical vocabulary for positions involving care and management of shrubs, trees, flowers, and turf.

REA:0209 (205:042) Skilled Trades Seminar 1 s.h.

Aspects of careers in the skilled trades; occupational skill standards in specific skilled trades, apprenticeships or advanced training required, safety in the workplace, vocabulary typical for specific skilled-trade work environments.

REA:0210 (205:043) Information/Technology Seminar 1 s.h.

Aspects of careers in information technology; occupational skill requirements and standards, knowledge of typical equipment employees must operate, safety in the workplace, typical vocabulary for information technology work environments.

REA:0211 (205:044) Culinary Arts Seminar 2 s.h.

Different types of careers in the food industry; workplace skills and tasks; continuing training and education options; equipment and food safety; basic preparation steps, food presentation, place settings; field trips. Requirements: enrollment in REACH program.

REA:0212 (205:046) Community College Prep Seminar 1 s.h.

Preparation to continue education at a community college after UI REACH; application and admission testing requirements, how to access the services offered at Student Disability Services; exploration of associate degree and certificate; area of study requirements and courses offered.

REA:0250 (205:075) Academics and Life Skills Exploration I 1-2 s.h.

Expand basic academic and/or life skills with discovery, experiential learning, progress monitoring, and self-reflection; focus on strengthening foundational skills in practical academics and life skills; first of a two-part series.

REA:0251 (205:076) Academics and Life Skills Exploration II 1-2 s.h.

Builds on basic academic and/or life skills explored in REA:0250 (205:075); UI REACH instructors and university faculty work together to enhance learning opportunities while providing explicit, interactive learning opportunities; progress monitoring, reflection, and focus on maintenance of basic academic and life skills; second of a two-part series.

REA:0252 (205:077) Academics and Life Skills Enrichment I 1-2 s.h.

Broaden and diversify academic and student life experiences; address specific interest areas of students; focus on communication, relationships, academics, and independent life; individualize, extend, and provide depth to student's current level of knowledge and skills.

REA:0253 (205:078) Academics and Life Skills Enrichment II 1-2 s.h.

Builds on extended and diversified learning opportunities provided in REA:0252 (205:077); transfer of skills and knowledge to new situations and environments encountered as students transition to workplace and home communities.

REA:0254 (205:079) Social Skills for Work 1 s.h.

Learning opportunities to develop appropriate social skills in the workplace.

REA:0300 (205:060) Internship I--Prep arr.

Introduction to functional skills, job expectations, environments of the workplace; students venture out into the community and see first-hand what a specific career or job entails; role of the influencer; small groups, job shadowing, tryouts—depending on individual needs and abilities; create a résumé; summer job searching skills; preparation for Internship II—applications, interviews, contacting employers.

REA:0301 (205:061) Internship II arr.

Internship experience leading to increased independence in the workplace (e.g., more independent operation of equipment, socialization, workplace safety, problem solving, conflict management); opportunity to acquire additional workplace skills in the student's career emphasis area; employers and mentors guide students in fulfilling their job responsibilities; students maintain a journal and discuss their experience with their advisor or instructor; second of three consecutive internships.

REA:0302 (205:062) Internship III arr.

Internship experience with opportunities to develop more advanced skills for independent communication, problem solving, and workplace performance in the student's career emphasis area; employers and mentors observe the student in the workplace; students maintain a journal and discuss their experience with their advisor or instructor; third of three consecutive internships.

REA:0303 (205:063) Internship IV arr.

Individualized community work experiences with periodic classroom seminars; building independent work skills, such as researching bus routes and e-mailing weekly journals; students, instructors, and employers evaluate student's work performance.

REA:0304 (205:064) Internship V arr.

Continuation of REA:0303 (205:063); community work experiences with periodic classroom seminars; emphasis on work skills in student's career area of choice; soft skills needed to be an independent worker.

REA:0305 (205:065) Advanced Internship arr.

Development of advanced workplace skills in time management, communication, problem solving, and performance; one or more internships individualized to meet needs for further workplace soft skill development; observation in workplace by instructors, employers and mentors; journaling and discussion of experience with UI REACH staff; tracking time via method that works for individual needs; internship experiences and classroom seminars; emphasis on work skills in any career area and soft skills needed to be an independent worker. Requirements: UI REACH fourth year enrollment.

REA:0325 (205:090) Computer and Technology Literacy I 2 s.h.

Self-paced course to improve personal, academic, and career computer literacy and skills; online learning modules and computer-based programs to increase computer skills; email and Internet searching, online learning options, online banking and purchasing, Microsoft Office programs, and online career resources.

REA:0326 (205:091) Computer and Technology Literacy II 2 s.h.

Self-paced course builds on skills learned in REA:0325 (205:090); extends and provides depth to student's current level of skill; course work focuses on enhancing personal, academic, and career computer literacy; group discussion, demonstration, independent exploration, and practice to further develop computer skills; email, online career resources, Google Drive, social networking, and budgeting.

REA:0327 (205:092) Social Networking 1 s.h.

Management of student's social network space; instruction and practice to increase access to people online while encouraging safe practices in social media communication; types of personal information that should not be revealed online; risks of meeting strangers online; constructing online personal space by engaging in use of appropriate messages, photos, and privacy settings.

REA:0400 (205:099) Independent Study arr.

Independent study coordinated with the student's UI REACH advisor.

REA:0501 (205:098) Special Topics arr.

Topics include leisure resources, current events, science, family life, consumerism, community involvement, self-determination, self-advocacy, leadership, assistive technology, mentoring; course assignments, instruction, and student assessment in classroom and/or community settings; may be required or elective course.

College of Engineering

Dean

- Alec B. Scranton

Associate dean, research and graduate studies

- Milan Sonka

Associate dean, academic programs

- Keri C. Hornbuckle

Associate dean, diversity and outreach

- Tonya L. Peeples

Director, Center for Bioinformatics and Computational Biology

- Tom Casavant

Director, Center for Computer-Aided Design

- Karim Abdel-Malek

Director, Iowa Institute for Biomedical Imaging

- Milan Sonka

Director, IIHR—Hydroscience & Engineering

- Larry Weber

Undergraduate major: B.S.E.

Undergraduate certificates: technological entrepreneurship; wind energy

Graduate degrees: M.S.; Ph.D.

Web site: <http://www.engineering.uiowa.edu/>

Engineering is defined by the Accreditation Board for Engineering and Technology as that profession in which knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to use, economically, the materials and forces of nature for the benefit of mankind.

In short, engineering is the application of science and mathematics to solve problems for society.

The major aim of engineering is the creation of a new process, product, material, or system. This activity demands a high degree of creativity and problem solving ability coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include positions in design, production, development, research, management, and consulting. Engineers are employed in industrial organizations, governmental agencies, and private practice.

The College of Engineering's mission is to develop, disseminate, transfer, and preserve technical knowledge that improves people's lives. The college endeavors to:

- provide a well-rounded and superior engineering education that draws upon resources of a

comprehensive research university to attract outstanding undergraduate and graduate students in selected engineering fields;

- conduct high-quality research in selected areas, enabling faculty members and students to keep pace with new developments and ensuring that the newest concepts are taught in its courses; and
- serve the needs of the University, industry, government, and the general populace by making its facilities and faculty expertise accessible.

COLLEGE ORGANIZATION

The College of Engineering has five departments and four research units. The Department of Biomedical Engineering, Department of Chemical and Biochemical Engineering, Department of Civil and Environmental Engineering, Department of Electrical and Computer Engineering, and Department of Mechanical and Industrial Engineering offer a total of six undergraduate programs of study and many graduate programs of study.

The research units are the Center for Bioinformatics and Computational Biology, the Center for Computer-Aided Design, the Iowa Institute for Biomedical Imaging, and IIHR—Hydroscience & Engineering.

DIVERSITY AND INCLUSION AT THE COLLEGE OF ENGINEERING

The College of Engineering works to be a national leader in including women and men of all races and ethnic groups in its student body and in providing a model for other institutions that are interested in strengthening inclusion of all peoples in engineering. To these ends, it has developed programs that support inclusion through outreach to K-12 students in the Midwest, mentoring of undergraduate and graduate students, and recruitment of faculty members. These programs enjoy the support of several international engineering and manufacturing firms. Learn more at the college's Ethnic Inclusion Effort web site.

Undergraduate Programs of Study

The College of Engineering offers the Bachelor of Science in Engineering (B.S.E.) with majors in biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. All six B.S.E. programs of study are accredited by the Engineering Accreditation Commission of ABET. Each has its own set of articulated program educational objectives, and all are designed to ensure that graduates possess the following general attributes:

- ability to apply knowledge of mathematics, science, and engineering;
- ability to design and conduct experiments as well as to analyze and interpret data;
- ability to design a system, component, or process to meet desired needs;
- ability to function on multidisciplinary teams;
- ability to identify, formulate, and solve engineering problems;
- understanding of professional and ethical responsibility;

- ability to communicate effectively in oral, written, and graphical forms;
- broad education necessary to understand the impact of engineering solutions in a global and societal context;
- recognition of the need to engage in lifelong learning and the ability to do so;
- knowledge of contemporary issues; and
- ability to use the techniques, skills, and modern engineering tools necessary for successful engineering practice.

The University of Iowa B.S.E. programs of study distinguish the College of Engineering from other engineering colleges in the region. They draw on the University's recognized strengths to offer unique opportunities for students who wish to pursue a wide range of career options and an education that goes beyond technology.

See Bachelor of Science in Engineering (p. 861) in the Catalog for detailed information about the B.S.E., including requirements, admission, and academic rules and procedures. For information about each B.S.E. major, see the Catalog's College of Engineering department sections: Biomedical Engineering (p. 871), Chemical and Biochemical Engineering (p. 881), Civil and Environmental Engineering (p. 892), Electrical and Computer Engineering (p. 906), and Mechanical and Industrial Engineering (p. 917).

The college also offers joint undergraduate degrees with the College of Liberal Arts and Sciences and the Tippie College of Business; a dual degree with the University of Northern Iowa; a joint bachelor's/master's degree program in each engineering discipline; and a joint bachelor's/master's degree with the School of Urban and Regional Planning. See "Joint and Dual Degrees" in the Bachelor of Science in Engineering (p. 861) section of the Catalog. In addition, the College of Engineering partners with the Tippie College of Business to offer the Certificate in Technological Entrepreneurship (p. 937) for undergraduate engineering students. The College of Engineering also teams with the College of Liberal Arts and Sciences to offer the Certificate in Wind Energy (p. 939), which is open to all University of Iowa undergraduates.

Graduate Programs of Study

The College of Engineering offers the Master of Science and Doctor of Philosophy in biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, electrical and computer engineering, industrial engineering, and mechanical engineering. For information about principal research and study areas, degree requirements, admission, and financial support for individual graduate programs, see the Catalog's College of Engineering department sections: Biomedical Engineering (p. 871), Chemical and Biochemical Engineering (p. 881), Civil and Environmental Engineering (p. 892), Electrical and Computer Engineering (p. 906), and Mechanical and Industrial Engineering (p. 917).

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Professional Licensure

Licensure as a professional engineer is governed by the laws of each state. Most states' minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience and successful completion of two major examinations.

The agency that controls and monitors the licensing procedure in Iowa is the Iowa Engineering and Land Surveying Examining Board. The first step in the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given near the time of graduation. Following graduation and the successful completion of the engineering fundamentals exam, graduates receive an Engineer-in-Training (EIT) certificate. The final step in the procedure is to pass the principles and practice exam in a specialty area following a minimum of four years of approved professional experience. At this point, the graduate engineer becomes a licensed Professional Engineer.

Student Organizations

The College of Engineering student body is represented by the Engineering Student Council. The council plans and carries out activities involving the entire college. The organization also acts on collegewide matters of general student interest.

Several engineering professional societies have University of Iowa student chapters: American Institute of Chemical Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, Biomedical Engineering Student Society, Institute of Electrical and Electronics Engineers, and Institute of Industrial Engineers.

The following student organizations are multidisciplinary and are open to all engineering students:

the American Institute of Aeronautics and Astronautics is a professional organization affiliated with the field of aerospace engineering;

the American Wind Energy Association focuses on career development, research, and advocacy for wind energy;

the Engineering Sales Club helps engineering students develop the professional skills required for sales careers;

Engineering World Health, Continental Crossings, U.S. Green Building Council, and Engineers Without Borders work to reduce poverty and improve global sustainability;

the Human Factors and Ergonomics Society raises awareness of human factors issues;

the Society of American Military Engineers promotes and facilitates engineering support for national security;

the Society of Automotive Engineers is a professional and technical organization; and

a local chapter of Theta Tau, a national professional engineering fraternity, is active in service to the college.

The University chapter of Tau Beta Pi, a national honorary society for students in all engineering fields, gives special

recognition to superior students in their junior and senior years. The work of students who are outstanding in specific engineering disciplines is recognized by Alpha Eta Mu Beta (biomedical engineering), Omega Chi Epsilon (chemical engineering), Chi Epsilon (civil engineering), Eta Kappa Nu (electrical engineering), Alpha Pi Mu (industrial engineering), and Pi Tau Sigma (mechanical engineering).

Student organizations that support the enrollment of women and members of minority populations in the college include the Multi-Ethnic Engineering Student Association, the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, the National Society of Black Engineers, the Society of Hispanic Professional Engineers, the Society of Women Engineers, and Women in Science and Engineering.

For more information, visit [Engineering Student Organizations](#) on the college's web site.

Research Centers

The College of Engineering has four major research centers. College of Engineering researchers also collaborate with researchers from outside the college in several interdisciplinary research units.

College of Engineering Research Centers

CENTER FOR BIOINFORMATICS AND COMPUTATIONAL BIOLOGY

The Center for Bioinformatics and Computational Biology (CBCB) is a multidisciplinary research center dedicated to applying high-performance networking and computing to basic life science and applied biomedical research. The center is sponsored jointly by the College of Engineering and the University's Carver College of Medicine.

CENTER FOR COMPUTER-AIDED DESIGN

The Center for Computer-Aided Design (CCAD) conducts basic and applied research in six units: the Operator Performance Laboratory (research in human performance); the Virtual Soldier Research program (research in human modeling and simulation); the Cognitive Systems Laboratory (research in human factors in transportation and human computer interaction); the Reliability and Sensory Prognostic Systems program; the National Advanced Driving Simulator (research in clinical, human factors, and simulation for ground transportation); the Musculoskeletal Imaging, Modeling, and Experimentation Program (computational modeling of anatomic structures); and Advanced Manufacturing Technology (design, modeling, and fabrication of tissue replacement parts, tissue scaffolds, medical devices, and cell and organ printing; testing of manufacturability, design effectiveness, virtual performance, and reliability of polychlorinated biphenyls—PCBs).

IOWA INSTITUTE FOR BIOMEDICAL IMAGING

The Iowa Institute for Biomedical Imaging (IIBI) conducts research in the following areas: medical image analysis and computer-aided diagnosis; cardiovascular image analysis (angiography-intravascular ultrasound data fusion, MR image analysis of congenital heart disease, coronary CT image analysis, early detection of cardiovascular disease); pulmonary image analysis (CT and MR image analysis of the lung); Cell image analysis (cell tracking, shape analysis); and virtual surgery planning

(augmented reality for liver resection surgery). The institute is sponsored jointly by the College of Engineering and the University's Carver College of Medicine.

IIHR—HYDROSCIENCE & ENGINEERING

IIHR—Hydroscience & Engineering, formerly the Iowa Institute of Hydraulic Research, is one of the nation's premier and oldest fluids research and engineering laboratories. Its activities include fluid dynamics (turbulent flows, vortex dynamics, ship hydrodynamics, biological fluid flow, atmospheric boundary layer, experimental and computational fluid dynamics); environmental hydraulics (hydraulics structures, river mechanics, hydraulic structures, ice mechanics, cold regions engineering, fishiers engineering, sediment management, heat disposal in water bodies and power productions, bioremediation of groundwater, computational hydraulics, water quality monitoring); and water and air resources (air pollution, hydroclimatology, hydrogeology, hydrology, hydrometeorology, remote sensing, water resources and basin-scale processes).

Interdisciplinary Research Units

CENTER FOR BIOCATALYSIS AND BIOPROCESSING

The Center for Biocatalysis and Bioprocessing (CBB) concentrates on biocatalysis and bioprocessing education, research, and technology transfer. Its research includes fermentation; bioprocessing of small molecules, peptides, proteins and biocatalysis; pilot-scale technology transfer; structural biology of biocatalysts; biocatalyst screening and discovery; bioremediation; cloning of genes and optimization of protein expression in microorganisms; and GMP operations for producing clinical-grade biotherapeutics.

CENTER FOR GLOBAL AND REGIONAL ENVIRONMENTAL RESEARCH

The Center for Global and Regional Environmental Research (CGRER) is devoted to studying and bettering the environment. Its focus includes multiple aspects of global environmental change, including regional effects on nature ecosystems, environments, and resources and on human health, culture, and social systems. The center helps Iowa's agencies, industries, and people prepare for accelerated environmental change.

CENTER FOR HEALTH EFFECTS OF ENVIRONMENTAL CONTAMINATION

The Center for Health Effects of Environmental Contamination (CHEEC) is a multidisciplinary environmental health research center dedicated to supporting and conducting research to identify, measure, and prevent adverse health outcomes related to exposure to environmental toxins, particularly water contaminants. The center also conducts educational programs on environmental health and works with environmental database design, development, and systems support for environmental health research.

CENTER FOR INTERNATIONAL RURAL AND ENVIRONMENTAL HEALTH

The Center for International Rural and Environmental Health (CIREH) promotes understanding and awareness of the causes, consequences, and prevention of communicable, chronic, environmental, and occupational

diseases in all regions of the world. The center focuses its education, training, and research on nations with substantial agrarian economies.

ENVIRONMENTAL HEALTH SCIENCES RESEARCH CENTER

The Environmental Health Sciences Research Center (EHSRC) researches the adverse health effects of environmental contaminants among rural and agricultural populations. The center is at the forefront of research on rural environmental health problems such as pesticide-induced cancers and birth defects, community and occupational exposures to airborne hazards from concentrated livestock operations, asthma among rural children, and remediation of rural hazardous waste sites. It also trains scientists to characterize mechanisms that underlie environmental disease and approaches to their prevention.

INJURY PREVENTION RESEARCH CENTER

The Injury Prevention Research Center (IPRC) is a multidisciplinary unit whose focus includes injury prevention, acute care, biomechanics, and surveillance activities. The center's current work involves examining different types of residential smoke detectors, using simulation technology to study driving safety among persons with sleep apnea and persons on antiseizure medication, using bicycling simulation to study risk taking in children, and studying the effect of interpersonal violence on women's health.

OPTICAL SCIENCE AND TECHNOLOGY CENTER

The Optical Science and Technology Center (OSTC) involves researchers from the College of Engineering and the College of Liberal Arts and Sciences. The center's objective is to catalyze research in the optical sciences by establishing an environment that promotes collaborative science and the development of innovative technology. Broad areas of interest include development of novel semiconductor materials with unique electronic and optical properties; design, fabrication, and characterization of nanostructures and nanomaterials; photopolymerization processes; exploration of environmental science; and application of novel optical devices in the biosciences.

ORTHOPAEDIC BIOMECHANICS LABORATORY

The Orthopaedic Biomechanics Laboratory researches the application of advanced innovative computational formulations and novel experimental approaches to clinically-oriented problems across the spectrum of musculoskeletal biomechanical research, including total joint replacement (hip, spine, knee, ankle) posttraumatic arthritis, osteonecrosis of the hip, high-energy limb trauma, carpal tunnel syndrome, and articular contact stresses as they relate to joint degeneration.

PHOTOPOLYMERIZATIONS CENTER

The Photopolymerizations Center (IUCRC) works to advance the fundamental understanding of the kinetics and mechanisms of photopolymerizations; to establish a venue for active discussions and collaborations among industrial and academic researchers; to explore high-risk, cutting-edge research on photopolymerization processes that could lead to technological innovations; and to promote and/or develop novel applications that exploit the unique set of advantages offered by photopolymerizations.

PUBLIC POLICY CENTER

The Public Policy Center (PPC) facilitates interdisciplinary academic research on policy related to health, human factors and vehicle safety, crime and justice, housing, the environment, and transportation. It works to provide policy makers with information they can use to help communities and individuals thrive in sustainable ways.

Facilities and Resources

Seamans Center for the Engineering Arts and Sciences

The Seamans Center for the Engineering Arts and Sciences is home to the College of Engineering. Dedicated in 2001, the Seamans Center combines new construction with extensive renovation of the former Engineering Building to provide space for learning, teaching, research, and collaboration that anticipates the needs of 21st-century engineering.

The building's Student Commons and John Deere Plaza Lobby offer welcoming space for students to work individually or together on homework and projects. Both facilities provide wireless computer connections. Additional work rooms and conference areas join the Seamans Center's expanded classrooms and flexible research space in an environment designed to serve the needs of the college's students, faculty, and staff.

All five of the college's departments have headquarters in the Seamans Center, and most faculty offices are located there.

Engineering Student Services

The professional staff of Engineering Student Services administers student services for the College of Engineering, including admission, advising, tutoring, and student records and scholarship. It also is the administrative home of Engineering Professional Development and the Hanson Center for Technical Communication.

Engineering Professional Development

Engineering Professional Development (EPD) develops and promotes experiential education and professional opportunities for students in the College of Engineering. EPD's professional staff coordinates the College of Engineering's co-op and internship programs and opportunities for students to network with employers, including an engineering career fair each semester and other programming related to career development. EPD offers individual advising and class presentations on résumé and cover letter preparation and interviewing skills. It also provides instruction on finding professional engineering positions and networking as well as evaluating and negotiating job offers. EPD recruits employers and organizations interested in hiring engineering students, and it partners with the Pomerantz Career Center to facilitate on-campus interviewing.

Lichtenberger Engineering Library

The Lichtenberger Engineering Library is a center of college activity. It maintains a collection of more than 150,000 volumes and provides access to more than 3,000 current journal titles. The library offers Internet access to a wide array of indexes and abstracts and houses a

significant collection of standards. It also houses a variety of study spaces.

Hanson Center for Technical Communication

The Hanson Center for Technical Communication (HCTC) helps undergraduate engineering students develop and polish their communication skills. The center's director and assistant director supervise a staff of professional writing consultants and peer consultants.

HCTC writing consultants are professional instructors who work in teams to help engineering faculty members present and evaluate writing-intensive assignments. They also provide individual feedback and assessment of students' work throughout the writing process.

HCTC peer consultants are engineering students who have strong communication skills. Peer consultants conduct one-on-one tutoring sessions at the center, helping their fellow students develop skills for organization and audience analysis and for creating precise technical descriptions and persuasive, logical narratives.

Engineering Computer Services

Engineering Computer Services (ECS) provides information technology administration for curricular, administrative, and research computing at the College of Engineering. The college has three drop-in computer labs with 180 high-end Linux and Windows computer workstations, a 45-seat computer classroom and lab, and a 200-seat virtual computer lab that students can access on the Internet. Numerous public domain applications and commercial engineering applications support the full range of engineering classes. Software is upgraded annually, and hardware is upgraded every four years. The college's computer labs are open 24 hours a day, every day of the year.

Engineering Electronics Shop

The Engineering Electronics Shop (EES) is a full-service electronics facility that supports sales and service for the College of Engineering and the University. EES provides design, construction, repair, calibration, and preventive maintenance services for teaching and research laboratories and maintains more than 100,000 parts in stock. The shop has laser cutting and etching equipment and a fully functional printed circuit board production facility. EES also maintains a large set of rental lockers for students.

Engineering Machine Shop

The Engineering Machine Shop (EMS) is a full-service, light manufacturing facility that supports curricular, research, and operational needs of the College of Engineering and the University. EMS provides professional design and fabrication services and gives students, staff, and faculty controlled access to a variety of manufacturing equipment. The shop has its own six-seat computer instruction classroom, a 3-D scanner, and a 3-D printer. EMS also supports College of Engineering clubs with its projects support facility.

Course Numbering System

Each College of Engineering course is listed in the General Catalog section of the department that offers it; see the links under "Index: Academic Programs" at the top of this

page. Core engineering courses are listed in the College of Engineering section; see "Core Engineering Courses" below. Engineering students may enroll in any course in the College of Engineering if they meet the course prerequisite and corequisite requirements.

Students who have not taken the University of Iowa prerequisite but who have earned credit in equivalent course work from another institution should consult the course instructor if they have questions concerning their preparation for the course. They must obtain the instructor's consent before registering for the course.

Undergraduates from other colleges must contact Engineering Student Services for policies and procedures. Consent for enrollment in an engineering course is based on space available as well as on whether the student has the mathematics, science, and engineering background considered necessary to undertake the course work.

Course numbers consist of an alphabetical prefix (up to four letters) and a four-digit numerical suffix separated by a colon. Each course's prefix corresponds to the academic program in the College of Engineering that offers the course, as follows.

BME: biomedical engineering (051 under the old system)

CBE: chemical and biochemical engineering (052 under the old system)

CEE: civil and environmental engineering (053 under the old system)

ECE: electrical and computer engineering (055 under the old system)

IE: industrial engineering (056 under the old system)

ME: mechanical engineering (058 under the old system)

ENGR: core (057 and 059 under the old system) and Project Lead the Way (057 under the old system)

The four-digit numerical suffix identifies the course's level and type, according to the following guidelines.

0000-0999: noncredit courses and courses offered to nonmatriculated students.

1000-1999: introductory, elementary, and general education courses appropriate for first-year students and for other students with no special background; they require few or no prerequisites.

2000-2999: lower-level undergraduate courses usually taken by second-year students and sometimes by third-year students; they may build on materials from 1000-1999 prefix courses and may require prerequisites.

3000-3999: upper-level undergraduate courses such as courses for majors and courses that require prerequisites; although these courses are for undergraduates, graduate students earn graduate credit for courses at this level.

4000-4999: advanced upper-level undergraduate courses such as senior seminars, advanced independent study courses, or honors thesis work; although these courses are for undergraduates, graduate students earn graduate credit for courses at this level.

5000-5999: introductory or first-year graduate courses; although these are graduate courses, undergraduates may register for these courses without special permission, on the advice of their advisors.

6000-6999: lower-level and intermediate graduate courses; undergraduates must have special permission to register for these courses.

7000-7999: advanced graduate courses; undergraduates must have special permission to register for these courses.

8000-9999: courses for professional degree programs offered by the professional colleges.

Core Engineering Courses

Most College of Engineering courses are offered by the college's departments. They are listed and described in the departments' General Catalog sections; see the links under "Index: Academic Programs" at the top of this page.

The college's individual undergraduate programs and course requirements for each engineering major also are described in the Catalog's College of Engineering department sections. Each undergraduate program builds upon a core program (see Bachelor of Science in Engineering (p. 861) in the Catalog). The following core program courses are offered by the college. Not all core courses are required for each engineering major.

Core program courses are intended for College of Engineering students. Undergraduates in other disciplines who wish to register for core program courses should contact Engineering Student Services.

Engineering Core

ENGR:1000 (059:090) Engineering Success for First-Year Students 1 s.h.

Introduction to engineering student life; electronic resources; keys to and skills for success; coping with adversity; selecting a major; advising; curriculum choices and career objectives; ethics; communication; internships and co-ops; job search skills. Requirements: first-semester standing.

ENGR:1100 (059:005) Engineering Problem Solving I 3 s.h.

Development and demonstration of specific problem solving skills; directed project or case study involving actual engineering problems and their solutions.

ENGR:1300 (059:006) Engineering Problem Solving II 3 s.h.

Engineering problem solving using computers; introduction to digital computations, problem formulation using a procedural high-level language; structured, top-down program design methodology; debugging and testing; introduction to use of software libraries; examples from numerical analysis and contemporary applications in engineering. Corequisites: MATH:1550 (22M:031).

ENGR:2110 (059:007) Engineering Fundamentals I: Statics 2-3 s.h.

Vector algebra, forces, couples, moments, resultants of force couple systems; friction, equilibrium analysis of particles and finite bodies, centroids; applications. Prerequisites: MATH:1550 (22M:031). Corequisites: MATH:1560 (22M:032) and PHYS:1611 (029:081).

ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits 3 s.h.

Kirchhoff's laws and network theorems; analysis of DC circuits; first order transient response; sinusoidal steady-state analysis; elementary principles of circuit design; SPICE analysis of DC, AC, and transient circuits. Corequisites: MATH:2560 (22M:034).

ENGR:2130 (059:009) Engineering Fundamentals III: Thermodynamics 3 s.h.

Basic elements of classical thermodynamics, including first and second laws, properties of pure materials, ideal gas law, reversibility and irreversibility, and Carnot cycle; control volume analysis of closed simple systems and open systems at steady state; engineering applications, including cycles; psychrometrics. Prerequisites: CHEM:1110 (004:011) and PHYS:1611 (029:081). Corequisites: MATH:1560 (22M:032).

Cross Disciplinary Core

ENGR:0000 (057:000) Cooperative Education Training Assignment: Engineering 0 s.h.

For engineering majors participating in the Cooperative Education and Internship Program.

ENGR:0002 (057:002) Half-time Co-op Ed Training Assign Engineering 0 s.h.

Registration for work assignment periods; for students participating in the Cooperative Education Program.

ENGR:1029 (057:029) First-Year Seminar arr.

Introduction to engineering fields of study; work closely with a faculty member or senior administrator; participation that eases the transition to college-level learning; cutting-edge research taking place in the College of Engineering.

ENGR:1500 (057:051) Robots and Society: The Second Machine Age 2 s.h.

Impact of second machine age (the digital age) including its immense bounty and access to cultural items that enrich lives; identification of best strategies for thriving in a changing world; first machine age—known as the Industrial Revolution (1760-1840)—that resulted in a major change from hand production to using machines for production; fundamental characteristics of second machine age; invention of digital technology with machines everywhere; economic consequences, methods of intervention, effective implementation to allow people and communities to thrive.

- ENGR:2510 (057:020) Fluid Mechanics** 4 s.h.
Fluid properties; hydrostatics; transfer of mass, momentum, and energy in control-volume and differential forms; dimensional analysis and similitude; laminar and turbulent flow in conduits; flow past bluff bodies and airfoils; engineering applications; experimental laboratories, computer simulation projects. Prerequisites: ENGR:2710 (057:010) and MATH:2560 (22M:034). Corequisites: ENGR:2130 (059:009).
- ENGR:2710 (057:010) Dynamics** 3 s.h.
Vector calculus, Newton's laws, 3-D motion of particles and multiparticle systems, 2-D motion of rigid bodies applications. Prerequisites: ENGR:2110 (059:007) and MATH:1550 (22M:031).
- ENGR:2720 (057:015) Materials Science** 3 s.h.
Concepts and examples of selection and applications of materials used by engineers; mechanical, electrical, and thermal properties that govern a material's suitability for particular applications; lectures supplemented by laboratory experiments. Prerequisites: CHEM:1110 (004:011). Corequisites: MATH:1550 (22M:031).
- ENGR:2730 (057:017) Computers in Engineering** 2-3 s.h.
Introduction to digital systems and engineering applications of microprocessor-based computers; C programming language; serial and parallel I/O; analog-to-digital and digital-to-analog conversion; system control using polling and interrupts; lab arranged. Prerequisites: ENGR:1300 (059:006).
- ENGR:2750 (057:019) Mechanics of Deformable Bodies** 3 s.h.
Elementary theory of deformable bodies, stress, strain; axial, transverse, bending, torsion, combined and buckling loads; deflection of beam. Prerequisites: ENGR:2110 (059:007). Corequisites: MATH:2560 (22M:034).
- ENGR:2760 (057:021) Design for Manufacturing** 3 s.h.
Fundamentals of design, engineering graphics, and manufacturing processing; computer graphics using Pro/ENGINEER for CAD and CAM; typical industrial processes, including casting, welding, machining, forming; laboratory exercises and projects. Corequisites: ENGR:2720 (057:015).
- ENGR:4000 (057:001) Engineering Honors Seminar** 1 s.h.
Requirements: engineering honors and junior or higher standing.
- ENGR:4001 (057:120) Leadership Seminar: Mediocrity is Not an Option** 1 s.h.
Skills needed to gain competitive edge in professional world with understanding that mediocrity is not an option; importance of developing a career plan, power of networking, significance of soft skills, value of mentoring; participation in series of discussions and activities; deeper insight of strengths and weaknesses, how to enhance skills that employers desire, and become effective leaders in workplace; presentation by retired chief operating officer of a leading aerospace company.
- ENGR:4013 (057:013) Introduction to Sustainability** arr.
Introduction to sustainability knowledge, skills, and habits as a means to shape one vision of a sustainable citizen; emphasis on basic skills of literacy, applied math, and finding information; exploration of sustainability knowledge areas via increasing levels of democratic dialoguing and attention to increasing larger system sizes; traditional sustainability knowledge areas related to society, economy, and environment; intersecting themes (e.g., informed consumerism, eco-economics, livable environments).
- ENGR:5100 (057:100) Sustainability Explorations: Costa Rica** 1 s.h.
Societal, economic, and environmental interactions as applied to informed consumerism, eco-economies, and livable environments in United States and Costa Rica; intensive spring break learning experience at the University of Georgia Costa Rica campus embedded in course curriculum; satisfies 1 s.h. of project work for University of Iowa sustainability certificate.
- ENGR:5101 (057:101) Sustainability Explorations: Brazil and Colombia** 1 s.h.
Societal, economic, and environmental interactions applied to informed consumerism, eco-economies, and livable environments in the United States and Brazil; intensive spring break learning experience at the Instituto Nacional de Pesquisas da Amazonia in Manaus embedded in course curriculum; satisfies 1 s.h. of project work for University of Iowa sustainability certificate.
- ENGR:5200 (057:520) COE Fellows Seminar** 1 s.h.
Aspects of professional development for academic research, including applications for graduate fellowships, types of student aid, stewardship of discretionary accounts, identifying and meeting milestones in the Ph.D. process, integrating into the research team, teaching in a variety of academic settings, writing research articles, developing a curriculum vitae, networking in professional organizations, preparing research presentations, critical thinking, creating inclusive laboratory and classroom environments, and the impact of engineering on sustainability.
- ENGR:7270 (057:270) Engineering Ethics** 1 s.h.
Introduction to practical issues associated with being a responsible scientist; topics in responsible conduct of research in engineering and the sciences using case studies, presentations, and discussions with visiting speakers; conforms to mandates set by the Office of the Vice President for Research and the Graduate College to train graduate students and postdoctoral scholars/fellows in responsible conduct of research. Requirements: first-year graduate standing in College of Engineering.
- ENGR:7604 (057:604) Engineering Ethics for Post Docs** 0 s.h.

Introduction to practical issues associated with being a responsible scientist; topics in responsible conduct of research in engineering and the sciences using case studies, presentations, and discussions with visiting speakers; conforms to mandates set by the Office of the Vice President for Research and the Graduate College to train graduate students and postdoctoral scholars/fellows in responsible conduct of research. Requirements: new postdoctoral research scholar/fellow in College of Engineering.

Project Lead the Way

Project Lead The Way (PLTW) is a four-year high school sequence taught in conjunction with traditional math and science courses. The program's curriculum emphasizes critical thinking, creativity, innovation, and real-world problem solving. PLTW courses provide students with in-depth, hands-on knowledge of engineering and technology-based careers.

ENGR:1430 (057:030) Introduction to Engineering Design 3 s.h.

Problem-solving skills taught through a design-development process; use of solid-modeling computer design software to create, analyze, and communicate models of product solutions. Requirements: Project Lead the Way high school student.

ENGR:1431 (057:031) Principles of Engineering 3 s.h.

Introduction to engineering and engineering technology; exploration of varied technology systems and manufacturing processes to show how engineers and technicians use math, science, and technology to solve engineering problems and help people; concerns about social and political consequences of technological change. Requirements: Project Lead the Way high school student.

ENGR:1432 (057:032) Digital Electronics 3 s.h.

Applied logic, with focus on application of electronic circuits and devices; use of computer simulation software to design and test digital circuitry before circuits and devices are built. Requirements: Project Lead the Way high school student.

ENGR:1433 (057:033) Computer Integrated Manufacturing 3 s.h.

Builds on computer solid modeling skills developed in ENGR:1430 (057:030) on of robotics and automation principles; robotics in automated manufacturing, design analysis; students use CNC equipment to produce models of their 3-D designs. Requirements: Project Lead the Way high school student.

ENGR:1434 (057:034) Civil Engineering and Architecture 3 s.h.

Overview of civil engineering and architecture; interrelationship and dependence of each field on the other; roles of civil engineers and architects, project planning, site planning, building design, project documentation and presentation; students use state-of-the-art software to solve real-world problems and provide solutions for projects and activities. Requirements: Project Lead the Way high school student.

ENGR:1435 (057:035) Aerospace Engineering 3 s.h.

Experience applying scientific and engineering concepts to design materials and processes for aeronautics and flight; aerospace information systems, star sailing or astronautics rocketry, propulsion, physics of space science, space life sciences; habitat and crew systems with life support, biology of space science, principles of aeronautics, structures and materials, systems engineering. Requirements: Project Lead the Way high school student.

ENGR:1436 (057:036) Biotechnical Engineering 3 s.h.

Experiences from the fields of biotechnology, bioengineering, biomedical engineering, and biomolecular engineering; biomechanics, cardiovascular engineering, genetic engineering, agricultural biotechnology, tissue engineering, biomedical devices, human interface, bioprocess engineering, forensics, bioethics. Requirements: Project Lead the Way high school student.

ENGR:1437 (057:037) Computer Science and Software Engineering (CSE) 3 s.h.

Implementation of the College Board's 2013 Computer Science Principles framework; development of computational thinking, career paths that utilize computing, professional tools to foster creativity and collaboration; use of Python as a primary tool; incorporation of multiple platforms and languages for computation; development of programming expertise, exploration of Internet workings; projects and problems including app development, visualization of data, cybersecurity, robotics, simulation. Requirements: enrollment in Project Lead the Way program and consent of UI Project Lead the Way director.

ENGR:6431 (057:131) Concepts of Physical Science and Principles of Engineering 3 s.h.

Understanding the field of engineering and engineering technology; technology systems and manufacturing processes explored to learn how engineers and technicians use math, science, and technology to solve engineering problems and benefit people; concerns about social and political consequences of technological change. Requirements: Project Lead the Way high school teacher.

ENGR:6434 (057:134) Concepts of Physical Science with Civil Engineering Applications 3 s.h.

Civil engineering and architecture field experience; proper paradigm for relating concepts to secondary-level students, history of civil engineering, architectural design, surveying, cost and efficiency analysis, sustainable design, soil testing, site evaluation and layout. Requirements: Project Lead the Way high school teacher.

ENGR:6436 (057:136) Concepts of Physical Science with Biotechnical Engineering Applications 3 s.h.

Experiences from biotechnology, bioengineering, biomedical engineering, and biomolecular engineering, and how to relate them to secondary students; biomechanics, cardiovascular engineering, genetic engineering, agricultural biotechnology, tissue engineering, biomedical devices, human interface, bioprocess engineering, forensics, bioethics. Requirements: Project Lead the Way high school teacher.

ENGR:6437 (057:237) Concepts of Physical Science with Computer Engineering 3 s.h.

Field of computer science and software engineering; exploration of pedagogy to learn how engineers and technicians use math, science, and technology to solve engineering problems and benefit people; concerns about social and political consequences of technological change. Requirements: Project Lead the Way high school teacher.

ENGR:6438 (057:238) Concepts of Physical Science with Medical Detectives Training 1 s.h.

Field of medical testing and forensics, exploration of pedagogy; how medical personnel use math, science, and technology to solve problems and benefit people; solving medical mysteries through hands-on projects and labs; how to measure and interpret vital signs; how systems of human body work together to maintain health. Requirements: Project Lead the Way high school or middle school teacher.

ENGR:6439 (057:139) Concepts of Physical Science with Engineering Design and Development 3 s.h.

Experiences from engineering design and development fields; proper paradigm for relating concepts to secondary-level students; team work to design and develop an original solution to a technical problem by applying engineering design process; research to choose, validate, and justify a technical problem; teams design, build, and test solutions, then present and defend original solution to an outside panel; developed by Project Lead the Way.

Interdepartmental Degree

Bachelor of Science in Engineering (p. 861)

Departments

Biomedical Engineering (p. 871)

Chemical and Biochemical Engineering (p. 881)

Civil and Environmental Engineering (p. 892)

Electrical and Computer Engineering (p. 906)

Mechanical and Industrial Engineering (p. 917)

Certificate Programs

Technological Entrepreneurship (p. 937)

Wind Energy (p. 939)

Bachelor of Science in Engineering

Undergraduate major: B.S.E.

Web site: <http://www.engineering.uiowa.edu/>

Undergraduate Program of Study

- Bachelor of Science in Engineering

The College of Engineering offers the Bachelor of Science in Engineering (B.S.E.) with majors in biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. The undergraduate majors are designed to attract the best and brightest students and prepare them to be engineers who will succeed in a workplace filled with diverse people, attitudes, and ideas; to compete in the global marketplace; to work effectively in multidisciplinary teams; and to confidently understand, use, and develop modern technology.

All six B.S.E. programs of study are accredited by the Engineering Accreditation Commission of ABET. Each has its own set of articulated program educational objectives, and all are designed to ensure that graduates possess the following general attributes:

- ability to apply knowledge of mathematics, science, and engineering;
- ability to design and conduct experiments as well as to analyze and interpret data;
- ability to design a system, component, or process to meet desired needs;
- ability to function on multidisciplinary teams;
- ability to identify, formulate, and solve engineering problems;
- understanding of professional and ethical responsibility;
- ability to communicate effectively in oral, written, and graphical forms;
- broad education necessary to understand the impact of engineering solutions in a global and societal context;
- recognition of the need to engage in lifelong learning and the ability to do so;
- knowledge of contemporary issues; and
- ability to use the techniques, skills, and modern engineering tools necessary for successful engineering practice.

The University of Iowa B.S.E. programs of study distinguish the College of Engineering from other engineering colleges in the region. They draw on the University's recognized strengths to offer unique opportunities for students who wish to pursue a wide range of career options and an education that goes beyond technology.

Each program emphasizes a broad understanding of fundamental principles common to all engineering disciplines and provides students with the opportunity to specialize in a selected engineering discipline. All build on the University's research strengths. Program flexibility is provided by a curriculum in which each student develops engineering competency within a particular academic program and complements it with a tailored thematic option in support of chosen career objectives (e.g.,

engineering practice, project management, research and development).

This Catalog section provides information about requirements that all B.S.E. students must fulfill, regardless of their engineering major, as well as admission information and academic rules and procedures; see "Bachelor of Engineering" below.

Engineering students may earn more than one B.S.E. degree. They also may earn joint undergraduate degrees in the College of Liberal Arts and Sciences or the Tippie College of Business, a joint B.S.E./master's degree in urban and regional planning, or a joint B.S.E./M.S. in engineering; see "Joint and Dual Degrees" later in this section.

The undergraduate Certificate in Technological Entrepreneurship (p. 937) is tailored specifically for engineering students who intend to start and operate their own businesses or who would like to understand and learn about managing innovation in business environments. The undergraduate Certificate in Wind Energy (p. 939) introduces students to a developing field that has a growing need for professionals with knowledge of wind energy fundamentals. The University offers a wealth of other certificates and minors in a wide range of disciplines that are open to all undergraduate students; see "Minors" and "Certificates" below.

DIVERSITY AND INCLUSION AT THE COLLEGE OF ENGINEERING

The College of Engineering works to be a national leader in including women and men of all races and ethnic groups in its student body and in providing a model for other institutions that are interested in strengthening inclusion of all peoples in engineering. To these ends, it has developed programs that support inclusion through outreach to K-12 students in the Midwest, mentoring of undergraduate and graduate students, and recruitment of faculty members. The programs enjoy the support of several international engineering and manufacturing firms. Learn more at the college's Ethnic Inclusion Effort web site.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering (B.S.E.) requires a minimum of 128 s.h. Students must be enrolled in the College of Engineering for the last 30 s.h. of work toward the degree, or 45 of the last 60 s.h., or a total of 90 s.h. They must have a g.p.a. of at least 2.00 on all college work used to satisfy degree requirements as well as on all work undertaken at The University of Iowa.

Engineering students earn the B.S.E. degree in one of six undergraduate programs of study (majors): biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, or mechanical engineering.

All students complete a core of common B.S.E. requirements, usually during their first three semesters; see "Core Requirements" below. They also must complete a curriculum—a set of required and elective courses—designed specifically for their major program. The curriculum prepares students to practice engineering in that program's field of engineering. It is designed by the program's faculty members according to guidelines provided by the national accrediting body of ABET.

Each program's curriculum is divided into four major stems: mathematics and basic sciences; engineering topics; an elective focus area; and the general education component (humanities and social sciences). All of the courses in the curriculum stems are integrated and sequenced to help students understand the interrelationships and importance of each stem. See "Curriculum Stems" below.

Courses below the level of the beginning courses in each program's curriculum count toward students' overall grade-point averages and are recorded on their transcripts, but they do not count toward requirements for the B.S.E. degree.

Core Requirements

All B.S.E. students must complete a core of courses that constitute approximately one-third of the courses required for the degree. They complete most of the core during their first three semesters, so most students may postpone making a decision about which engineering major to pursue or may change their engineering major during their first three semesters with little or no loss of time or credit.

The core includes RHET:1030 (010:003) Rhetoric, a first-year course in writing, speaking, and critical reading; ENGR:1100 (059:005) Engineering Problem Solving I and ENGR:1300 (059:006) Engineering Problem Solving II, which cover a breadth of topics from engineering as a profession to team design projects to engineering computations and computer programming; and courses in chemistry, engineering mathematics and fundamentals, and physics. Students must earn a grade of C-minus or higher in the core requirements MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus and MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus.

Students should complete the core requirements according to the following three-semester plan. Those who do not follow this plan may encounter a delay in graduation because of scheduling problems for courses that must be taken in a specific sequence or that are offered only once a year.

First Semester

All of these:

ENGR:1000 (059:090) Engineering Success for First-Year Students (all majors; credit does not count toward B.S.E. degree)	1 s.h.
ENGR:1100 (059:005) Engineering Problem Solving I (all majors)	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I (all majors)	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus (all majors)	4 s.h.
RHET:1030 (010:003) Rhetoric (all majors)	4 s.h.

Second Semester

One of these:

CHEM:1120 (004:012) Principles of Chemistry II (biomedical, chemical, and environmental majors)	4 s.h.
General education component (civil, electrical, industrial, and mechanical majors)	3 s.h.

All of these:

ENGR:1300 (059:006) Engineering Problem Solving II (all majors)	3 s.h.
MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus (all majors)	4 s.h.
MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra (all majors)	2 s.h.
PHYS:1611 (029:081) Introductory Physics I (all majors)	4 s.h.

Third Semester

One of these:

PHYS:1612 (029:082) Introductory Physics II (biomedical, civil, electrical, industrial, and mechanical majors)	3-4 s.h.
General education component (optional, chemical and environmental majors)	3 s.h.

All of these:

ENGR:2110 (059:007) Engineering Fundamentals I: Statics (all majors)	2 s.h.
ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits (all majors)	3 s.h.
ENGR:2130 (059:009) Engineering Fundamentals III: Thermodynamics (all majors)	3 s.h.
MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations (all majors)	3 s.h.

Requirements for Each Engineering Major

The curriculum for each B.S.E. major is described in that program's departmental Catalog section; see Biomedical Engineering (p. 871), Chemical and Biochemical Engineering (p. 881), Civil and Environmental Engineering (p. 892), Electrical and Computer Engineering (p. 906), or Mechanical and Industrial Engineering (p. 917). Each program's curriculum is divided into four major stems, which are described below.

CURRICULUM STEMS

The curriculum for each B.S.E. program of study is divided into four major stems: mathematics and basic sciences, engineering topics, an elective focus area, and the general education component (humanities and social sciences). All of the courses in the curriculum stems are integrated and sequenced to help students understand the interrelationships and importance of each stem.

Mathematics and Basic Sciences

The mathematics and basic sciences stem provides the foundation upon which the engineering courses for each engineering major are based. It includes a minimum of five courses in mathematics and statistics and one each in chemistry and physics. The faculty of each engineering program has specified at least one additional chemistry or physics course and other additional mathematics or science courses beyond these minimum requirements to provide a base appropriate for the program's major.

Engineering Topics (Science and Design)

The engineering topics stem builds upon the math and science stem, providing a bridge from fundamental principles to applications and creative practice.

The stem's engineering science courses use the underlying principles learned in the mathematics and basic sciences stem to understand and predict the behavior of idealized models of real components or systems encountered in engineering. These courses include fundamentals of statics, thermodynamics, and electrical circuits, as well as other engineering courses relevant to each major.

The stem's engineering design courses focus on the process of devising a system, component, or process to meet a stated objective. Engineering design integrates decision making and the optimal application of basic sciences, mathematics, and engineering sciences to reach a desired outcome. Elements of the design process include the establishment of objectives and criteria, synthesis, analysis, construction, testing, evaluation, and consideration of realistic constraints such as economic factors, safety, reliability, aesthetics, ethics, and social and environmental impact.

Elective Focus Area

The elective focus area stem provides a set amount of credit that students use to build strength in a technical focus area by completing a minor, earning a certificate, or pursuing a tailored program of study.

Students choose elective focus area courses consistent with traditional career goals or nontraditional career goals. Their choice of degree plan and courses may affect the number and type of employment opportunities available to them after graduation. Program advisors help students develop coherent, well-focused plans that fit their goals.

Students who pursue a traditional focus area may replace up to 21 s.h. of traditional technical electives with course work toward a minor or certificate. Students who choose nontraditional focus areas work closely with an advisor to build a rigorous, well-focused program. They must define and justify their career goals; provide a detailed plan of study and obtain their B.S.E. program's approval for the plan before beginning the plan's course work; and complete the plan as approved.

Each B.S.E. program is responsible for approving proposed plans of study, ensuring that the program's ABET accreditation criteria are met, and that students' choices are consistent with their career aspirations and with the college's educational mission.

Guidelines for elective focus areas vary by program. For details, see Engineering Curriculum Guides on the college's web site.

General Education Component (Humanities and Social Sciences)

The general education component stem promotes understanding of and appreciation for society and culture through course work in the humanities and social sciences.

Students earn 15 s.h. in humanities and social sciences courses chosen from approved departments and programs; at least 3 s.h. must be earned in courses that the College of Engineering has designated as humanities courses, and at least 3 s.h. must be earned in courses that the college has designated as social sciences courses. To ensure depth, students must earn at least 6 s.h. of general

education credit in courses taken in the same department. Individual B.S.E. programs may require further depth in one area and may include general education requirements in a student's elective focus area.

Most general education component courses are offered by the College of Liberal Arts and Sciences (CLAS), but the College of Engineering defines the humanities and social sciences areas differently than CLAS does. See General Education Component on the College of Engineering web site for departments and programs that offer approved humanities and social sciences courses.

Courses that are primarily mathematical or scientific in nature and those designed specifically to develop art, music, or physical education skills are not accepted as social sciences or humanities electives.

Credit may be earned by examination; see "Undergraduate Academic Rules and Procedures"/"Academic Standards"/"Credit by Examination" later in this section.

Humanities and social sciences course work transferred to The University of Iowa by students with A.A. degrees who enter the College of Engineering directly from two-year schools is evaluated on the same basis as similar course work transferred by other students entering the college without a B.A. or B.S.

Students who enter the College of Engineering with a B.A. or B.S. are considered to have satisfied the general education component requirement.

Students who enroll in a joint degree program in the College of Engineering and the College of Liberal Arts and Sciences or the Tippie College of Business are considered to have satisfied the College of Engineering's general education requirement once they have completed all requirements for the liberal arts and sciences degree or the business degree.

Honors in Engineering

Outstanding undergraduate students who demonstrate exceptional accomplishment through research, directed independent study, teaching internships, or other approved nondegree enrichment activities may graduate with honors in engineering. They must maintain a University of Iowa g.p.a. of at least 3.33, complete an honors project with a faculty member, and participate in a college-wide honors seminar with faculty members and other honors students. Successful completion of the honors requirements leads to a B.S.E. with honors, which is noted on the student's transcript. See the College of Engineering Honors Program web page for details.

In addition to honors in engineering, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Second B.S.E. Degree

Current College of Engineering students and recent graduates may earn a second Bachelor of Science in Engineering. The second degree must include all courses required by the second engineering degree program, including the senior-level design course sequence and any specific social science elective requirements. Elective focus area courses selected for the second B.S.E. must be of a variety and level that permit students to meet at

least the minimal level of competence usually expected of graduates of that program.

Students must file an academic study plan, which must be approved by the faculty of the second degree program, submitted to the Student Development Center, and placed in the student's permanent file before the student may begin course work in the second B.S.E. The study plan should include a list of the courses to be taken in the second program along with a list of the courses already completed and yet to be completed for the first engineering degree program. Any changes in the plan must be approved by the student's faculty advisor in the second program and by the department chair of that program (the college petition form may be used for this purpose), submitted to the Student Development Center, and placed in the student's permanent file.

Joint and Dual Degrees

Joint B.B.A./B.S.E.

The College of Engineering and the Tippie College of Business offer a joint degree program in which students earn two University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the Tippie College of Business and a Bachelor of Science in Engineering (B.S.E.) from the College of Engineering.

Students in the joint program must complete all requirements for both degrees, including all General Education requirements. They must enroll in appropriate mathematics and engineering courses early in their course of study in order to complete the program in a timely way. Because courses in natural sciences, mathematics, humanities, and social sciences count toward the B.B.A. and the B.S.E., students may count a single course toward both degrees.

B.B.A./B.S.E. students usually meet the degree requirements of both colleges in about five years; time required depends on the student's choice of major study areas.

Students in the joint B.B.A./B.S.E. program should consult with their advisors about whether the second-grade option is available to them.

Students are assigned two advisors, one in the Tippie College of Business Undergraduate Program Office and the other in their College of Engineering major department.

To enter the joint degree program, students must have approval from both colleges and must be admitted to both colleges. Interested students should contact Engineering Student Services.

For information about the B.B.A., including requirements for the degree, see Bachelor of Business Administration (p. 670) (Tippie College of Business) in the Catalog.

Joint B.S.E./Liberal Arts and Sciences Degree

Students may earn two University of Iowa bachelor's degrees in a joint program in the College of Engineering and the College of Liberal Arts and Sciences. Successful candidates are awarded a B.S.E. (Bachelor of Science in Engineering) by the College of Engineering and a B.A. (Bachelor of Arts), B.S. (Bachelor of Science), B.F.A. (Bachelor of Fine Arts), or B.M. (Bachelor of Music) by the College of Liberal Arts and Sciences.

Students in joint degree programs must complete all requirements for both degrees, including the College of Liberal Arts and Sciences General Education Program (p. 323) and the College of Engineering general education component.

Students in the joint program usually are able to meet the degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the joint degree program are assigned two faculty advisors, one in their major department in the College of Engineering and the other in their major department in the College of Liberal Arts and Sciences.

To enter the joint degree program, students must be admitted to both the College of Engineering and the College of Liberal Arts and Sciences and must have College of Engineering approval to enter the joint degree program. Joint degree program applicants must meet the high school course or unit requirements for admission to each of the two colleges.

It is crucial that students enroll in the proper mathematics and engineering courses early in their course of study to expedite the completion of the program. The specific engineering courses taken by each student vary according to engineering major. Since courses in natural sciences, mathematics, humanities, and social sciences are accepted for credit by both colleges, students may be able to count a particular course toward both degrees.

Contact Engineering Student Services for information about specific requirements. To learn about liberal arts and sciences majors, visit College of Liberal Arts and Sciences (p. 22) in the Catalog and select majors from the college index.

B.S./B.S.E. Dual Degree with Northern Iowa

The 3+2 dual degree program leads to a B.S. in applied physics from the University of Northern Iowa (UNI) and a B.S.E. from The University of Iowa. It requires approximately three years of study at UNI followed by approximately two years of study at Iowa. There is no guarantee that students can complete the 3+2 degree in five years.

Students interested in the program are guaranteed admission to the University of Iowa portion of the program if they have a g.p.a. of at least 3.00 (B average) in all course work and in the chemistry, mathematics, and physics courses required by the University of Northern Iowa physics department.

During the first three years of the program, students complete at least 90 s.h. of course work at the University of Northern Iowa. They must successfully complete courses in each of the following areas: chemistry, mathematics through differential equations, physics to satisfy the applied physics major requirements, and courses to satisfy the General Education requirements. Credit for courses passed with a grade of C or higher is transferred to The University of Iowa as credit for equivalent courses there.

At The University of Iowa, students complete the B.S.E. requirements that were current at the time of their admission to the UI College of Engineering. Course work completed at The University of Iowa is transferred to

the University of Northern Iowa and applied toward the requirements for that institution's B.S. in applied physics.

When transferring to Iowa from UNI, students must submit applications for admission, housing, and financial aid to The University of Iowa by the University's established deadlines.

Joint B.S.E./M.S. in Engineering

Engineering students may be eligible to enroll in one of the College of Engineering's joint B.S.E./M.S. programs, which allow students to begin working toward a master's degree in engineering while they are completing the bachelor's degree. The joint programs, which are offered by each of the college's departments, permit students to count certain courses toward both degrees, completing both programs in less time than they would need to complete them separately. See "Joint B.S.E./M.S." in each College of Engineering department section of the Catalog.

Joint B.S.E./M.A. or M.S. in Urban and Regional Planning

The College of Engineering and the School of Urban and Regional Planning offer the joint Bachelor of Science in Engineering/Master of Arts or Master of Science program in urban and regional planning. The program, which is completed in five years, is designed for students who wish to pursue a public or private sector career in planning, a field that encompasses the development of alternatives to improve the quality of life in cities and regions.

Graduates are technically oriented professionals who have a clear understanding of policy development and implementation, which they apply to civil and industrial engineering problems. They fill positions such as public works director, transportation engineer, and public utilities staff member.

Each student in the joint program has two advisors, one in engineering and one in urban and regional planning. Students enroll in the College of Engineering for their first four years in the program and in the Graduate College for their fifth year. They follow the standard curriculum of their B.S.E. program during the first two years and begin adding courses from the urban and regional planning program during the third year. Successful students receive a B.S.E. at the end of the fourth year and an M.A. or M.S. in planning at the end of the fifth year.

Students in the joint program must maintain a cumulative g.p.a. of at least 3.00 in order to graduate with an M.A. or M.S. in planning.

See Urban and Regional Planning (p. 998) (Graduate College) in the Catalog for information about the graduate degree. Contact Engineering Student Services for information about applying to the joint program.

Minors

Engineering students may complete minors in a number of disciplines. For instance, students interested in heading an engineering firm might choose to earn a minor in business administration. For a list of minors and links to the departments and programs that offer them, see Undergraduate Minors (p. 11) in the Catalog.

B.S.E. programs generally allow students to satisfy their elective focus area requirement by completing a minor. Students who choose this option must work closely with

program advisors to ensure that the minor is compatible with their engineering career aspirations.

In order to have the minor noted on their transcript, students must inform the Office of the Registrar that they have fulfilled the minor's requirements when they apply for a degree. See "Undergraduate Academic Rules and Procedures"/"Application for Degree" later in this section.

Certificates

Engineering students may earn certificates offered by colleges across the University. The College of Engineering partners with the Tippie College of Business to offer the Certificate in Technological Entrepreneurship (p. 937), which is tailored specifically for engineering students who intend to start and operate their own business or who would like to understand and learn about managing innovation in business environments. The College of Engineering also teams with the College of Liberal Arts and Sciences to offer the undergraduate Certificate in Wind Energy (p. 939), which introduces students to a developing field that has a growing need for professionals with knowledge of wind energy. Other certificates of particular interest to engineering students include the Certificate in International Business (p. 420) and the Certificate in Sustainability (p. 1304). Completion of a certificate is noted on the student's transcript.

See Undergraduate Certificates (p. 10) in the Catalog for a complete list of certificates and links to their individual Catalog sections.

Cooperative Education and Internship Program

The Cooperative Education and Internship Program offers students the opportunity to explore engineering careers and develop engineering skills through periods of professional practice while they are still students. Supervised professional engineering-related experiences in business, industry, education, or government expose students to the challenges and opportunities of the day-to-day life of an engineer. Students with co-op and/or internship experience are sought by employers and usually receive higher starting salaries upon graduation. A portion of registered co-op and/or internship experience before graduation can be credited toward the experience requirements for professional licensure in Iowa and some other states.

Qualified students may choose to alternate periods of on-campus study with full-time work experience, or they may elect to work half time while taking at least 6 s.h. of classes. The co-op experience may cover one to three semesters, a series of summer placements, or a single summer. Students may apply to the program following their first year. Academic record and class status are considered in acceptance decisions. Interested students and employers or organizations must register with the College of Engineering director of professional development. For details, see Engineering Professional Development.

Admission

Applicants for admission to the College of Engineering as first-year students for academic year 2014-15 must have successfully completed at least four years of English/language arts; four years of mathematics,

which must include at least two years of algebra, one year of geometry, and one year of higher mathematics (trigonometry, analysis, calculus); two years of a single foreign language; three years of natural science, which must include at least one year of chemistry and at least one year of physics; and at least two years of social studies. A high school computer programming course is recommended but not required.

Applicants are guaranteed admission to the College of Engineering if they have no high school unit deficiencies, an ACT composite score of 25 or higher, an ACT math score of 25 or higher, and a Regent Admission Index score of at least 265. Students who do not meet these requirements, or who attend a high school that does not rank its students, are encouraged to send recommendations from math and science teachers and a personal statement, which will be considered in an individual review by the College of Engineering.

Students who are admitted through the individual review process may be required to make up deficiencies by taking a lower-level course in their area of deficiency before enrolling in the first required course in that area. For example, students who have high math grades and standardized test scores, but who are deficient by one unit in mathematics, may be required to complete a course such as MATH:1020 (22M:009) Elementary Functions before enrolling in the first engineering calculus course.

Incoming first-year and transfer students who do not meet the foreign language requirement may be admitted on conditional status for a maximum of four semesters in order to complete two semesters of an introductory college-level foreign language.

Students who are unsure whether to pursue a degree in engineering or a degree in liberal arts and sciences are strongly encouraged to begin in engineering if they meet the admission requirements.

Information about admission to the College of Engineering is available on the college's web site.

Transfer Applicants

Transfer applicants must have completed the same high school unit requirements as entering first-year students and must submit an official high school transcript as well as a transcript of college work undertaken at other institutions. To transfer to the College of Engineering, students must have demonstrated success in math, science, and engineering courses, ideally earning all As and Bs with no grade lower than a C in these foundation subjects. Transfer students must have completed calculus I and the equivalent of either CHEM:1110 (004:011) Principles of Chemistry I or PHYS:1611 (029:081) Introductory Physics I (the first semester of chemistry designed for majors, or the first semester of calculus-based physics). Overall grade-point average also is considered in transfer applications.

Information about admission requirements for transfer students is available on the college's web site.

Academic Rules and Procedures

Academic Advising

Undeclared engineering students and declared first-year students are advised by the staff of Engineering Student Services. After the first year, engineering students who have declared an academic program are advised by faculty

advisors assigned to that program. Students may request a change of advisor when it is deemed appropriate. All students are required to have a conference with their advisors before registering for classes each semester.

Application for Degree

Students who wish to be considered for graduation must file an Application for Degree with the Office of the Registrar before the deadline date during the session in which the degree is to be conferred.

Students who do not graduate on the date indicated in the Application for Degree must file another application for the next applicable session. Students do not need to be registered to apply for a degree.

See Apply for Degree on the Office of the Registrar web site.

Academic Recognition

GRADUATION WITH HONORS

Graduation with honors recognizes high academic achievement based on both grades and exceptional accomplishment. To be eligible for graduation with honors, students must be approved by a selected honors committee and the director of the honors program, and they must complete honors requirements. See "Honors" earlier in this Catalog section.

GRADUATION WITH DISTINCTION

Graduation with distinction recognizes high academic achievement based on grades. The college awards degrees "with highest distinction" to students in the highest 2 percent of their graduating class, "with high distinction" to students in the next-highest 3 percent, and "with distinction" to students in the next-highest 5 percent. Ranking is based on students' grade-point average for all college-level study taken up to their final registration.

To be eligible to be considered for graduation with distinction, students must complete their final 60 s.h. of study in residence at the college and must have completed at least 45 s.h. in the college before their final registration. Students in the combined engineering/liberal arts and sciences program are eligible to graduate with distinction regardless of the college in which they complete their residency requirement.

DEAN'S LIST

Undergraduate students in the Colleges of Liberal Arts and Sciences and Engineering and the Tippie College of Business who achieve a g.p.a. of 3.50 or higher on 12 s.h. or more of University of Iowa graded course work during a given semester or summer session and who have no semester hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the Dean's List for that semester. Undergraduate students in the Carver College of Medicine may qualify for the Dean's List with fewer than 12 s.h. of graded credit if deemed appropriate by the college. College of Nursing students participating in clinical courses must have a total of 12 s.h. of earned credit, with 8 s.h. of graded credit with a g.p.a. of 3.50 or higher.

PRESIDENT'S LIST

University of Iowa undergraduate students who achieve a g.p.a. of 4.00 on 12 s.h. or more of University of Iowa graded course work and who have no semester hours of I (incomplete) or O (no grade reported) for two consecutive

semesters (excluding summer sessions) are recognized by inclusion on the President's List. College of Nursing students participating in clinical courses must have a total of 12 s.h. of earned credit, with 8 s.h. of graded credit, to qualify for the President's List.

Academic Standards

MAXIMUM SCHEDULE

Course schedules of more than 19 s.h. for a semester, 12 s.h. for a summer session, or 3 s.h. for a winter session require approval of the advising staff in Engineering Student Services. The Permission to Register for Additional Hours form is available online.

CLASSIFICATION OF STUDENTS

Students in the College of Engineering are classified by the number of semester hours of credit they have earned toward the Bachelor of Science in Engineering.

- First-year: 0-29 s.h. earned toward the B.S.E.
- Sophomore: 30-59 s.h. earned toward the B.S.E.
- Junior: 60-89 s.h. earned toward the B.S.E.
- Senior: 90 s.h. or more earned toward the B.S.E.

GRADING SYSTEM

The college uses a letter grading system. A denotes superior performance, B denotes above average, C denotes average, D denotes below average, and F denotes failure of the course. Plus and minus designate gradations of performance between letter grades. Letter grades and their numerical equivalents are as follows.

- A-plus: 4.33
- A (superior): 4.00
- A-minus: 3.67
- B-plus: 3.33
- B (above average): 3.00
- B-minus: 2.67
- C-plus: 2.33
- C (average): 2.00
- C-minus: 1.67
- D-plus: 1.33
- D (below average): 1.00
- D-minus: 0.67
- F (failing): 0

This grading system is used for all students in both undergraduate and graduate engineering courses. Grades of D-minus are passing grades; that is, courses completed with grades of D-minus or higher count toward collegiate requirements, with the exception of MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus and MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus, which have a minimum grade requirement of C-minus or higher. Grades of A-plus have a value of 4.33 in calculating grade-point averages, but averages displayed in University records are truncated so that they do not exceed 4.00.

ACADEMIC PROBATION AND DISMISSAL

Students who do not achieve or surpass University of Iowa cumulative and semester minimum grade-point averages of 2.00 are placed on academic probation.

Students on academic probation are restored to good standing when they successfully complete an additional 9 s.h. toward an engineering degree, either in one semester or cumulatively, and their University of Iowa cumulative and semester grade-point averages equal or exceed 2.00.

The college reviews academic records for all students at the end of the fall and spring semesters. There is no review at the end of the summer session. Students are placed on probation, dismissed for unsatisfactory progress (with or without previous probationary status), or restored to good standing only at the end of the fall and spring semesters. Students on academic probation are not permitted to continue their enrollment without written expectations for their future performance.

Students who do not make satisfactory progress may be dismissed from the college without an intervening probationary period. Students who are dismissed from the college for unsatisfactory academic progress due to circumstances beyond their control, such as a death in their immediate family or extended personal illness, may appeal for a revocation of the dismissal. A student dismissed in January must submit a written appeal by the second day of spring semester classes. A student dismissed in May must submit the written appeal by June 15.

Students dismissed from the college for poor scholarship may appeal to re-enroll after an interval of at least one calendar year. A written appeal for reinstatement must be submitted to the Appeals Committee at the Student Development Center. Appeals must be submitted before June 15 for reinstatement in a fall semester or before December 1 for reinstatement in a spring semester.

For details, see Academic Policies and Appeal Procedures under Current Students on the college's web site.

DROPPING AND ADDING COURSES

Courses may be added with permission of the advisor and the instructor during the first two weeks of the semester or first one-and-one-half weeks of the summer session.

Courses may be dropped with permission of the advisor and the instructor at any time during the first 10 weeks of the semester. Only under compelling circumstances may courses be dropped after the 10th week, in which case special approval must be granted by the advisor, the course instructor, and the dean's office. Under no circumstance are students permitted to drop after the beginning of the scheduled final examination period.

LIMITS ON WITHDRAWING FROM COURSES

Undergraduates receive the mark of W for any course dropped after the second week of the semester or the first one-and-one-half weeks of the summer session. Students may not drop the same course with a mark of W more than twice. Special courses that may be repeated are exempt from this rule.

Students who have a legitimate reason for dropping a course (e.g., disabling illness, death of an immediate family member) and can document that reason are permitted to exclude that drop from the maximum, but

the W is not removed from the record. Requests for such exclusions are made at Engineering Student Services.

WITHDRAWAL OF REGISTRATION

Students who withdraw their entire registration must consult the staff at Engineering Student Services. A student on scholastic probation who withdraws registration at any time without good cause may not be permitted to enroll for the following semester without specific approval from Engineering Student Services staff. Withdrawal cards for students enrolled in the college are signed by the associate dean for academic programs.

PASS/NONPASS OPTION

A maximum of two courses taken pass/nonpass (P/N) may be applied toward satisfaction of the general education (humanities and social sciences) requirement. P/N registration must be approved by the student's advisor and the instructor of the course and must be completed during the first 10 days of a semester or the first two weeks of a summer session. P/N registration may not be changed after the deadline for adding courses. The pass/nonpass option may not be used for courses taken to satisfy the rhetoric requirement. Guided Independent Study courses taken for humanities or social science credit may not be taken P/N.

Students enrolled in courses taught in the College of Engineering may choose to be graded pass/nonpass under the following conditions:

the signatures of the advisor and instructor must be obtained on the proper form, and the completed form must be submitted to the registration center by the student within the time period established by University policy;

the mark of P (pass) is awarded where the final course grade earned was C-minus or higher; the mark of N (nonpass) is given for grades of D-plus or below; marks of P and N are not used in computing the grade-point average, and the mark of N does not count as earned credit.

No course work taken in the College of Engineering on the pass/nonpass option may be used to satisfy requirements for an engineering degree.

SECOND-GRADE-ONLY OPTION

A student may elect to repeat a course with only the new grade being counted in his or her grade-point average. The option may be applied to no more than three courses, and it may be applied only once to a particular course. Transfer students may apply the option on a prorated basis.

A course may not be repeated under the second-grade-only option once it has been used as a prerequisite for a more advanced course that the student has completed successfully.

To exercise the second-grade-only option, students register as usual for the course that is to be repeated, then they complete a Second Grade Option form at Engineering Student Services. The Second Grade Option form is available online. Students must complete the form during the session in which they repeat the course, within the first 12 weeks of the fall or spring semester or the first six weeks of the summer session. Students must follow this procedure or both grades will be counted in the University of Iowa grade-point average.

Under the second-grade-only option, the registrar marks the permanent record to show that a particular course has been repeated. Both grades remain on the permanent record, but only the second is used in calculating the grade-point average and semester hours earned. The course must be taken the second time under the same circumstances and with the same grade option as it was taken the first time.

The second-grade-only option cannot be used to remove a grade of incomplete, which must be removed in the usual manner. A student who holds a degree from The University of Iowa may not apply the second-grade-only option to a course taken before the degree was conferred.

SATISFACTORY/FAIL COURSES

The noncredit professional seminar courses required in each of the professional programs are offered only satisfactory/fail (S/F). No other engineering courses are offered on this basis. An F (fail) grade earned for such a class does not satisfy any portion of the professional seminar requirement.

INCOMPLETE AND NO REPORT GRADES

A mark of I (incomplete) that is not replaced by a final grade will automatically be converted to an F at the end of the next fall or spring semester (summer and winter sessions excluded), even if the student does not enroll after the session the incomplete was posted.

A mark of O (no grade reported) will remain on a student's permanent record until a valid grade is submitted.

CREDIT BY EXAMINATION

Students who have acquired knowledge in subject areas from sources other than formal course registrations may be granted credit toward graduation by examination, under the following conditions and limitations.

No more than 32 s.h. of credit by examination may be applied toward B.S.E. degree requirements.

College-Level Examination Program (CLEP) credit may be counted toward the lower-level general education (humanities and social science) requirements. CLEP credit earned in natural science areas does not count toward the engineering degree. Credit also may be earned through Advanced Placement (AP) Exams. For details about CLEP and AP credit, see Credit by Exam Options on the Office of Admissions web site.

Engineering students may earn credit for equivalent experience or former course work in any of the required common core courses through successful completion of examinations prepared and graded by the core course committees. Students who fail a core course are not permitted to earn credit by examination for the failed course. Students who wish to earn credit for core courses by examination must obtain approval from the associate dean for academic programs.

With approval of the departmental faculty, credit in three or fewer courses (totaling no more than 6 s.h.) may be awarded upon successful completion of final examinations in program elective courses.

LANGUAGE INCENTIVE PROGRAM

The University's Furthering Language Incentive Program (FLIP) gives entering engineering students two options for earning college credit for study of a world language.

Option 1: Entering students who place into a fifth-semester language course and complete the course with a grade of B-minus or higher receive 4 s.h. of exam credit for the fourth-semester course. The credit is ungraded but may be counted toward the hours required for graduation. Incentive credit is not granted for college course work for which credit has been received.

Students are eligible for incentive credit only during their first and second registrations at The University of Iowa.

Option 2: Students may receive 2 s.h. of exam credit for earning a grade of B-minus or higher in a first-semester-level course in a language different from the language used to satisfy the world languages requirement. They may earn another 2 s.h. for completing the second-semester-level course in that language for a grade of B-minus or higher.

Visit the college's web site for more information about FLIP credit. For more information on eligibility and restrictions, consult Engineering Student Services.

CREDIT FROM OTHER COLLEGES

Course requirements in engineering may be satisfied with credit earned in courses taken in other University of Iowa colleges or at other accredited colleges or universities. When students apply for admission to the College of Engineering, they must submit official transcripts from each college attended along with their application for admission. After the credit has been certified by the Office of Admissions as college-level work from an accredited institution and after admission has been granted, the credit is evaluated by the Student Development Center either before or during the student's first semester of enrollment in the college.

Satisfaction of engineering course requirements by transfer course work may be approved by the Student Development Center if, course-by-course, there is a match in the content and level of the transfer courses, and if the grades earned for such courses are C-minus or higher. Students who want to satisfy the engineering General Education Component (social sciences and humanities) requirements or The University of Iowa rhetoric requirements by transfer work must follow the College of Engineering transfer credit guidelines.

Students planning to attend a two- or four-year institution before transferring to the College of Engineering should discuss the planned transfer with officials at both schools before embarking on a transfer program. The College of Engineering has recommended transfer course lists for most Iowa community colleges and some four-year colleges. Once students are enrolled in the College of Engineering, they must have prior approval for course work taken at other institutions.

Contact Engineering Student Services for more information.

By policy of the Board of Regents, State of Iowa, a student may apply a maximum of 64 s.h. of transfer credit earned at a two-year college toward the minimum 128 s.h. required for the B.S.E. However, transfer credit from a two-year school in excess of 64 s.h. is used in computing grade-point average and may be used to satisfy course requirements, even though the semester hours cannot be counted toward the total required for graduation. A grade of C-minus or higher is required in order for transfer credit to be applied toward a degree requirement.

COURSE SUBSTITUTIONS

For students in the College of Engineering, the substitution of an alternate course for a required course requires the approval of a petition. The Petition for Course Substitution form is available on the college's web site or at Engineering Student Services. The form must be completed by the student and must be approved by the student's advisor and by the chair of the engineering program in which the student is majoring.

If the petition involves a required engineering core course or a General Education Component (social sciences or humanities) course, then it also must be approved by Engineering Student Services. Substitutions for required engineering core courses should be made infrequently and only under compelling circumstances. Substitutions of courses that are required by the student's program are governed by the faculty of that program; approval of these course substitutions is needed only from the faculty advisor and the department chair. All petitions must be forwarded to Engineering Student Services for inclusion in the student's permanent file.

AUDITING COURSES

Students in the College of Engineering may register for a course for zero credit (audit) with the permission of the course instructor and the advisor. The mark of AUS (audit successful) is assigned to students registered for zero credit if attendance and performance in the course are satisfactory; if unsatisfactory, the mark of AUU (audit unsuccessful) is assigned. Courses completed with a mark of AUS do not meet any requirements nor do they carry any credit toward graduation. Auditing may not be used as a second-grade-only option.

To register for a course on an audit basis, students must obtain the instructor's authorizing signature and their advisor's signature and must register for 0 s.h. To change registration from audit to credit or from credit to audit, a drop-add form is used. These changes must be made during the first three weeks of a semester or the first one-and-one-half weeks of a summer session.

Misconduct, Complaints

STUDENT ACADEMIC MISCONDUCT

Policies regarding cases of cheating or plagiarism are outlined on the College of Engineering web site; see Regulations Dealing with Academic Misconduct. In cases of cheating on an exam or a quiz, the policy recommends that the instructor reduce the student's grade, including the assignment of F for the course. When a course grade has been reduced to an F, the student may not drop the course or use the second-grade-only option to eliminate the failing grade.

At the beginning of each semester, course instructors individually announce and explain their policies on acceptable levels of collaboration between students on graded work, which includes homework assignments and lab or design projects. When a policy is violated, a zero is assigned for the total portion of the course grade allocated to the requirement in which the violation occurs. The instructor sends a written report of any disciplinary action to the office of the dean and the report is placed in the student's file. Students are notified by the office of the dean of reported disciplinary action and are informed of appeal procedures.

STUDENT COMPLAINTS CONCERNING FACULTY ACTIONS

In cases where complaints do not involve alleged student academic misconduct, students with complaints against engineering faculty members should attempt to resolve the issue with the faculty member first; see Informal Procedure for Student Complaints Concerning Faculty Actions on the college's web site. Lacking a satisfactory outcome, the student should discuss the matter with the chair of the faculty member's department.

Students who are uncomfortable dealing directly with a faculty member or a department chair may seek assistance from the engineering faculty ombudsperson when attempting to resolve a complaint related to an engineering course. Students taking non-engineering courses should seek assistance from the University ombudsperson. However, grievances generally can be satisfactorily resolved most expeditiously at the faculty or chair level. If students are not satisfied with the outcome of this procedure, they should discuss their complaints with the dean of engineering.

Student Organizations

The College of Engineering student body is represented by the Engineering Student Council. The council plans and carries out activities involving the entire college, including the electronic newsletter E-Week. Several engineering professional societies have student chapters at the University, as do a number of engineering honor societies. In addition, students may join a wide variety of engineering student organizations. See "Student Organizations" in the College of Engineering (p. 852) section of the Catalog or visit Engineering Student Organizations on the college's web site.

Biomedical Engineering

Chair

- Joseph M. Reinhardt

Professors

- Karim Abdel-Malek, Brian D. Adams, James A. Brown, Thomas D. Brown, John J. Callaghan, Thomas L. Casavant, Krishnan B. Chandran, Charles R. Clark, Nicole Grosland, Patrick Hitchon, Eric Hoffman, Stephen K. Hunter, John C. Keller, Tae-Hong Lim, Madhavan L. Raghavan, Joseph M. Reinhardt, Clark Stanford, Ingo R. Titze, David Wilder

Associate professors

- Michael Abramoff, Donald Anderson, John E. Bayouth, Terry A. Braun, Edwin L. Dove, Michael A. Mackey, Vincent Magnotta, James Martin, Jun Ni, Aliasger K. Salem, Todd Scheetz, David A. Stoltz, Robert Tucker, Jinhu Xiong, Denice Zingman

Assistant professors

- Nathan Fethke, Fiorenza Ianzini, Hans Johnson, William R. Lynch, James Martin, Salem Rahamatalla, Ed Sander, Jessica Sieren, Steven Stasheff, Kai Tan, Sarah Vigmostad

Lecturer

- Nicole Kallemeyn

Adjunct professor

- Richard McLay

Adjunct associate professors

- Junfeng Guo, R.T. Marler, Douglas R. Pedersen, Joel Pickar, Merryn Tawhai

Adjunct assistant professors

- James W. Devocht, Jessica Goetz, Ram R. Gudavalli, Anneliese D. Heiner, Prem Ramakrishnan

Adjunct instructors

- Thakir Almomani, Tom Bair, Hyunggun Kim

Undergraduate major: biomedical engineering (B.S.E.)

Graduate degrees: M.S. in biomedical engineering; Ph.D. in biomedical engineering

Web site: <http://www.engineering.uiowa.edu/bme>

The past half century has seen tremendous growth of technological activity in biology and medicine. As engineers increasingly have become involved with projects in the life and health sciences, biomedical engineering has emerged to bridge the gap between these sciences and engineering.

The Department of Biomedical Engineering fosters interdisciplinary activities across departments and colleges and maintains strong ties with the Carver College of Medicine and the Colleges of Dentistry, Nursing, and Public Health. The department strives to provide a well-rounded and superior engineering education that attracts outstanding students at both the undergraduate and graduate levels; to conduct high-quality research that enables faculty members and students to keep pace with and initiate new developments; and to serve government,

industry, and institutions worldwide by making the department's facilities and faculty expertise accessible.

Several faculty members have joint appointments in biomedical engineering and in the Carver College of Medicine, the College of Dentistry, or the College of Public Health. Biomedical engineering undergraduates and graduate students collaborate with faculty members and their colleagues on research problems in the life and health sciences.

Undergraduate Program of Study

- Major in biomedical engineering (Bachelor of Science in Engineering)

The department provides undergraduate students with a contemporary education in a multidisciplinary field of engineering. Its objective is to produce graduates who:

- contribute to the biomedical field through the responsible design of devices, systems, processes, and policies that improve human health;
- pursue a wide range of career options, including those in industry, academia, and medicine; and
- advance to leadership positions in their chosen field.

Students who complete the program may pursue career opportunities in biomedical industries, such as design and development of biomedical instrumentation, diagnostic aids, life-support systems, prosthetic and orthotic devices, and man-machine systems; or they may pursue traditional career opportunities in industry, such as those rooted in mechanical or electrical engineering disciplines. Other career options are available in government (Food and Drug Administration, Environmental Protection Agency, National Institutes of Health, Veterans Affairs). Some biomedical engineering graduates elect to continue formal education in engineering, medicine, or law.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. The major in biomedical engineering builds on the foundation provided by the B.S.E. core requirements, preparing students for the challenges and opportunities associated with careers in the profession.

The program has been designed carefully to enable students to satisfy the entrance requirements of the Graduate (p. 940) College. Students whose choice of electives includes a three-course sequence in organic chemistry, an additional biology course, and a biochemistry course may satisfy entrance requirements of the Carver College of Medicine (p. 1038), the College of Dentistry (p. 723), or the allied health sciences.

All engineering students complete the B.S.E. core requirements, which include RHET:1030 (010:003) Rhetoric; ENGR:1100 (059:005) Engineering Problem Solving I and ENGR:1300 (059:006) Engineering Problem Solving II; and courses in chemistry, and engineering mathematics and fundamentals, and physics. They must earn a grade of C-minus or higher in the core requirements MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus and MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus.

They also complete the curriculum designed for their major program, which covers four stems: mathematics

and basic sciences, engineering topics, an elective focus area, and the general education component (15 s.h. of humanities and social science courses). For information about the curriculum stems, see Bachelor of Science in Engineering (p. 861) in the Catalog.

Biomedical engineering students must choose a track, which constitutes the elective focus area for the biomedical engineering major. They may choose one of seven preapproved tracks—bioinformatics, bioimaging, biomaterials, cardiovascular biomechanics, cellular engineering, musculoskeletal biomechanics, or pre-medicine—or they may propose a track that they have tailored to their own individual biomedical engineering interests. Each approved track has a group of four required courses and a list of suggested electives. For details about tracks and their requirements, visit Tracks on the department's web site.

The following study plan includes the B.S.E. core requirements and the curriculum for the biomedical engineering major. Some courses in this plan are prerequisites for others. Students must complete a course's prerequisites before they may register for the course. Those who take courses in the order below satisfy the prerequisite requirements automatically.

FIRST YEAR

First Semester

CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
ENGR:1000 (059:090) Engineering Success for First-Year Students (credit does not count toward B.S.E. degree)	1 s.h.
ENGR:1100 (059:005) Engineering Problem Solving I	3 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
RHET:1030 (010:003) Rhetoric	4 s.h.

Second Semester

BME:1010 (051:090) First-Year Forum	1 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.
ENGR:1300 (059:006) Engineering Problem Solving II	3 s.h.
MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra	2 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.

SECOND YEAR

First Semester

BME:2010 (051:091) Professional Seminar: Biomedical Engineering	1 s.h.
BIOL:1411 (002:031) Foundations of Biology	4 s.h.
ENGR:2110 (059:007) Engineering Fundamentals I: Statics	2 s.h.
ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits	3 s.h.
ENGR:2130 (059:009) Engineering Fundamentals III: Thermodynamics	3 s.h.
MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations	3 s.h.

Second Semester

BME:2010 (051:091) Professional Seminar: Biomedical Engineering	1 s.h.
BME:2200 (051:060) Systems, Instrumentation, and Data Acquisition	4 s.h.
BME:2210 (051:080) Bioimaging and Bioinformatics	4 s.h.
BME:2500 (051:050) Biomaterials and Biomechanics	4 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.
General education component course	3 s.h.

THIRD YEAR

First Semester

BME:2110 (051:030) Cell Biology for Engineers	3 s.h.
BME:3010 (051:092) Leadership and Resourcefulness	1 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
PHYS:1612 (029:082) Introductory Physics II (with laboratory)	3-4 s.h.
General education component courses	6 s.h.

Second Semester

BME:4010 (051:093) Biomedical Engineering Design Seminar	1 s.h.
Required track courses	6 s.h.
Track electives	6 s.h.
General education component course	3 s.h.

FOURTH YEAR

First Semester

BME:4910 (051:085) Biomedical Engineering Senior Design I	4 s.h.
Required track courses	6 s.h.
Track electives	6 s.h.

Second Semester

BME:4920 (051:086) Biomedical Engineering Senior Design II	4 s.h.
Track electives	9 s.h.
General education component course	3 s.h.

Joint B.S.E./M.S.

The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for biomedical engineering undergraduate students who intend to earn an M.S. in biomedical engineering. B.S.E./M.S. students take some graduate-level course work, attend the departmental graduate seminar, and work on a master's thesis or research project while they are still undergraduates. They may count a limited amount of credit toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete course work for the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.50, and must submit a letter of application to the chair of the Department of Biomedical

Engineering stating the intended area of specialization and the name of the proposed M.S. advisor.

Joint B.S.E./M.S. in Occupational and Environmental Health

B.S.E. students majoring in biomedical engineering who are interested in earning a Master of Science in occupational and environmental health may apply to the joint B.S.E./M.S. program offered by the College of Engineering and the College of Public Health. The joint program permits students to count a limited amount of credit toward the requirements of both degrees, enabling them to begin the study of public health before they complete the bachelor's degree. For information about the M.S. program, see Occupational and Environmental Health (p. 1233) (College of Public Health) in the Catalog.

Graduate Programs of Study

- Master of Science in biomedical engineering (with or without thesis)
- Doctor of Philosophy in biomedical engineering

Graduate study in biomedical engineering prepares students to use contemporary methods at an advanced level during a professional career in engineering design, development, and research.

Each student's course of study is based on individual background and career objectives, and sound academic practice. Department faculty members have teaching and research expertise in areas related to cardiovascular and fluid biomechanics, musculoskeletal biomechanics, biomaterials and tissue engineering, bioinstrumentation, biosystems, biomedical imaging, biological signal analysis, bioinformatics and computational biology, and other allied fields.

An individual program for each student may be developed from courses offered by the biomedical engineering department and other departments, especially mechanical engineering, electrical engineering, physiology, mathematics, and biological sciences. M.S. students who want a more general program may combine emphases, while those who want some specialization in a particular field can achieve their goals through the combination of departmental courses and appropriate electives from other departments of the College of Engineering and the University.

Ph.D. programs may center on any one of the previously described areas through the choice of appropriate course work and research topic.

Master of Science

The Master of Science program in biomedical engineering requires a minimum of 30 s.h. of graduate credit, with or without thesis. Students who choose the nonthesis program must earn at least 6 s.h. of credit in courses numbered 5000 or above. Those who choose the thesis program may count no more than 6 s.h. of thesis research and writing credit toward the degree. The M.S. may be a terminal degree or a step toward the Ph.D.

A tentative plan of study for each student is determined through consultation with an advisor. An M.S. committee of at least three graduate faculty members, including at least two on the biomedical engineering faculty, is appointed by the dean of the Graduate College. The student's plan of

study is reviewed by the committee before the student has completed 18 s.h. of course work. The plan of study then is submitted for review to the department chair.

M.S. students must fulfill the grade-point-average requirements of the Graduate College on a minimum of 30 s.h. of graduate work and must successfully complete the final examination administered by their committee.

M.S. students (thesis or nonthesis) must complete the following courses or their equivalents.

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
ENGR:7270 (057:270) Engineering Ethics	1 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.
ME:5113 (058:113) Mathematical Methods in Engineering (or equivalent math course numbered 3000 or above)	3 s.h.

Individual study plans should include as much advanced work as individual aptitude and previous preparation permit.

Doctor of Philosophy

The Doctor of Philosophy program in biomedical engineering requires a minimum of 72 s.h. of graduate work, including acceptable transfer credit. At least 42 s.h. must be earned in formal course work taken after the B.S. is awarded, and at least 12 s.h. must be earned for research and the thesis. Students who enter with an M.S. may count a maximum of 33 s.h. of approved transfer credit toward the Ph.D., but they must earn 39 s.h. of graduate credit at The University of Iowa, including at least 12 s.h. for research and the thesis. Based on the student's research progress, examination results, or other measures, the graduate committee may require additional formal course work to strengthen perceived areas of weakness.

Ph.D. students must complete the following courses or their equivalents.

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
ENGR:7270 (057:270) Engineering Ethics	1 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.
ME:5113 (058:113) Mathematical Methods in Engineering (or equivalent math course numbered 3000 or above)	3 s.h.

Admission to the Ph.D. program is conditional until students successfully complete a qualifying examination. The biomedical engineering faculty administers the exam and decides whether the student's performance on it is adequate for admission to the Ph.D. program.

Admission to Ph.D. candidacy requires a g.p.a. of at least 3.00 on all graduate work done at The University of Iowa. Upon completion of the course work specified in the plan of study and with the required grade-point average and the advisor's recommendation, students are admitted to the comprehensive examination by their committee.

Having satisfactorily completed these examinations, students usually have only to complete and defend their dissertation at the final examination. Requirements for the Ph.D. generally can be completed in about three years beyond the master's degree.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants who have earned a baccalaureate or postbaccalaureate degree in engineering or in the mathematical or physical sciences, with a g.p.a. of at least 3.00, and who have a combined verbal and quantitative score of 310 on the Graduate Record Examination (GRE) General Test are eligible to be considered for admission to the Master of Science program in biomedical engineering. Students with a lower grade-point average or GRE General Test scores may be considered for conditional admission; they must achieve regular standing within 8 s.h. of their initial registration by attaining the minimum grade-point average required by the Graduate College and regular acceptance by the department faculty. Students who do not meet these requirements are subject to dismissal.

Reference letters, research interests, previous graduate grade-point average, and other factors may be considered in making admission decisions.

Admission to the Doctor of Philosophy in biomedical engineering is conditional until students successfully complete a qualifying examination.

Financial Support

Students are encouraged to apply for fellowships and assistantships. Contact the chair of the Department of Biomedical Engineering.

Facilities and Laboratories

Undergraduate Teaching Laboratories

Five dedicated undergraduate teaching laboratories are associated with the required and elective courses in biomedical engineering: Biomaterials Laboratory, Biomeasurements and Biosystems Laboratory, Biomechanics Laboratory, Cell Biology for Engineers Laboratory, and Senior Design Laboratory.

BIOMATERIALS

The Biomaterials Laboratory is equipped to test varied properties of biomaterials, including hard and soft tissues and prostheses. The laboratory is used for biomaterials courses, senior design projects, and BME:5421 (051:177) Cell Material Interactions.

BIOMEASUREMENTS AND BIOSYSTEMS

The Biomeasurements and Biosystems Laboratory is equipped to measure biomedical variables of clinical and physiological interest, design and build electronic instrumentation, and conduct modeling experiments in physiology. It is used for BME:2200 (051:060) Systems, Instrumentation, and Data Acquisition, BME:2210 (051:080) Bioimaging and Bioinformatics, elective courses in biomeasurements and biological systems analysis, senior design projects, and demonstrations in BME:2110 (051:030) Cell Biology for Engineers.

BIOMECHANICS

The Biomechanics Laboratory is equipped to perform experiments in biological flow analysis and in human musculoskeletal systems. The laboratory houses a pulse

duplicator for simulating physiological pulsatile flow; a flow visualization set-up to analyze flow past stenosis and aneurysms; blood pressure and flow measurement devices; digital still, video, and motion caption cameras for kinematic analysis; a ski binding tester; a drop tower for impact testing; a two-channel EMG amplifier system; and a table-top material testing machine. The laboratory is used for BME:2500 (051:050) Biomaterials and Biomechanics, elective courses in cardiovascular and skeletal biomechanics, other elective courses, and senior design projects.

CELL BIOLOGY FOR ENGINEERS

The Cell Biology for Engineers Laboratory trains students in cell culture and biochemical analysis techniques as a foundation for future studies in quantitative cell-based studies. Students learn basic cell culture techniques, protein and nucleic acid analysis, adenovirus-mediated gene transfer techniques, microarray and analysis, and polymerase chain reaction (PCR) analysis of nucleic acids. They also are introduced to bioinformatics techniques used in cell biology. Major equipment in the lab includes laminar flow hoods, cell culture incubators, centrifuges, an ultracold freezer, protein and nucleic acid electrophoresis equipment, thermal cyclers, microscopes, an automated microplate reader, and varied support apparatuses used in cell-based studies. The lab is used for BME:2110 (051:030) Cell Biology for Engineers, BME:4120 (051:133) Advanced Cell Biology for Engineers, and BME:5421 (051:177) Cell Material Interactions.

SENIOR DESIGN

The Senior Design Laboratory provides a collaborative atmosphere for student groups as they create working prototypes. It has working and storage space for the development of senior design projects and a variety of tools and equipment, such as an electronic workbench, soldering station, Dremel tools, and so forth. It is used by students taking BME:4910 (051:085) Biomedical Engineering Senior Design I and BME:4920 (051:086) Biomedical Engineering Senior Design II.

Research Facilities and Laboratories

BIOINFORMATICS AND COMPUTATIONAL BIOLOGY LABORATORY

The Bioinformatics and Computational Biology Laboratory is wired for high-speed networking (10- and 100-megabit and gigabit ethernet, hardwired and wireless, and ATM). It includes five dedicated Linux clusters, 126 computing systems, 178 CPUs, more than 100 gigabytes of RAM, and 2.5 terabytes of disk space.

Computer resources include a dedicated computer server cluster of 18 Linux systems (36 CPUs) connected with a dedicated, switched, copper Gigabit Ethernet intranet—18 Dual AMD MP-2400 (2.2 GHz, 2 GB memory, 40 GB disk each); second dedicated computer server cluster of 16 Linux systems (32 CPUs) connected with a dedicated, switched, fiber-optic Gigabit Ethernet intranet—12 Dual Pentium III (500 MHz, 1 GB memory, 9 GB disk each), and four Dual Pentium III (500 MHz, 2 GB memory, 9 GB disk each); and third dedicated computer cluster of nine Linux systems (18 CPUs) connected with a dedicated 2.4 GB multistage intranet—eight Dual Pentium III (866 MHz, .5 GB memory, 45 GB disk each), and one Dual Pentium III (866 MHz, 1 GB memory, 45 GB disk each).

There are two additional clusters: an 8-node cluster of Pentium II class machines and a 12-system heterogeneous cluster of various SUNs, HPs, and SGIs; four dedicated, dual fiber channel, redundant disk storage systems (RAID) with 412 GB usable each. An additional 78 computers are used as compute servers, web servers, database servers, file servers, workstations, laptops, and for other developmental and experimental needs.

CARDIOVASCULAR BIOMECHANICS LABORATORY

The Cardiovascular Biomechanics Laboratory houses an EMS Whitest uniaxial tension/compression testing system, a pulse-duplicating apparatus with flow loop, a spectrophotometer, silicone prototype fabrication utilities, high-speed/high-resolution cameras, a Sun Solaris workstation, and personal computers. The lab is equipped for soft tissue tensile/compression testing and viscoelastic creep/relaxation testing; simulation of flow through fabricated, anatomically realistic, patient-specific models of vasculature and heart valves; quantification of protein content in soft tissues; fabrication of realistic, compliant prototypes of human organs; and computational modeling of hemodynamics and tissue mechanics of normal and pathological cardiovascular organs.

IOWA SPINE RESEARCH CENTER BIOMECHANICS LABORATORY

The Iowa Spine Research Center Biomechanics Laboratory is fully equipped to perform studies of tissue and/or specimen response to mechanical loads. An MTS Bionix servohydraulic testing machine (with extended columns) permits application of uniaxial tension or compression in concert with axial torsion under displacement (rotation) or load control. A spine stimulator consisting of an upper and lower gimbal permits kinematic studies of the spinal column (flexion-extension, lateral bending, and axial rotation). The laboratory also has a two-sensor (six-camera) 3-D motion capture system. These devices are used to test mechanical properties of biomechanical joints and tissues and for biomechanical evaluation of surgical treatment modalities. The center is located at the University of Iowa Research Park.

JOLT/VIBRATION/SEATING LABORATORY

The Jolt/Vibration/Seating Laboratory is equipped for investigation of the biomechanics of the spine, particularly problems related to low back pain due to the interaction between people and equipment in jolt (impact) and vibration environments. Three shakers are available to simulate impact and vibration environments.

Human responses are measured using equipment including load cells, electromyography, accelerometry, position sensors, and pressure pads. Portable sensors and data recorders are used to evaluate impact and vibration environments in the field and compare them to domestic and international guidelines and standards.

MULTISCALE MODELING, MECHANOBIOLOGY, AND TISSUE ENGINEERING LABORATORY

The Multiscale Modeling, Mechanobiology, and Tissue Engineering Laboratory is equipped for computational and experimental investigations centered on the role of physical forces in directing cell-material interactions that govern biological phenomena across multiple scales. A 650-square-foot core web lab has equipment for isolating, culturing, maintaining, and analyzing cells, including a Nu-

Aire two-chamber incubator, lab refrigerator and freezer, and a Thermo Scientific 1300 Series class II, type A2 biological safety cabinet. A 120-square-foot microscopy room houses an ADMET BioTense top-mounted perfusion bioreactor that integrates with a Nikon Ti-E inverted microscope, a system equipped to simultaneously record force values and acquire images of cell-to-extracellular matrix interactions in 3-D environments (e.g., a collagen gel) at high magnification over long periods of time and under a suite of mechanical testing protocols. The MTESTQuattro material testing system and accompanying software controls the bioreactor temperature, drives the actuator, and records force. The system can be operated in load or displacement control, supplying monotonic, cyclic, or segmented control profiles. Both the microscope and bioreactor are interfaced with an HP Z210 convertible minitower base model workstation.

ORTHOPAEDIC BIOMECHANICS LABORATORY

The Orthopaedic Biomechanics Laboratory occupies 20 rooms on the ground floor of Westlawn. It is configured primarily for macroscopic-level physical testing of musculoskeletal constructs (e.g., bones, articular joints, orthopaedic implants) and for corresponding computational modeling. The physical testing area includes a multipurpose wet lab, a multipurpose dry lab, a surgical preparation room, a mechanical testing room, a machine shop, and a specimen storage area. The computational modeling area is arranged around eight separate workstation seats in two adjoining partially partitioned areas. Adjacent to these core operational areas are offices for faculty, research staff, students, and fellows; a secretarial/reception area; a conference room; and a library.

SPINE BIOMECHANICS AND ERGONOMICS LABORATORY

Located at University of Iowa Hospitals and Clinics, the Spine Biomechanics and Ergonomics Laboratory is equipped for investigation of the biomechanics of the spine, particularly problems related to production and treatment of low back pain. For example, electromyography equipment, accelerometry, a motion capture system, and a force plate are used to study response to sudden loads. A stadiometer is used to evaluate how varied activities affect shrinkage (creep) in the spine. A pressure pad is used to study interface pressures between people and chairs or beds.

SPINE RESEARCH LABORATORY

The Spine Research Laboratory is equipped for interdisciplinary research. The laboratory's MTS Bionix servohydraulic testing equipment (with extended columns) permits application of uniaxial tension or compression together with axial torsion under displacement or load control. The laboratory also has a fully automated 3-D motion measuring system. These devices are used to test mechanical properties of biomechanical joints and tissues, and for biomechanical evaluation of the performance of surgical treatment modalities. Other equipment includes digital cameras, surgical tools, and sensors (i.e., LVDTs, six-degrees-of-freedom load cell, pressure transducers, digital inclinometers).

A biaxial biomechanical culture system is available for application of controlled compression and/or shear forces onto the intervertebral disc during culture, in order to investigate the disc's biological responses to mechanical

loads. This culture system is used in conjunction with an incubator in which cells and tissues can be cultured. Basic equipment for histology and immunohistochemical analyses includes a microtome, ovens, a microscope, and glassware for chemical processes.

TISSUE ENGINEERING LABORATORY

The Tissue Engineering Laboratory is outfitted with a fume hood, sink, laboratory counters, tables, and major tissue culture equipment, including a Baker SG3 laminar flow hood, a NuAir water jacked incubator, an autoclave, a vacuum pump, a Zeiss Axiovert S-100 phase contrast and bright field microscope with a computer interface, computer-controlled peristaltic pumps, a computer-controlled water bath, and a refrigerator and freezer.

The inverted microscope has an image capture system interfaced to a computer workstation with image processing software. A variety of sensors for performing temperature, pressure, and flow measurements also are available. The laboratory's computers are equipped with software for graphical, numerical, image analysis, word processing, and symbolic computation. Liquid nitrogen dewars, and CO₂ and N₂ tanks have been installed. An Ussing chamber with electrodes and a high impedance Keithley electrometer also are available.

Courses

Special Topics

BME:0000 (051:000) Cooperative Education Training Assignment: Biomedical Engineering 0 s.h.

Biomedical engineering students participating in the Cooperative Education Program register for this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Requirements: admission to Cooperative Education Program.

BME:0002 (051:002) Half-time Cooperative Education Training Assignment: Biomedical Engineering 0 s.h.

Registration for work assignment periods; for students participating in the Cooperative Education Program.

BME:1010 (051:090) First-Year Forum 1 s.h.

Presentations by faculty, graduate students, collaborators from the Carver College of Medicine, and Colleges of Dentistry and Law; may include visits to laboratories and industries.

BME:2010 (051:091) Professional Seminar: Biomedical Engineering 1 s.h.

Professional aspects of biomedical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Requirements: sophomore or higher standing.

BME:2110 (051:030) Cell Biology for Engineers 3 s.h.

Introduction to fundamental concepts in quantitative cell biology from an engineering perspective. Prerequisites: BIOL:1411 (002:031).

BME:2200 (051:060) Systems, Instrumentation, and Data Acquisition 4 s.h.

Introduction to linear system theory and application, including convolution, Laplace Transform, transient analysis, sinusoidal steady-state analysis, and Fourier analysis; patient safety; acquisition and analysis of data collected from living systems, including concepts of analog circuit design with emphasis on operational amplifiers, active filters, clinical circuits, Nyquist concepts and digital conversion, and interface to computers; physics, acquisition, and analysis of medical images, especially those collected from X-ray, CT, MR, and ultrasound systems. Prerequisites: ENGR:2120 (059:008). Corequisites: HHP:3500 (027:130).

BME:2210 (051:080) Bioimaging and Bioinformatics 4 s.h.

Introduction to bioinformatics and biomedical imaging; computer algorithms, machine learning, databases and SQL, the web and web servers, ethics, computer security, genome technology, public warehouses of biological data; medical imaging hardware and software for acquisition and analysis of medical images, especially those collected from X-ray, CT, MR, and ultrasound systems; medical imaging system physics, including interaction of energy with tissue, concepts of image spatial and temporal resolution; applications of filtering, enhancement, and image processing for analysis of medical images. Prerequisites: BIOL:1411 (002:031) and ENGR:1300 (059:006).

BME:2500 (051:050) Biomaterials and Biomechanics 4 s.h.

Introduction to mechanics and materials in biological systems; principles of mechanics (stress, strain, motion, fluid flow) presented and used to characterize behavior of biological entities (tendon/ligament, bone and cartilage, blood, blood vessels, heart); principles of material science; role of biomaterials (metals, polymers, ceramics) in medical devices. Prerequisites: ENGR:2110 (059:007). Corequisites: HHP:3500 (027:130).

BME:2710 (051:063) Engineering Drawing, Design, and Solid Modeling 3 s.h.

Introduction to methods and principles used by engineers to define and describe geometry and topology of engineered components; use of Parametric Technology's Creo Pro (formerly ProEngineer) 3-D CAD software; emphasis on elements of design; basic commands used in parametric design to develop spatial visualization skills and the ability to create and understand 3-D solid parametric design for assembly and 3-D drawing documentation; creation of 3-D assemblies and detailed drawings from art of design to part, utilization of solid modeling techniques. Prerequisites: ENGR:2110 (059:007).

BME:3010 (051:092) Leadership and Resourcefulness 1 s.h.

Development of leadership skills and resourcefulness for real-world professional work and life. Requirements: completion of six semesters of BME:1010 (051:090) and BME:2010 (051:091) combined.

BME:3998 (051:098) Individual Investigations: Biomedical Engineering arr.

Individual projects for biomedical engineering undergraduate students, such as laboratory study, engineering design projects, analysis and simulation of an engineering system, computer software development, research.

BME:4010 (051:093) Biomedical Engineering Design Seminar 1 s.h.

Information and presentations about possible projects; mentors available for senior design projects. Requirements: junior standing.

BME:4110 (051:132) Principles of Regenerative Bioengineering arr.

Embryonic, fetal, and adult sources, human and nonhuman "stemness" of cells; references to biomaterials (i.e., those designed to direct organization, growth, and differentiation of cells in process of forming functional tissue by providing physical and chemical cues); biomarkers and nano-medicine; promises of bioinformatics in support tissue engineering, gene and protein sequencing, gene expression analysis, protein expression, and interaction analysis. Prerequisites: BIOL:1411 (002:031). Corequisites: HHP:3500 (027:130). Recommendations: BME:2110 (051:030).

BME:4111 (051:134) Fundamentals of NanoScale Technologies in Regenerative Bioengineering 1 s.h.

Nanotechnology as an emerging field in the quest to better and more affordable health care; experimentation and development of new materials that benefit regenerative medicine; targeted drug delivery and enhanced tissue engineering as a priority in pursuit of new approaches in tissue and organ transplantation; state-of-the-art new technologies applied to role of stem cells and biomedical engineering in future health care; seminar with reading and comments of significant journal articles in the field. Prerequisites: BME:4110 (051:132).

BME:4112 (051:136) Methods in Regenerative Bioengineering and NanoScale Technology 3 s.h.

Nanotechnology as an emerging field in the quest to better and more affordable health care; experimentation and development of new materials that benefit regenerative medicine; targeted drug delivery and enhanced tissue engineering as a priority in pursuit of new approaches in tissue and organ transplantation; state-of-the-art new technologies applied to role of stem cells and biomedical engineering in future health care. Prerequisites: BIOL:1411 (002:031). Corequisites: HHP:3500 (027:130). Recommendations: BME:2110 (051:030).

BME:4120 (051:133) Advanced Cell Biology for Engineers 3 s.h.

Introduction to techniques and quantitative analysis used in cell biology and taught from cell engineering perspective; focus on isolation, intracellular localization, and determination of mRNA levels of specific cellular proteins; analysis of resulting data and interpret reliability of results; laboratory course. Prerequisites: BME:2110 (051:030).

BME:4910 (051:085) Biomedical Engineering Senior Design I 4 s.h.

Individual or group work on a creative design project involving current problems in biomedical engineering; interdisciplinary projects involving biomedical engineering and health sciences faculty members; first semester of a year-long senior capstone design project. Requirements: senior standing.

BME:4920 (051:086) Biomedical Engineering Senior Design II 4 s.h.

Second semester of a year-long senior capstone design project begun in BME:4910 (051:085). Prerequisites: BME:4910 (051:085).

BME:5020 (051:192) Seminar in Bioinformatics 1 s.h.

Forum for research presentations by scientists with national and international prominence; broad range of research topics in bioinformatics, genomics, and high-throughput biology; sponsored by the NIH T32 Bioinformatics Predoctoral Training Program at The University of Iowa.

BME:5320 (051:123) Bioinformatics Techniques 3 s.h.

Informatics tools and techniques applied to modern problems in biomedicine and basic life sciences; common tools, experience applying tools in contemporary problem settings; genomics and genetics, how to sequence a genome, transcription and expression, SNPs, Perl, BioPerl, Perl modules, Ensembl API, BLAST/BLAT, NCBI, UCSC, Ensembl Genome browsers, linkage, association, disease gene identification. Prerequisites: BIOL:1411 (002:031) and ENGR:1300 (059:006).

BME:5325 (051:126) Introduction to Systems Biology 3 s.h.

How higher-level properties of complex biological systems arise from the interactions among their parts; fundamentals of biological network analysis with focus on protein-protein interaction, regulatory, and genetic interaction networks; principles of systems biology and biological networks; experimental methods and analytical approaches for specific networks; current emerging research areas in the field of systems biology; didactic lectures and case-study projects. Prerequisites: BIOL:4213 (002:170) or BME:5320 (051:123) or GENE:6170 (127:170), and BME:5330 (051:122). Recommendations: senior standing; or graduate standing with background in biology, computer science, applied mathematics, statistics, physics, or engineering.

BME:5330 (051:122) Computational Genomics 3 s.h.

Introduction to computational methods used in genome analysis and functional genomics; biological sequence analysis, sequence database search, microarray data analysis, biological network analysis; in-depth coverage of principal genome science challenges and recent solutions. Prerequisites: BME:5320 (051:123), CS:3110 (22C:104), and BIOS:5110 (171:161) or STAT:3510 (22S:101). Same as BIOL:5320 (002:174), GENE:5173 (127:173), ECE:5220 (055:122).

BME:5340 (051:125) Contemporary Topics in Network Biology 3 s.h.

Fundamentals of biological network analysis; focus on protein-protein interaction, regulatory, genetic interaction networks; principles of systems biology and biological networks, experimental methods and analytical approaches for specific networks side-by-side in detail; current emerging research areas in the field of systems biology; suitable for upper-level undergraduates and graduate students with background in biology, computer science, applied mathematics, statistics, physics, or engineering. Prerequisites: BIOL:4213 (002:170) or GENE:6170 (127:170), and BME:5330 (051:122). Recommendations: knowledge in molecular cell biology and a programming language (i.e., Perl, Matlab, R, C).

BME:5430 (051:167) Biotransport 3 s.h.

Energy, mass, and momentum transport in living systems; processes essential for understanding how physiological systems function from molecular level through scale of tissues and organs; fluid mechanics and physiological flows, mass transport, biochemical kinetics and reactions, bioheat transfer; conservation laws; various biological applications.

BME:5710 (051:162) Digital Human Modeling and Simulation 3 s.h.

Fundamentals of using computational methods in modeling, simulating, and animating articulated kinematic chains such as robots and humans; underlying mathematics, introductory concepts in kinematics and dynamics, serial chain kinematics and multibody dynamics; methods from kinematics and dynamics, coupled with biomechanical concepts, provide an integrated approach to predicting and analyzing serial link motion (e.g., human and robotic manipulator motion). Prerequisites: ENGR:2710 (057:010). Same as ME:5130 (058:136).

BME:5910 (051:178) Fast-Track Biomedical Engineering Design 1-A 3 s.h.

Part A of first semester of year-long senior capstone design project; individual or group design project involving biomedical engineering problems. Corequisites: BME:5911 (051:180). Requirements: senior standing.

BME:5911 (051:180) Fast-Track Biomedical Engineering Design 1-B 1 s.h.

Part B of first semester of year-long senior capstone design project; individual or group project involving biomedical engineering problems. Corequisites: BME:5910 (051:178). Requirements: senior standing.

BME:5920 (051:179) Fast-Track Biomedical Engineering Design 2-A 3 s.h.

Part A of second semester of year-long senior capstone design project started in BME:5910 (051:178) and BME:5911 (051:180). Prerequisites: BME:5910 (051:178). Corequisites: BME:5921 (051:183).

BME:5921 (051:183) Fast-Track Biomedical Engineering Design 2-B 1 s.h.

Part B of second semester of year-long senior capstone design project started in BME:5910 (051:178) and BME:5911 (051:180). Prerequisites: BME:5910 (051:178). Corequisites: BME:5920 (051:179).

BME:6120 (051:236) Advanced Topics in Regenerative Bioengineering and NanoScale Biotechnology 3 s.h.

Continuation of BME:4110 (051:132) with in-depth examples and approaches; development of organs through stem cells maturation and differentiation complemented by biomedical applications; fundamental concepts of stem cell biology applied to modern technology; reference to biomaterials (those designed to direct organization, growth, and differentiation of cells); concept of biomarkers and nanomedicine based on the notion that new materials can be engineered to not interfere with normal biological conditions and unique enough to be detected non-invasively with modern diagnostic instruments (CT, MRI, Echo). Prerequisites: BME:2110 (051:030) or BME:4110 (051:132).

BME:6310 (051:225) Contemporary Topics in Bioinformatics 3 s.h.

Next-generation sequencing technology and design, next-generation sequencing analysis and algorithms, contemporary topics in bioinformatics, genetics of disease (visual system as a model) and genetic engineering; grant writing. Recommendations: BME:5330 (051:122) or advanced programming skills and understanding of DNA.

Biomaterials

BME:5401 (051:170) Biomaterials and Implant Design 3 s.h.

Introduction to material and mechanical considerations underlying a broad range of medical implants; emphasis on understanding factors involved in orthopaedic device design; major classes of biomaterials; considerations that underlie implant design, use, failure; contemporary areas of biomaterials and implant development. Prerequisites: BME:2500 (051:050) and ENGR:2750 (057:019).

BME:5415 (051:168) Polymer Fundamentals 1 s.h.

Basic knowledge of polymers required as a foundation for other UI courses on polymers: basic polymer terminology, polymer groups, polymerization mechanisms, molecular weight determination. Five weeks. Same as CBE:5309 (052:140).

BME:5421 (051:177) Cell Material Interactions 3 s.h.

Current thought and techniques in the engineering and assessment of biomaterials. Prerequisites: BME:2110 (051:030).

BME:6110 (051:259) Mechanics of Cells and Cellular Systems 3 s.h.

Mechanics of cells; focus on cellular mechanical properties, responses to mechanical stimuli, cellular forces and measurement, and computational tools; cellular environment considered with implication to disease pathologies and medical device design considerations.

Biomechanics/Biofluids

BME:5510 (051:154) Cardiac and Vascular Mechanics 3 s.h.

Bio-solid mechanics of the cardiovascular system; mechanical properties of ventricles, valves, and blood vessels, their normal function, how they are affected by disease states; design of artificial organs, prostheses. Prerequisites: BME:2500 (051:050) and ENGR:2750 (057:019).

BME:5520 (051:155) Cardiovascular Fluid Mechanics 3 s.h.

Anatomy and physiology of the human circulatory system, pressure-flow relationship in arteries, elastic properties of the arterial wall, steady and pulsatile flow dynamics, flow dynamics of human heart valves, flow dynamics past valve prostheses, fluid mechanical measurements in circulation, relationship between fluid mechanics and diseases in human circulation. Prerequisites: BME:2500 (051:050).

BME:5530 (051:159) Design of Circulatory Implants and Artificial Organs 3 s.h.

Exploration of current innovations and new technologies; examination of various devices currently on the market from a standpoint of design variables and objectives (i.e., stents, heart valves, dialyzers, VADs, artificial organs); biomedical engineers' vital role in design and improvement of these implants. Prerequisites: BME:2500 (051:050).

BME:5610 (051:150) Musculoskeletal Biomechanics 3 s.h.

Principles of solid mechanics applied to analytical, experimental investigation of biological systems; emphasis on applications in kinesiology of human musculoskeletal system. Prerequisites: BME:2500 (051:050) and ENGR:2750 (057:019).

BME:5620 (051:157) Introduction to Applied Biomedical Finite Element Modeling 3 s.h.

Introduction to finite element modeling as applied to biomechanics-related applications. Prerequisites: BME:2500 (051:050) and ENGR:2750 (057:019).

BME:5630 (051:147) Kinetics of Musculoskeletal Systems 3 s.h.

Principles of kinematics; kinetics applied to analytical and experimental investigation of musculoskeletal systems; mathematical foundations for kinematic and kinetic analyses; examples of mathematical modeling of human movements. Prerequisites: ENGR:2710 (057:010).

BME:5640 (051:152) Ergonomics of Occupational Injuries 3 s.h.

Epidemiology, surveillance systems, ergonomics, biomechanics, physiology, psychology, legal aspects, and cost control. Prerequisites: BME:2500 (051:050) and ENGR:2750 (057:019).

BME:5660 (051:151) Intermediate Mechanics of Deformable Bodies 3 s.h.

Application of equilibrium analyses, strain-displacement relations, and constitutive relationships to practical structural systems and elementary plane elasticity problems. Prerequisites: ENGR:2750 (057:019). Same as CEE:5540 (053:140), ME:5150 (058:150).

BME:6415 (051:260) Advanced Biomechanics and Modeling of Soft Tissues 3 s.h.

This course will cover the application of continuum mechanics and modeling to the study of biological tissues and biomaterials.

BME:6515 (051:256) Advanced Biological Soft Tissue Mechanics 3 s.h.

Topics in vascular solid mechanics; study of vascular tissue from theoretical (constitutive modeling), experimental, and computational perspectives.

BME:6520 (051:255) Advanced Biofluid Mechanics 3 s.h.

Hemodynamic theories of atherogenesis, Womersley models, steady and unsteady flows in curvature, bifurcation and branching arterial segments, flow dynamics past prosthetic implants, experimental and computational models, particulate and mass transport simulations in human circulation. Prerequisites: BME:5520 (051:155).

BME:6610 (051:253) Spine Mechanics 3 s.h.

Biomechanics applied to mechanics of the human spine; clinical aspects; state-of-the-art in spine research; basic engineering principles for biomechanical analysis. Prerequisites: BME:5610 (051:150).

BME:6630 (051:220) Human Response to Vibration 3 s.h.

Exploration of the human body, a complex mechanism exposed to mechanical shock and vibration from many sources, under many conditions; interactions and applicable exposure standards, effects of whole-body and hand-arm vibration. Requirements: graduate standing in College of Engineering or College of Public Health.

Bioelectrical Engineering

BME:5200 (051:182) Biomedical Signal Processing 3 s.h.

Application of signal processing methods (e.g., Fourier, Laplace, z-transforms) to biomedical problems, such as analysis of cardiac signals, circadian rhythm, the breathing cycle; computer simulation lab.

BME:5210 (051:185) Medical Imaging Physics 3 s.h.

Physics and data acquisition techniques of major medical imaging modalities (X-ray, CT, MR, ultrasound, PET, SPECT); physical interactions of energy with living tissue; principles and methods for acquiring imaging data and subsequent image construction; how individual modalities influence image quality; MATLAB programming required. Second in a medical imaging sequence. Prerequisites: BME:2200 (051:060) and BME:2210 (051:080).

BME:5220 (051:148) Digital Image Processing 3 s.h.

Mathematical foundations and practical techniques for digital manipulation of images; image sampling, compression, enhancement, linear and nonlinear filtering and restoration; Fourier domain analysis; image pre-processing, edge detection, filtering; image segmentation. Prerequisites: BME:2210 (051:080) or ECE:2400 (055:040). Same as ECE:5480 (055:148).

BME:5230 (051:186) Multidimensional Medical Imaging Process 3 s.h.

Algorithms developed to process and analyze large volumetric data sets; physics of CT, MRI, ultrasound, 3-D convolution and filtering, geometric transformations, shape features, surface segmentation, regional segmentation, surface tiling, surface reconstruction, volumetric registration. Third in a medical imaging sequence. Prerequisites: ENGR:1300 (059:006).

Advanced individual projects such as laboratory study, engineering design projects, analysis and simulation of an engineering system, computer software development, research.

BME:7999 (051:299) Research: Biomedical Engineering Ph.D. Dissertation arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. with thesis in biomedical engineering.

BME:5250 (051:187) Health Informatics I 3 s.h.

Technological tools that support health care administration, management, and decision making. Requirements: graduate standing. Same as MED:5300 (050:283), SLIS:5900 (021:275), RSNM:3195 (074:191), HMP:5370 (174:226), IE:5860 (056:186), IGPI:5200 (200:110).

BME:5251 (051:141) Advanced Biosystems 3 s.h.

Biological systems unique to systems analysis; operation under nonequilibrium conditions; tools for systems analysis developed from models of systems at equilibrium (i.e., mechanical systems); fundamental difference between biological and mechanical systems that impact systems analysis; expand knowledge of linear systems and begin work with nonlinear systems; various modeling and analysis approaches useful in biomedical and biomedical engineering research. Prerequisites: BME:2200 (051:060).

BME:5252 (051:189) Health Informatics II 3 s.h.

Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as RSNM:5301 (074:192), IE:5870 (056:287), SLIS:5910 (021:280), IGPI:5210 (200:120).

Graduate Seminars, Advanced Topics, Research**BME:5010 (051:191) Seminar in Biomedical Engineering** 0 s.h.

Presentation of recent advances in biomedical engineering. Requirements: graduate standing.

BME:5998 (051:198) Individual Investigations: Biomedical Engineering arr.

Individual projects for biomedical engineering graduate students, such as laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Requirements: graduate standing.

BME:5999 (051:199) Research: Biomedical Engineering M.S. Thesis arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of the requirements for the M.S. with thesis in biomedical engineering. Requirements: graduate standing.

BME:7998 (051:298) Advanced Individual Investigations in Biomedical Engineering arr.

Chemical and Biochemical Engineering

Chair

- C. Allan Guymon

Professors

- Gregory R. Carmichael, Vicki Grassian, C. Allan Guymon, Stephen K. Hunter, Lee Kirsch, David W. Murhammer, Tonya L. Peeples, David G. Rethwisch, Alec B. Scranton, Venkiteswaran Subramanian

Associate professors

- Julie L.P. Jessop, Aliasger Salem, Charles Stanier

Assistant professors

- Jennifer Fiegel, Eric Nuxoll

Lecturers

- Audrey Butler, Chris Coretsopoulos

Adjunct professor

- A. Umran Dogan

Adjunct associate professor

- Gary Aurand

Professor emeritus

- J. Keith Beddow

Undergraduate major: chemical engineering (B.S.E.)

Graduate degrees: M.S. in chemical and biochemical engineering; Ph.D. in chemical and biochemical engineering

Web site: <http://www.engineering.uiowa.edu/cbe/>

Chemical and biochemical engineers combine engineering principles with knowledge of mathematics and specific sciences—chemistry, the biological sciences, and physics—to develop and operate processes that convert raw materials into products that benefit society. For example, biochemical engineers might develop and operate processes to convert switchgrass into biofuels or to mass produce an antibiotic.

Chemical and biochemical engineers engage in a wide variety of activities that benefit the global community. Fuel cells, solar energy, and biorenewable fuels (e.g., biodiesel or ethanol) fall within the realm of chemical engineering. Chemical engineering distinguishes itself from other engineering professions with its reliance on chemical reactions and physicochemical transformations to produce a wide variety of important materials and products.

Biochemical engineers are involved in a wide variety of industrial biocatalytic, fermentation, and cell culture processes that generate products ranging from the high fructose corn syrup in soft drinks to recombinant human insulin.

As part of their training, chemical and biochemical engineers learn ethical design and a respect for the larger issues in any design, such as community health, employee safety, and the global implications of the design. The University of Iowa's curriculum emphasizes chemical process safety and environmentally conscious chemical engineering design.

Chemical and biochemical engineers work in a wide range of industries, including petroleum and specialty chemical production, polymer and plastic production, food processing, energy, microelectronics production, pharmaceutical production, biochemical processing, and environmental compliance. Potential jobs include production, process development, plant design and construction, and fundamental research. Many experienced chemical and biochemical engineers move through management ranks to high-level administrative positions.

Undergraduate Program of Study

- Major in chemical engineering (Bachelor of Science in Engineering)

The undergraduate program in chemical engineering produces graduates who have a strong foundation of scientific and technical knowledge and are equipped with problem solving, teamwork, and communication skills that will serve them throughout their careers, consistent with the following educational objectives.

Within a few years of graduation, the program's graduates will:

- attain careers as practicing chemical engineers in fields such as pharmaceuticals, microelectronics, chemicals, polymers/advanced materials, food processing, energy, biotechnology, and environmental engineering;
- attain advanced studies in disciplines such as chemical engineering, environmental engineering, medicine, law, and business; and
- assume professional leadership roles.

The undergraduate program in chemical engineering uses the following methods and strategies to achieve its educational objectives:

- foster a personalized, supportive environment for all students by taking advantage of the unique combination of a small college atmosphere in a major research university;
- enrich the undergraduate experience through cultural diversity and international opportunities or experiential learning;
- provide a solid foundation and understanding of the fundamental principles of mathematics, science, and engineering;
- provide students with experience in learning and applying tools (e.g., computer skills) to solve theoretical and open-ended chemical engineering problems;
- provide students with opportunities to participate in multidisciplinary teams and to develop and practice written and oral communication skills, both within the team and to a broader audience;
- provide students with opportunities to design and conduct chemical engineering experiments and to design systems, components, and chemical processes to meet specific needs and constraints; and
- provide a contemporary grounding in professional responsibility, including ethics, the global and societal impact of engineering decisions, and the need for lifelong learning.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. The major in chemical engineering provides a broad education at the leading edge of technology. It emphasizes fundamental concepts, problem solving, laboratory techniques, and communication skills. The biological sciences join physics, chemistry, and mathematics as foundation disciplines for chemical engineering.

All engineering students complete the B.S.E. core requirements, which include RHET:1030 (010:003) Rhetoric; ENGR:1100 (059:005) Engineering Problem Solving I and ENGR:1300 (059:006) Engineering Problem Solving II; and courses in chemistry, engineering mathematics and fundamentals, and physics. They must earn a grade of C-minus or higher in the core requirements MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus and MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus.

They also complete the curriculum designed for their major program, which covers four major stems: mathematics and basic sciences, engineering topics, an elective focus area, and the general education component (15 s.h. of humanities and social science courses). For information about the curriculum stems, see Bachelor of Science in Engineering (p. 861) in the Catalog.

Seminars do not count toward the 128 s.h. required for the degree.

For chemical engineering students, the sophomore, junior, and senior years emphasize chemical engineering courses such as process calculations, engineering flow and heat exchange, chemical engineering thermodynamics, mass transfer and separations, chemical reaction engineering, chemical process safety, chemical engineering laboratories, biochemical engineering, process dynamics and control, and process design. Experience in instrumentation, analysis, and design is obtained through an integrated laboratory program. Routine use is made of computer-based data analysis, simulation, and design.

Students are required to participate in at least one enriching activity, which may include a research experience, a cooperative education or internship experience, study abroad, completion of the Certificate in Technological Entrepreneurship (p. 937), or other approved experiences.

Chemical engineering students may gain depth of knowledge related to a career path through their selection of science, engineering, humanities, and social science electives. Several preapproved elective focus areas may help students define potential careers.

Students must select elective focus area courses according to guidelines established by the Department of Chemical and Biochemical Engineering. See "Elective Focus Area" after the following curriculum list.

The following study plan includes the B.S.E. core requirements and the curriculum for the chemical engineering major. Some courses in this plan are prerequisites for others. Students must complete a course's prerequisites before they may register for the course. Those who take courses in the order below satisfy the prerequisite requirements automatically.

FIRST YEAR

First Semester

ENGR:1000 (059:090) Engineering Success for First-Year Students (credit does not count toward B.S.E. degree)	1 s.h.
ENGR:1100 (059:005) Engineering Problem Solving I	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
RHET:1030 (010:003) Rhetoric	4 s.h.

Second Semester

CBE:1000 (052:090) CBE Departmental Seminar	1 s.h.
ENGR:1300 (059:006) Engineering Problem Solving II	3 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.
MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra	2 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.

SECOND YEAR

First Semester

CBE:2105 (052:041) Process Calculations	3 s.h.
ENGR:2110 (059:007) Engineering Fundamentals I: Statics	2 s.h.
ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits	3 s.h.
ENGR:2130 (059:009) Engineering Fundamentals III: Thermodynamics	3 s.h.
MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations	3 s.h.
General education component course	3 s.h.

Second Semester

CBE:3000 (052:091) Professional Seminar: Chemical Engineering	1 s.h.
CBE:3105 (052:103) Chemical Engineering Thermodynamics	3 s.h.
CBE:3110 (052:151) Engineering Flow and Heat Exchange	3 s.h.
CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
General education component course	3 s.h.
Statistics elective	3 s.h.

THIRD YEAR

First Semester

CBE:3000 (052:091) Professional Seminar: Chemical Engineering	1 s.h.
CBE:3115 (052:161) Mass Transfer and Separations	3 s.h.
CBE:3150 (052:171) Thermodynamics/Transport Laboratory	3 s.h.
ENGR:2720 (057:015) Materials Science	3 s.h.
CHEM:2220 (004:122) Organic Chemistry II	3 s.h.

CHEM:2410 (004:141) Organic Chemistry Laboratory 3 s.h.

Second Semester

CBE:3000 (052:091) Professional Seminar: Chemical Engineering 1 s.h.
 CBE:3120 (052:105) Chemical Reaction Engineering 3 s.h.
 CBE:3125 (052:187) Chemical Process Safety 3 s.h.
 CBE:3155 (052:172) Chemical Reaction Engineering/Separations Laboratory 2 s.h.
 Elective focus area course 3 s.h.
 General education component courses 6 s.h.

FOURTH YEAR

First Semester

CBE:3000 (052:091) Professional Seminar: Chemical Engineering 1 s.h.
 CBE:4105 (052:185) Process Dynamics and Control in Design 3 s.h.
 CBE:4109 (052:184) Chemical Engineering Process Design I 2 s.h.
 CBE:5205 (052:108) Introduction to Biochemical Engineering 3 s.h.
 Advanced chemical science elective 3 s.h.
 Elective focus area courses 6 s.h.

Second Semester

CBE:4110 (052:186) Chemical Engineering Process Design II 3 s.h.
 CBE:4195 (052:092) Senior Enriching Activities Seminar 0 s.h.
 Advanced chemical science electives 6 s.h.
 Elective focus area course 3 s.h.
 General education component course 3 s.h.

Elective Focus Area

The elective focus area enables students to gain depth of knowledge in a career path. Students meet with their chemical engineering academic advisor to discuss career options and develop a plan for choosing electives based on their career interests. The department offers preapproved elective focus areas in biochemical engineering, pharmaceuticals, chemical process engineering, polymers, energy and environment, sustainability, pre-medicine, business, and entrepreneurship.

Students may prefer to develop an individualized elective focus area, which is subject to approval by the department's curriculum committee. See Chemical Engineering Curriculum on the Department of Chemical and Biochemical Engineering web site for detailed descriptions of preapproved elective focus areas, guidelines for tailored elective focus areas, and typical four-year study plans based on elective focus areas.

Joint B.S.E./M.S.

The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for chemical engineering undergraduate students who intend to earn an M.S. in chemical and biochemical engineering. B.S.E./M.S. students may count 12 s.h. of course work (typically advanced chemistry sequences and electives) toward both degrees. Once students complete

the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application and statement of purpose to the chair of the Department of Chemical and Biochemical Engineering. Visit B.S./M.S. Programs on the department's web site to learn more.

Graduate Programs of Study

- Master of Science in chemical and biochemical engineering (with or without thesis)
- Doctor of Philosophy in chemical and biochemical engineering

Graduate students in the Department of Chemical and Biochemical Engineering gain an understanding of the principles of engineering science and use those principles in contemporary applications related to energy, the environment, biotechnology, and materials. The department emphasizes research, since most opportunities for graduates are in research and development.

Research and Study Areas

Current research strengths of the Department of Chemical and Biochemical Engineering are in the areas of global and regional atmospheric modeling, biomaterials and medical engineering, cellular engineering, photopolymerization, biocatalysis, and biofuels.

BIOCHEMICAL ENGINEERING

Biochemical engineering involves the industrial application of enzymes, microorganisms, cells, and tissues for production of chemicals, pharmaceuticals, and other materials of commercial value.

The department is working to solve problems with the use of insect cell culture for recombinant protein and viral insecticide production. Research is being conducted to improve the quality and quantity of recombinant proteins produced in large-scale bioreactors. In addition, a continuous viral insecticide production system is being developed for the large-scale production of these environmentally safe alternatives to chemical insecticides. The insect cell/baculovirus system is being used as a model system to investigate the role of oxidative stress in viral cytotoxicity.

Carbon dioxide accumulation, which commonly occurs in large-scale bioreactor systems, affects insect cell growth. The department's researchers are investigating the corresponding effect on insect cell growth and the baculovirus infection process.

The department works to design technologies for the characterization and use of extremophiles, organisms that possess unusual abilities to survive in harsh chemical environments. In these studies, novel bioreactor systems that can withstand extremes of temperature, pressure, pH, and salinity are being developed. Extremophile strategies for survival also are being studied, with the aim of discovering unique enzymes for industrial application as well as evaluating molecular interactions that govern protein stability under extreme conditions.

In addition to the study of natural extremophiles, efforts to engineer stability in biocatalysts for industrial processing are under way. Novel solvent-tolerant enzymes and organisms for environmentally beneficial chemical reactions are being generated using molecular biology tools. Combinations of chemical and biological processing are being used to produce valued chemicals from renewable feedstocks. This work contributes to the interdisciplinary training of engineers and scientists to address the challenges of minimizing and cleaning up environmental pollution, while maximizing the economic benefits of chemical processing.

The department also conducts research in structural enzymology, molecular mechanisms of host-pathogen interactions, and biocatalysis. The laboratory uses biophysical, structural, and molecular biology techniques to understand the details of enzyme action. This information is used to design and engineer biocatalysts for the production of chiral compounds. Work also is under way on cellular recognition and signaling processing during infection and inflammation. Knowledge gained from these studies aids the design of drugs and biological sensors for bacterial presence.

The integration of biotechnology with traditional chemical engineering has led to an interdisciplinary area involving other engineering departments and the Departments of Chemistry and Biology (College of Liberal Arts and Sciences); the Departments of Biochemistry and Microbiology and the Free Radical and Radiation Biology Program (Carver College of Medicine); and the College of Pharmacy. This focus includes involvement in the University's Center for Biocatalysis and Bioprocessing, whose fermentation capabilities are highlighted by its 1,500-liter fermentor.

BIOMEDICAL RESEARCH

The department's research involves a multidisciplinary approach to solving problems in the medical field, particularly in drug delivery and biomaterials.

Researchers are working to develop safe delivery systems that target drugs precisely in the human body and avoid premature metabolization or elimination. To treat respiratory infections, micron-sized particles are being engineered with properties that enhance aerodynamic performance, particle stability, and targeting within the respiratory tract. Polymeric vehicles are being designed to provide sustained protection and prevention against cancers by kick-starting the immune system. Finally, work is under way to overcome barriers to efficient delivery of DNA, with the potential to provide cures for genetic disorders such as cystic fibrosis and X-Linked Severe Combined Immunodeficiency (X-SCID). This work brings together collaborators from the Carver College of Medicine, the Colleges of Dentistry and Pharmacy, and the Departments of Chemistry and Biomedical Engineering.

In the biomaterials realm, new materials are being developed that can interact with the human body to perform certain functions while maintaining compatibility. A project with the Department of Ophthalmology and Visual Sciences involves development of biodegradable stent materials to alleviate a serious eye disease induced by a blood clot in the central retinal vein. Research with the Department of Otolaryngology—Head and Neck Surgery is exploring the development of photo-patterned surfaces for directed growth of cells to improve cochlear implants. Current research in the tissue engineering

field applies microfabrication techniques to develop scaffolds that are biodegradable and biocompatible with cell-interactive properties, and that directly incorporate controlled-release functionality within the scaffold.

The Department also conducts research that is focused on self-assembling systems, rational design of novel drug and gene delivery systems, and development of sophisticated scaffolds for tissue-specific regeneration. In tissue engineering, microfabrication techniques are applied to novel biomaterials to provide spatial control over tissue formation and to integrate minimally invasive scaffold delivery strategies. In drug and gene delivery, researchers are exploring the synergistic application of degradable particle technology, CpG oligonucleotides, and heat-shock protein therapy for generating sustained, stronger immune responses against carcinomas.

Students involved in animal research have access to the University's Office of Animal Resources, which is adjacent to the University of Iowa Hospitals and Clinics.

ENERGY AND ENVIRONMENT

Chemical engineers are well-suited to make major contributions toward meeting challenges for the environment, energy, and sustainable development. The Department of Chemical and Biochemical Engineering has an active research program in the environmental areas of air pollution, biofuels, atmospheric chemistry, atmospheric CO₂ fluxes, environmental change, bioremediation, and the design of new environmentally compatible technologies. Particular emphasis is placed on the chemistry and physics of local, regional, and global air-pollution problems. Research in support of this activity includes high-speed computing and detailed sensitivity analysis.

This work involves three centers and institutes on campus. The Center for Global and Regional Environmental Research brings together University scientists and scholars from more than 20 disciplines, including chemistry, civil and environmental engineering, geography, geology, law, and medicine. The center's chief area of concern is environmental change. Chemical and biochemical engineering researchers interact with scientists at IHR—Hydroscience & Engineering, a research institute focusing on applied fluid mechanics; their collaborations involve environmental fluid mechanics and air pollution field studies. The Nanoscience and Nanotechnology Institute provides an interdisciplinary home for chemical and biochemical researchers working on the development, application, and environmental and health effects of nanomaterials.

PHOTOPOLYMERIZATION

Photopolymerizations are chain reactions in which a liquid monomer is converted to a solid, durable polymer in a process triggered by light of the appropriate wavelength. The use of light, rather than heat, to drive a polymerization reaction offers advantages in developing new processes or products.

Photopolymerizations provide both spatial control and temporal control of reactions, since light can be directed to locations of interest in the system and is easily shuttered on or off. Photopolymerizations also provide solvent-free formulations, which reduce the emissions of volatile organic pollutants, and they exhibit extremely rapid reaction rates. These advantages have led to tremendous growth in the application of photopolymerizations in the

private sector, but much of this growth has occurred without a fundamental understanding of the underlying chemical processes.

The department's research in this area focuses on comprehensive characterization of the kinetics, mechanisms, structure, and properties of photopolymerizations. Work includes the following types of studies: characterization of the photochemical processes by which polymerizations may be initiated; kinetic characterization of cationic photopolymerization; development of methods for photopolymerization of thick polymers and composites; development of photopolymerization systems based upon agricultural feedstocks; new methods for monitoring high-speed photopolymerization reactions; nanostructured materials through photopolymerization; biomedical devices formed by photopolymerization; and influence of order on photopolymerization reactions.

Chemical and biochemical engineering researchers are members of the Photopolymerization Center, an industry/university cooperative center on fundamentals and applications of photopolymerization. The center brings together experts from The University of Iowa, the University of Colorado, and member companies such as 3M, DSM, and Boeing. In addition, interdisciplinary collaborations are fostered on campus through the Optical Science and Technology Center, which oversees a seminar series, an annual symposium, training at the Microfabrication Facility, and equipment use in shared facilities.

Master of Science

The Master of Science program in chemical and biochemical engineering requires a minimum of 30 s.h. of graduate credit, with or without thesis. All M.S. students must earn at least 24 s.h. in approved graduate-level course work; courses numbered below 3000 do not count toward this requirement. Thesis students earn 6 s.h. in CBE:5999 (052:199) M.S. Thesis Research: Chemical and Biochemical Engineering. Nonthesis students earn 6 s.h. in additional approved course work and are required to complete four core courses with a g.p.a. above 3.25 for those courses.

M.S. students must maintain a graduate g.p.a. of at least 3.00. Each thesis student must pass a final M.S. examination.

There is no foreign language requirement.

Graduate students who receive assistantships, fellowships, or other financial support awarded with the understanding that they will pursue an advanced degree with thesis may not elect the nonthesis option.

Graduate students in the nonthesis program may petition for entry into the thesis program or the Ph.D. program by requesting a change of status through the Graduate College. The request is reviewed by the graduate admissions committee. If approved by the committee, it is forwarded to the chemical and biochemical engineering faculty for final approval. Students then are assigned to research advisors as though they were newly admitted graduate students. For a detailed description of program requirements, see CBE Graduate Program on the Department of Chemical and Biochemical Engineering web site.

Doctor of Philosophy

The Doctor of Philosophy program in chemical and biochemical engineering requires a minimum of 72 s.h. of graduate credit. However, the degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours. Candidates usually are expected to have completed three academic years in residence, or two years if they already hold a recognized master's degree.

All candidates must complete a core course requirement, which consists of a course in transport phenomena, a course in reaction engineering, a course on proposal writing, and a thermodynamics course, as well as six additional courses (total of 30 s.h.).

Ph.D. candidates must maintain a graduate g.p.a. of at least 3.25.

All doctoral students are required to satisfy a qualifying requirement and pass a comprehensive examination before they can become candidates for the degree. The Ph.D. comprehensive examination is the presentation and defense of the candidate's Ph.D. research proposal. These examinations are arranged by members of the examining committee and may be repeated at the committee's discretion. Comprehensive examination policies are published in the Manual of Rules and Regulations of the Graduate College. There is no foreign language requirement. A final examination, which is a defense of the thesis, completes the doctoral program. For a detailed description of program requirements, see CBE Graduate Program on the Department of Chemical and Biochemical Engineering web site.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants should have a B.S. in chemical engineering or related discipline, with satisfactory grades, from a recognized college or university in the United States, and a g.p.a. of at least 2.80. Students who do not meet these requirements may be granted conditional admission, with the department chair's approval. Graduates of non-U.S. universities may be accepted, depending on evaluation of their records.

Applicants must submit their verbal and quantitative scores on the Graduate Record Examination (GRE) General Test with their applications.

Graduate courses in chemical and biochemical engineering are designed for students who have an undergraduate background in chemical engineering. Exceptional students from other areas also may apply for admission to the M.S. or the Ph.D. program in chemical and biochemical engineering. If admitted, they may be required to take specific undergraduate courses to prepare them for graduate course work.

Financial Support

A number of fellowships, assistantships, and scholarships are awarded on a competitive basis to graduate students who qualify.

Graduate students have the opportunity to receive interdisciplinary research training in several fellowship programs administered through the Center for Biocatalysis and Bioprocessing (CBB). The program provides research training in areas that combine basic and applied research. Each year the center offers fellowships to doctoral students in biotechnology. These are funded by grants from the National Institute of General Medical Sciences, National Institutes of Health (NIH), National Science Foundation (NSF), and the CBB with funding from the State of Iowa. Through these programs, chemical and biochemical engineering students interact with students and faculty members from biochemistry, biology, chemistry, civil and environmental engineering, medicinal and natural products chemistry, and microbiology.

Facilities and Laboratories

Undergraduate Core

MATERIALS SCIENCE LABORATORY

The Materials Science Laboratory is equipped with optical microscopes and facilities for metallographic preparation. Mechanical tensile testing instruments, heat treatment and sintering furnaces, and hardness testing machines also are available. Teaching aids include metallography specimen kits and crystallography packages.

Required Undergraduate Laboratories

CHEMICAL ENGINEERING LABORATORY

The Chemical Engineering Laboratory provides instruction for undergraduate students in CBE:3150 (052:171) Thermodynamics/Transport Laboratory and CBE:3155 (052:172) Chemical Reaction Engineering/Separations Laboratory. It is equipped for experimentation in thermodynamics, fluid flow, heat transfer, mass transfer, chemical reaction engineering, and separations. The laboratory includes pilot plant equipment, such as a distillation column, wiped film evaporator, shell-and-tube heat exchanger, jacketed kettle, and agitated extractor. Other equipment includes a concentric tube heat exchanger, reciprocating plate extractor, membrane gas separator, fluid friction apparatus, and heat conduction apparatus. Analytical equipment includes gas chromatographs, UV/visible spectrophotometers, polarimeters, and refractometers.

The laboratory is continuously updated to reflect advances at the forefront of chemical engineering technology. Additionally, a wide array of small equipment is available to support laboratory projects and demonstrations in chemical engineering courses and for use by students performing independent investigations.

CHEMICAL PROCESS SAFETY LABORATORY

The Chemical Process Safety Laboratory is an integral part of CBE:3125 (052:187) Chemical Process Safety. It is equipped with two a Miniflash automatic flash point tester (closed cap), an advanced reactive system screening tool (ARSST), a minimum ignition energy (MIE) apparatus, a flammability chamber, a modified Hartmann tube, a Hartmann bomb, a liquid conductivity apparatus, a powder changeability apparatus, a powder volume resistivity apparatus, a Van de Graaff generator, two high impedance electrometers, a field meter, a Faraday cage, and relief sizing software. This equipment is used in a series of experiments to demonstrate the principles of flammability,

reactivity, explosions, relief valve sizing, and electrostatics relevant to industry.

BIOCHEMICAL ENGINEERING LABORATORY

The Biochemical Engineering Laboratory is an integral part of CBE:5205 (052:108) Introduction to Biochemical Engineering. It is equipped with two controlled New Brunswick BioFlo/CelliGen 115 bioreactors, three New Brunswick C76 Water Bath Shakers, a UV/visible spectrometer, a Thermo Scientific Nanodrop 3300 fluorospectrometer, and a YSI 2700 Select Biochemistry Analyzer. This equipment is used to study the growth and metabolism of microorganisms and recombinant protein production.

PROCESS CONTROL LABORATORY

The Process Control Laboratory is a modern, computer-based instructional laboratory that is integral to CBE:4105 (052:185) Process Dynamics and Control in Design. The laboratory consists of computer control of a shell-and-tube heat exchanger, and a level-and-flow control process rig with state-of-the art industrial control interfaces.

The Computer Control Laboratory offers an ensemble of learning experiences with the same equipment.

Additional laboratories provide instruction in the use of process simulators that provide analogies and better insight into the control process. Topics include determination of the gain and time constants for single-capacitance systems; determination of gain, time constant, and damping factor of second-order processes; determination of open-loop and closed-loop response to step-and-ramp changes in input for single-capacitance and multicapacitance processes; approximations of multicapacitance systems as first-order and second-order processes with dead time; analysis of instrumentation characteristics and transfer functions; tuning and optimization of feedback control parameters (P, PI, PID); system identification through frequency response methods; and determination of system stability.

Experimental arrangements in the laboratory are simple enough in design to be easily understood, yet complicated enough to help students appreciate system characteristics inherent in industrial processes (e.g., large time lags, error in parameter estimation).

Graduate Facilities and Laboratories

The department offers a wide variety of facilities to support and develop research activities.

AIR POLLUTION COMPUTATIONAL, FIELD, AND LABORATORY STUDIES

The department maintains extensive facilities for computational, field, and laboratory studies of air pollution, carbon cycle gases, aerosols, and nanoparticles at the Center for Global and Regional Environmental Research (CGRER). The center occupies 5,000 square feet of laboratory and office space on the fourth floor of the Iowa Advanced Technology Laboratories.

CGRER houses one R2 ImmersaDesk Portable Large Scale Visualization System and is linked on campus to two more R2 ImmersaDesk units.

The center's computer laboratory for environmental and spatial data analysis provides numerous Windows and UNIX workstations, sophisticated software packages, and workstations and a file server necessary to run

intensive visualization programs. The network backbone is University supported with high-speed wireless throughout. A variety of digital environmental databases and an extensive library of documentation and related references are available. There are 4 Beowulf Linux clusters on site and Linux clusters of 4, 16, 18, and 20 nodes for large computations and data assimilation. CGRER retains 15 TB of redundant storage and 50 TB of total storage; local storage space is scalable and expandable. A variety of software packages and programming languages are available for data analysis and display, including Arc/Info, Arcview, NCAR Graphics, Matlab, S-Plus, and Vis5d, as well as geographical information software. The ESRI software suite is part of a University-wide site license.

Laboratory and field equipment includes aerosol samplers, including scanning mobility particles sizers for aerosols from 3 nm to 1 micron with time resolution to 30 seconds; aerosol particle sizers for aerodynamic measurements of in situ particles with time resolution to 1 second; and varied condensation particle counters for measuring total particle counts. Several hygroscopic tandem differential mobility analyzers are used, as well as varied aerosol generation devices and unique aerosol inlets for RH and temperature modification and control. Cloud droplet number can be measured in the lab or in the field using a Droplet Measurement Technologies cloud condensation nuclei detector. Advanced computer control of instruments is available through Labview.

Selected instruments are field deployable in a custom air conditioned trailer. Through collaboration with the IHR—Hydroscience & Engineering, access to micrometeorology sensors, 1-D and 2-D elastic and Raman LIDAR, and gas sensors is available, including multichannel ammonia monitors.

BIOCHEMICAL ENGINEERING

Biochemical engineering laboratories provide facilities for preparation of biological media and cultivation of organisms as well as for separation and analysis of biomolecules. This equipment includes biological incubators and floor incubator shakers, agitated and airlift bioreactors, light microscopes, autoclaves, Vi-Cell cell counter, thermocycler for PCR amplification of DNA, high- and low-speed centrifuges, UV-Vis spectrophotometers, a lyophilizer, biological safety cabinets, and an anaerobic glove box. Phase-contrast and epifluorescence microscopes, gel electrophoresis systems, gas chromatography units with flame ionization and electron capture detectors, and several high-performance liquid chromatography systems with refractive index and photodiode array detectors are available for characterization of microorganisms and constituent biomolecules. In addition, the lab has multiple extremophile cultivation systems including a high-pressure (0.1-100 MPa) cell cultivation system, several continuous cultivation systems, and high-temperature oil bath shakers for physiological studies of extremophilic microbes.

Through collaborative research agreements, graduate students also have access to specialized facilities for electron microscopy, large-scale fermentation, protein structure, recombinant DNA research, and tissue culture/hybridoma; the Flow Cytometry Facility; and the High Resolution Mass Spectrometry Facility.

BIOMEDICAL ENGINEERING

The biomedical engineering laboratories house particle technology equipment including microemulsion equipment for drug encapsulation, sonicators, benchtop scale spray dryers, laser diffraction particle sizer, zetapotentiometer; DNA preparation equipment, gel electrophoresis apparatus; interfacial stress rheometer, surface tensiometer, UV-Vis/fluorescent plate reader, high-performance liquid chromatograph, luminometer, lyophilizer, custom-built simulated cough machine, microscopes, incubators, wet chemistry equipment, rotary shakers, incubated plate shakers, autoclave, centrifuges, and laboratory computers. Cell culture and bacterial culture facilities are housed adjacent to the laboratories.

Graduate students also have access to core research facilities including the Central Microscopy Research Facility, Flow Cytometry Facility, Iowa Institute of Human Genetics, Electron Spin Resonance Facility, Nuclear Magnetic Resonance Facility, High Resolution Mass Spectrometry Facility, and the Center for Gene Therapy.

COMPUTER FACILITIES

The departmental computer facilities contain a variety of graphics workstations, printers, and microcomputers. The department is supported by the college's Engineering Computer Services, which maintains a large network of high performance UNIX and Windows XP workstations along with extensive commercial and public domain software. The department also has access to the University's central research facility in high-speed vector computation. This facility has SGI Power Challenger minisupercomputers and provides nodes for external links for access to supercomputers.

FUNDAMENTALS AND APPLICATIONS OF PHOTOPOLYMERIZATION

The Photopolymerization Center was established to advance fundamental understanding of the kinetics and mechanisms of photopolymerizations. To this end, the center provides unique opportunities for collaborations by industrial and academic investigators to explore photopolymerization processes and develop novel applications based on photopolymerizations.

The center provides equipment and instrumentation for the characterization of photopolymerization systems on the molecular, microscopic, and macroscopic levels. Center researchers pursue understanding of fundamental photophysical and photochemical processes involved in the photoinitiation reaction; characterization of high-speed propagation and termination kinetics that lead to the polymer structure; and evaluation of material properties through the course of the photopolymerization reaction. Both radical and cationic photopolymerizations are studied with state-of-the-art experimental techniques to elucidate the complex chemical and physical mechanisms that control the initiation, propagation, and termination of the active centers.

Courses

General Topics

CBE:0000 (052:000) Cooperative Education Training Assignment: Chemical Engineering

0 s.h.

Chemical engineering students participating in the Cooperative Education Program register for this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Requirements: admission to Cooperative Education Program.

CBE:0002 (052:002) Half-time Cooperative Education Training Assignment: Chemical Engineering 0 s.h.

Registration for work assignment periods; for students participating in the Cooperative Education Program.

CBE:1000 (052:090) CBE Departmental Seminar 1 s.h.

Introduction to the profession and the department; presentations by guest speakers, visits to laboratories and industries.

CBE:1180 (052:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Requirements: first- or second-semester standing.

CBE:2030 (052:030) Energy and Society 3 s.h.

History of energy development and use throughout the world; how energy has affected the development of human societies; societal impact of engineering advances; current state of energy consumption worldwide, including distribution of energy sources, global variations in consumption, advantages and disadvantages of current energy sources; role of fossil fuel consumption in global climate change, potential scenarios for the future of energy.

CBE:2105 (052:041) Process Calculations 3 s.h.

Fundamental principles of chemical process analysis, including material and energy balances for single-unit and multiple-unit processes, analysis of reactive and nonreactive systems, introduction to equations of state, thermodynamics of multiphase systems. Prerequisites: MATH:1550 (22M:031).

CBE:3000 (052:091) Professional Seminar: Chemical Engineering 1 s.h.

Professional aspects of chemical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Prerequisites: CBE:2105 (052:041). Requirements: sophomore standing.

CBE:3105 (052:103) Chemical Engineering Thermodynamics 3 s.h.

Applications of thermodynamic principles to chemical and physical processes; prediction of material properties; phase and chemical equilibria applied to mixtures and reacting systems. Prerequisites: ENGR:2130 (059:009). Corequisites: CBE:2105 (052:041).

CBE:3120 (052:105) Chemical Reaction Engineering 3 s.h.

Application of chemical reaction kinetics to design of chemical reactors: batch reactors, mixed flow reactors, plug flow reactors; reversible and irreversible single reactions; parallel, series, and mixed reactions; temperature and pressure effects on reactor design; heterogeneous catalysis; transport in porous catalysts. Prerequisites: CBE:3115 (052:161).

CBE:3150 (052:171) Thermodynamics/Transport Laboratory 3 s.h.

Error analysis, propagation of errors, experimental design, data collection techniques, report writing, oral presentations, laboratory safety; laboratory investigations of thermodynamics, fluid flow, heat transfer, fluid rheology. Prerequisites: CBE:3105 (052:103) and CBE:3110 (052:151). Corequisites: CBE:3115 (052:161). Recommendations: statistics course.

CBE:3155 (052:172) Chemical Reaction Engineering/Separations Laboratory 2 s.h.

Experimental design, data collection techniques, report writing, oral presentations; laboratory investigations of chemical reaction engineering and separations; experiments with plug flow and batch reactors, distillation, evaporation, membrane separation. Prerequisites: CBE:3115 (052:161) and CBE:3150 (052:171). Corequisites: CBE:3120 (052:105).

CBE:3998 (052:098) Individual Investigations: Chemical Engineering arr.

Individual projects for chemical engineering undergraduate students, such as laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research.

CBE:4195 (052:092) Senior Enriching Activities Seminar 0 s.h.

Aspects of chemical engineering education, including multidisciplinary team skills, understanding the impact of engineering practice locally and globally. Corequisites: CBE:4110 (052:186).

CBE:4410 (052:107) Sustainable Systems 3 s.h.

New and emerging concepts in sustainable systems design and assessment. Same as CEE:4107 (053:107).

CBE:5104 (052:115) Introduction to Literature Review and Technical Writing 3 s.h.

Review of technical literature, how to contribute to it; produce and present orally a peer-reviewed-journal-quality review article; brainstorming, group writing, research ethics, plagiarism. Recommendations: nonthesis track graduate standing.

CBE:5105 (052:215) Introduction to Literature Review and Proposal Writing 3 s.h.

Tools for reviewing literature, skills for critical reading of publications, training in successful proposal writing; experience drafting a proposal that can be used as a starting point for the Ph.D. comprehensive.

CBE:5110 (052:117) Intermediate Thermodynamics 3 s.h.

Fundamental principles of thermodynamics as applied to phase equilibrium; properties of fluids, first and second law, variable composition systems, behavior of real fluids, mathematical techniques for solution thermodynamics. Requirements: CBE:3105 (052:103) or ME:3040 (058:040) or graduate standing. Same as ME:5210 (058:140).

CBE:5140 (052:118) Mathematical Methods in Engineering 3 s.h.

Linear ordinary differential equations, series solutions of differential equations, special functions, Laplace transforms, Fourier series, matrices, linear systems, eigenvalue problems, second-order partial differential equations. Prerequisites: MATH:2550 (22M:033) and MATH:2560 (22M:034). Same as ME:5113 (058:113), CEE:5513 (053:113).

CBE:5199 (052:195) Contemporary Topics: Chemical and Biochemical Engineering arr.

Research techniques for graduate students in chemical and biochemical engineering. Requirements: graduate standing.

CBE:5240 (052:209) CEBC Colloquium 1 s.h.

Sustainable development issues addressed by guest speakers from chemical industries; process economics, environmental impact assessment.

CBE:5390 (052:196) Photopolymerization Topics 1 s.h.

Seminars presented by faculty members, research assistants, students.

Biochemical Engineering

CBE:5205 (052:108) Introduction to Biochemical Engineering 3 s.h.

Biochemistry, cellular biology, recombinant DNA and hybridoma technologies; emphasis on engineering aspects of biotechnology, including enzyme kinetics, cell growth kinetics, transport phenomena in bioreactors, bioreactor design, bioseparations, formulation and sterilization of growth media, commercial applications of biotechnology. Prerequisites: CBE:3120 (052:105).

CBE:5210 (052:181) Bioseparations 3 s.h.

Unit operations used to isolate and purify biologically-derived chemicals, including flocculation, filtration, centrifugation, extraction, adsorption, chromatography, precipitation, crystallization, electrophoresis and cell disruption for intracellular product recovery.

CBE:5215 (052:180) Advanced Biochemical Engineering 3 s.h.

Advanced concepts regarding behavior of biological systems used in modern technologies (e.g., food processing, pharmaceutical production, environmental remediation, chemical synthesis); principles of biochemical engineering applied to design, development, and analysis of processes that use biocatalysts; second in series addressing engineering aspects of biotechnology. Recommendations: CBE:5205 (052:108).

CBE:5250 (052:223) Introduction to Biocatalysis 3 s.h.

Applications of biological catalysis in varied industries; potential of biological catalysis to address future challenges in science and engineering.

CBE:5875 (052:275) Perspectives in Biocatalysis 1-3 s.h.

Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Requirements: graduate standing in a participating department supported by the Predoctoral Training Program in Biotechnology. Same as CHEM:5875 (004:275), PHAR:5875 (046:275), CEE:5875 (053:275), MICR:5875 (061:275), BIOC:5875 (099:275).

CBE:6210 (052:225) Biotechnology of Extremophiles 3 s.h.

Evolution and engineering of biocatalysis under extreme conditions; physiological, kinetic, and molecular behavior of systems that perform under extremes of temperature, pH, salinity, pressure, solvent concentrations.

Environmental Engineering

CBE:3160 (052:133) Engineering Analysis of Alternative Energy Systems 3 s.h.

Engineering and sustainability analyses of conventional and emerging energy technologies; alternative energy sources, including biomass, wind, solar, geothermal; alternative energy carriers (transportation fuels), including varied biofuels, hydrogen, natural gas, ammonia. Prerequisites: ENGR:2130 (059:009).

CBE:4459 (052:235) Air Pollution Control Technology 3 s.h.

Sources, environmental and health impacts, regulations, modeling of air pollution; processes and alternative strategies for control; global climate considerations. Prerequisites: CEE:2150 (053:050). Same as CEE:4159 (053:159).

CBE:5152 (052:231) Environmental Chemistry I 3 s.h.

Principles of general, physical, organic chemistry applied in water and air systems; emphasis on qualitative and quantitative understanding of chemical kinetics and equilibrium; acid-base reactions, complex formation, precipitation, dissolution, and oxidation-reduction reactions; organic nomenclature. Prerequisites: CHEM:1120 (004:012). Same as CEE:5152 (053:152).

CBE:5405 (052:237) Green Chemical and Energy Technologies 3 s.h.

Strategies for pollution prevention for chemical processes studied at the macroscale (industrial sector), the mesoscale (unit operations), and the microscale (molecular level); case studies. Prerequisites: CBE:2105 (052:041).

CBE:5425 (052:236) Atmospheric Chemistry and Physics 3 s.h.

Principal chemical and physical processes affecting atmospheric trace gas and pollutant cycles; emphasis on atmospheric photochemistry, aerosol science, major sources and removal processes. Corequisites: CBE:3120 (052:105). Same as CEE:5115 (053:161).

Transport Phenomena**CBE:3110 (052:151) Engineering Flow and Heat Exchange** 3 s.h.

Fundamentals of fluid flow and heat transfer; fluid rheology, boundary layer theory, potential flow, dimensional analysis, laminar and turbulent flow in pipes, flow through packed beds, fluidized beds, pumps, flow measurement, filtration, heat exchanger design, and conductive, convective, and radiative heat transfer. Corequisites: CBE:2105 (052:041).

CBE:3115 (052:161) Mass Transfer and Separations 3 s.h.

Mechanisms of diffusional mass transfer; solution of industrial problems, including the design of distillation, extraction, absorption, adsorption, drying, membrane processes; mechanical separations. Prerequisites: CBE:3105 (052:103) and CBE:3110 (052:151).

CBE:5115 (052:217) Transport Phenomena I 3 s.h.

Unified treatment of momentum, mass, energy transport in chemical engineering problems; use of vector and tensor notations in expressing equations of continuity, motion, energy.

CBE:6145 (052:272) Diffusive Transport 3 s.h.

Diffusive transport of heat, mass, and momentum; phenomenological laws and analogies; analytical and numerical solution techniques; inverse heat conduction; multiphase and multicomponent systems. Prerequisites: ME:5145 (058:145). Same as ME:6245 (058:245).

Materials Science**CBE:4156 (052:156) Scanning Electron Microscopy and X-Ray Microanalysis** arr.

Microscopy methods for research; all aspects of research, from sample preparation to imaging to data analysis; when to use a particular microscopy procedure; theory, operation, and application of scanning electron microscopy, scanning probe microscopy, laser scanning microscopy, X-ray microanalysis. Requirements: a physical science course. Same as ACB:4156 (060:156), EES:4156 (012:156).

CBE:5309 (052:140) Polymer Fundamentals 1 s.h.

Basic knowledge of polymers required as a foundation for other UI courses on polymers: basic polymer terminology, polymer groups, polymerization mechanisms, molecular weight determination. Five weeks. Same as BME:5415 (051:168).

CBE:5310 (052:241) Polymer Science and Technology 3 s.h.

Uses, properties of industrially important polymeric materials; polymer chemistry, polymer structure, characterization, polymer processing. Prerequisites: CHEM:2220 (004:122). Corequisites: CBE:3120 (052:105).

CBE:5315 (052:242) Polymer Chemistry 3 s.h.

Monomer reactivity and polymerization reactions; step, radical, ionic, and ring-opening polymerizations. Prerequisites: CHEM:2220 (004:122).

Process Dynamics, Design, Analysis**CBE:3125 (052:187) Chemical Process Safety** 3 s.h.

Application of transport phenomena, thermodynamics, chemical kinetics to study of safety, health, loss prevention; government regulations, toxicology/industrial hygiene, relief sizing, runaway reactions, toxic release and dispersion models, source models, fires and explosions, risk assessment, hazard identification, case studies and accident investigation, incorporation of safety into design; laboratory experiments. Prerequisites: CBE:3115 (052:161). Corequisites: CBE:3120 (052:105).

CBE:4105 (052:185) Process Dynamics and Control in Design 3 s.h.

Theory and application of process dynamics to the design of chemical process control systems; mathematical models of unit operations, transfer functions, feedback and feed-forward control, stability, instrumentation, digital control systems; computer methods, including simulation and commercial software use; laboratory focus on process analysis and design. Prerequisites: CBE:3120 (052:105).

CBE:4109 (052:184) Chemical Engineering Process Design I 2 s.h.

Engineering economics of process evaluation, including time value of money and bases for cost estimation; preliminary design of chemical process plants using computer-aided engineering. Prerequisites: CBE:3115 (052:161), CBE:3120 (052:105), and CBE:3125 (052:187).

CBE:4110 (052:186) Chemical Engineering Process Design II 3 s.h.

Capstone chemical engineering course; design and optimization of chemical process plants; application of process calculations, thermodynamics, kinetics, process synthesis, energy efficiency in separations, heat-exchanger network synthesis, physical property estimation, safety, computer-aided design, unit operations theory, process control, and economics. Prerequisites: CBE:4109 (052:184).

Graduate Seminars, Advanced Topics, Research**CBE:5000 (052:191) Seminar in Chemical and Biochemical Engineering** 1 s.h.

Presentation and discussion of recent advances and research in chemical and biochemical engineering by guest lecturers, faculty, students. Requirements: graduate standing.

CBE:5100 (052:193) Graduate Professional Development Seminar 1 s.h.

Seminar participants work with a faculty member to select and attend eight hours of approved seminars and professional development trainings at The University of Iowa; final meeting of participants is held to share notable seminars; typical seminar series include College of Engineering lectures, departmental and research center graduate seminars, the CBE professional seminar series, offerings of the Center for Teaching and Learning. Requirements: CBE masters standing.

CBE:5998 (052:198) Individual Investigations: Chemical and Biochemical Engineering arr.

Individual projects for chemical and biochemical engineering graduate students; may include laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Requirements: graduate standing.

CBE:5999 (052:199) M.S. Thesis Research: Chemical and Biochemical Engineering arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in chemical and biochemical engineering. Requirements: graduate standing.

CBE:7999 (052:299) Research: Chemical and Biochemical Engineering Ph.D. Dissertation arr.

Experimental and/or analytical investigation of an approved topic for Ph.D. in chemical and biochemical engineering.

Civil and Environmental Engineering

Chair

- Michelle Scherer

Professors

- Jasbir S. Arora, M. Asghar Bhatti, A. Allen Bradley, Greg Carmichael, William E. Eichinger, Keri Hornbuckle, Witold F. Krajewski, Anton Kruger, Hosin David Lee, Wilfrid A. Nixon, A. Jacob Odgaard, Patrick O'Shaughnessy, Gene F. Parkin, Michelle Scherer, Jerald L. Schnoor, Colby C. Swan, Peter Thorne, Richard L. Valentine, Larry J. Weber

Associate professors

- George Constantinescu, David Cwiertny, Paul Hanley, Tim Mattes, Salam Rahmatalla, Frank Weirich, Y.K. Zhang

Assistant professors

- Craig Just, Ricardo Mantilla, Corey Markfort, , Gabrielle Villarini

Lecturer

- Christopher Stoakes

Adjunct professors

- Konstantine P. Georgakakos, Tatsuaki Nakato, Thanos Papanicolaou

Adjunct associate professors

- Shauna Hallmark, Louis A. Licht, John Nestler

Adjunct assistant professors

- Nandita Basu, Ibrahim Demir, Ken Lloyd, Andres Martinez, Marcela Politano, Doug Schnoebelen, Nathan Young, Guangshu Zhai

Adjunct lecturers

- Jon Bailey, Don Guckert, Michael Valde

Professors emeriti

- Dan E. Branson, Forrest M. Holly Jr., Subhash C. Jain, Wayne L. Paulson, Han-Chin Wu

Associate professor emeritus

- James W. Stoner

Undergraduate major: civil engineering (B.S.E.)

Graduate degrees: M.S. in civil and environmental engineering; Ph.D. in civil and environmental engineering

Web site: <http://www.engineering.uiowa.edu/cee/>

Civil engineering is one of the three largest fields of engineering. It traditionally has been concerned with infrastructure facilities that are both large in scale and essential to modern life. Civil and environmental engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railways, harbors, airports, and seaports; large-scale structures and office buildings that provide enclosed working and living space; environmental and hydraulic systems that provide clean water and air, including filtration plants and distribution systems for

municipal and industrial water supplies, wastewater treatment plants, dams, levees, and irrigation systems.

Growth areas of civil and environmental engineering include water sustainability, infrastructure development, construction management, computer-aided design, hazardous waste management, and engineered environmental systems. In the future, civil and environmental engineers will be called upon to design structures for earth, prevent erosion and sedimentation of our rivers, predict effects of global climate change on the environment, provide modern and efficient transportation systems, and ensure the quality of our air and our surface waters and groundwaters.

In planning and design, civil and environmental engineers work with other engineers, architects, landscape architects, planners, economists, financiers, sociologists, lawyers, and other specialists as members of the design team. Some civil engineers work in engineering offices; others may be called upon to construct or supervise outdoor projects they have designed. These field assignments, many of which are in remote and fascinating parts of the world, are particularly appealing to many civil and environmental engineers. There also is significant potential for entrepreneurial work by civil and environmental engineers as they start their own companies.

Undergraduate Program of Study

- Major in civil engineering (Bachelor of Science in Engineering)

Within a few years of graduation, graduates of the program are expected to:

- be productive and contributing members of the civil and environmental engineering profession as practitioners, entrepreneurs, researchers or teachers, and be engaged in learning, understanding, and applying new ideas as the field develops;
- pursue advanced studies if qualified and interested; and
- promote the safety, health, and welfare of the public and environmental through professional practice and civic leadership.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering requires a minimum of 131 s.h. Students majoring in civil engineering choose one of two subtracks: civil, which provides breadth in the discipline; or environmental, which provides for a concentration.

All engineering students complete the B.S.E. core requirements, which include RHET:1030 (010:003) Rhetoric; ENGR:1100 (059:005) Engineering Problem Solving I and ENGR:1300 (059:006) Engineering Problem Solving II; and courses in chemistry, engineering mathematics and fundamentals, and physics. They must earn a grade of C-minus or higher in the core requirements MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus and MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus.

They also complete the curriculum designed for their major program, which covers four major stems: mathematics and basic sciences, engineering topics, an

elective focus area, and the general education component (15 s.h. of humanities and social science courses). For information about the curriculum stems, see Bachelor of Science in Engineering (p. 861) in the Catalog.

Civil subtrack and environmental subtrack requirements are the same for the first semester of the first year but are different after that.

Students must select elective focus area courses according to guidelines established by the Department of Civil and Environmental Engineering. See "Elective Focus Area" after the following curriculum list.

The following study plan includes the B.S.E. core requirements and the curriculum for the civil engineering major. Some courses in the curriculum are prerequisites for others. Students must complete a course's prerequisites before they may register for the course. Those who take courses in the order below satisfy the prerequisite requirements automatically.

Civil Subtrack

FIRST YEAR

First Semester

ENGR:1000 (059:090) Engineering Success for First-Year Students (credit does not count toward B.S.E. degree)	1 s.h.
ENGR:1100 (059:005) Engineering Problem Solving I	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
RHET:1030 (010:003) Rhetoric	4-5 s.h.

Second Semester

ENGR:1300 (059:006) Engineering Problem Solving II	3 s.h.
MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra	2 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.
General education component course	3 s.h.

SECOND YEAR

First Semester

CEE:2015 (053:015) Civil and Environmental Engineering Practice	2 s.h.
ENGR:2110 (059:007) Engineering Fundamentals I: Statics	2 s.h.
ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits	3 s.h.
ENGR:2130 (059:009) Engineering Fundamentals III: Thermodynamics	3 s.h.
MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations	3 s.h.
PHYS:1612 (029:082) Introductory Physics II	3-4 s.h.

Second Semester

CEE:1030 (053:003) Introduction to Earth Science	3-4 s.h.
CEE:2000 (053:020) CEE Sophomore Seminar	0 s.h.

CEE:2150 (053:050) Natural Environmental Systems	3 s.h.
ENGR:2710 (057:010) Dynamics	3 s.h.
ENGR:2750 (057:019) Mechanics of Deformable Bodies	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
General education component course	3 s.h.

THIRD YEAR

First Semester

CEE:3001 (053:100) Leadership Seminar	1 s.h.
CEE:3530 (053:030) Soil Mechanics	3 s.h.
CEE:3533 (053:033) Principles of Structural Engineering	3 s.h.
CEE:3763 (053:063) Principles of Transportation Engineering	3 s.h.
ENGR:2510 (057:020) Fluid Mechanics	4 s.h.
Elective focus area course	3 s.h.

Second Semester

CEE:3002 (053:106) Professional Skills Seminar	1 s.h.
CEE:3155 (053:055) Principles of Environmental Engineering	4 s.h.
CEE:3371 (053:071) Principles of Hydraulics and Hydrology	3 s.h.
CEE:3586 (053:086) Civil Engineering Materials	3 s.h.
Elective focus area course	3 s.h.
General education component course	3 s.h.

FOURTH YEAR

First Semester

CEE:3003 (053:108) Senior Design Seminar	1 s.h.
General education component course	3 s.h.
Two elective focus area courses	6 s.h.

Two of these, each from a different technical area:

CEE:3136 (053:136) Design of Concrete Structures	3 s.h.
CEE:4157 (053:157) Environmental Engineering Design	3 s.h.
CEE:4374 (053:174) Water Resource Design	3 s.h.
CEE:4535 (053:134) Design of Steel Structures	3 s.h.
CEE:4762 (053:162) Design of Transportation Systems	3 s.h.

Second Semester

CEE:3084 (053:084) Project Design and Management in Civil Engineering	3 s.h.
General education component course	3 s.h.
Three elective focus area courses	9 s.h.

Environmental Subtrack

FIRST YEAR

First Semester

ENGR:1000 (059:090) Engineering Success for First-Year Students (credit does not count toward B.S.E. degree)	1 s.h.
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ENGR:1100 (059:005) Engineering Problem Solving I	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
RHET:1030 (010:003) Rhetoric	4-5 s.h.

Second Semester

ENGR:1300 (059:006) Engineering Problem Solving II	3 s.h.
CHEM:1120 (004:012) Principles of Chemistry II	4 s.h.
MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra	2 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.

SECOND YEAR**First Semester**

CEE:2015 (053:015) Civil and Environmental Engineering Practice	2 s.h.
ENGR:2110 (059:007) Engineering Fundamentals I: Statics	2 s.h.
ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits	3 s.h.
ENGR:2130 (059:009) Engineering Fundamentals III: Thermodynamics	3 s.h.
MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations	3 s.h.
General education component course	3 s.h.

Second Semester

CEE:1030 (053:003) Introduction to Earth Science	3-4 s.h.
CEE:2000 (053:020) CEE Sophomore Seminar	0 s.h.
CEE:2150 (053:050) Natural Environmental Systems	3 s.h.
ENGR:2710 (057:010) Dynamics	3 s.h.
ENGR:2750 (057:019) Mechanics of Deformable Bodies	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
General education component course	3 s.h.

THIRD YEAR**First Semester**

CEE:3001 (053:100) Leadership Seminar	1 s.h.
CEE:3530 (053:030) Soil Mechanics	3 s.h.
CEE:3533 (053:033) Principles of Structural Engineering	3 s.h.
CEE:3763 (053:063) Principles of Transportation Engineering	3 s.h.
CEE:5152 (053:152) Environmental Chemistry I	3 s.h.
ENGR:2510 (057:020) Fluid Mechanics	4 s.h.

Second Semester

CEE:3002 (053:106) Professional Skills Seminar	1 s.h.
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CEE:3155 (053:055) Principles of Environmental Engineering	4 s.h.
CEE:3371 (053:071) Principles of Hydraulics and Hydrology	3 s.h.
CEE:3586 (053:086) Civil Engineering Materials	3 s.h.
Elective focus area course	3 s.h.
General education component course	3 s.h.

FOURTH YEAR**First Semester**

CEE:3003 (053:108) Senior Design Seminar	1 s.h.
General education component course	3 s.h.
Two elective focus area courses	6 s.h.

Two of these, each from a different technical area:

CEE:3136 (053:136) Design of Concrete Structures	3 s.h.
CEE:4157 (053:157) Environmental Engineering Design	3 s.h.
CEE:4374 (053:174) Water Resource Design	3 s.h.
CEE:4535 (053:134) Design of Steel Structures	3 s.h.
CEE:4762 (053:162) Design of Transportation Systems	3 s.h.

Second Semester

CEE:3084 (053:084) Project Design and Management in Civil Engineering	3 s.h.
General education component course	3 s.h.
Three elective focus area courses	9 s.h.

Elective Focus Area

Civil engineering students may choose from several standard elective focus areas developed by the department, a focus area offered jointly with another engineering department, or an individual focus area tailored to the student's interests.

Standard elective focus areas are offered in environmental engineering; hydraulics and water resources; structures, mechanics, and materials; transportation; urban and regional planning; and in the broad field of civil engineering. Elective focus areas offered jointly with other engineering departments cut across programs (e.g., computer-aided engineering, design and optimization, environmental processes).

Civil engineering students must take one general education component course related to their elective focus area.

For more detailed information about elective focus areas, see Bachelor of Science in Engineering (p. 861) in the Catalog. For a list of standard elective focus area options and guidelines for tailored elective focus areas in civil engineering, see CEE Elective Focus Areas on the Department of Civil and Environmental Engineering web site.

Joint B.S.E./M.S.

The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for civil engineering undergraduate students who intend to earn an M.S. in civil and environmental engineering. B.S.E./M.S. students may attend the departmental graduate

seminar and work on a master's thesis or research project while they are still undergraduates. They may count a limited amount of course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h. and must have a cumulative g.p.a. of at least 3.25. They must submit an application form to the Department of Civil and Environmental Engineering, along with a letter stating their proposed area of specialization and the name of a department faculty member willing to be their primary M.S. advisor. They also must identify a faculty sponsor who can guide them from at least the second semester of their senior year until they complete the M.S.

Applications are due by March 1.

Graduate Programs of Study

- Master of Science in civil and environmental engineering (with or without thesis)
- Doctor of Philosophy in civil and environmental engineering

Graduate study in civil and environmental engineering prepares students for professional careers and further study. The principal concentration areas are environmental engineering and science; hydraulics, hydrology, and water resources; structures, mechanics, and materials; and transportation engineering.

The department also participates in two Graduate College programs: Applied Mathematical and Computational Sciences (p. 949), an interdisciplinary doctoral program; and Transportation Studies (p. 996), a graduate certificate program (see "Related Certificate: Transportation Studies" below).

Research and Study Areas

ENVIRONMENTAL ENGINEERING AND SCIENCE

The environmental engineering and science curriculum provides a comprehensive base of course work and research in the areas of air- and water-quality management, environmental chemistry and microbiology, natural systems modeling, and processes for water supply, pollution control, and solid and hazardous waste management. Interdisciplinary specialization and study are conducted with programs including IIHR—Hydroscience & Engineering, the Center for Global and Regional Environmental Research, the Center for Health Effects of Environmental Contamination, the Hazardous Substances Research Center, the Center for Biocatalysis and Bioprocessing; the Departments of Chemical and Biochemical Engineering, Earth and Environmental Sciences, Geography, Microbiology, Occupational and Environmental Health; and the Urban and Regional Planning Program. New areas of interdisciplinary focus include groundwater contamination, biotechnology, global climate change, and hazardous substances.

HYDRAULICS, HYDROLOGY, AND WATER RESOURCES

The hydraulics, hydrology, and water resources curriculum is associated with IIHR—Hydroscience & Engineering, a world-renowned research institute. Senior staff members

of the institute are professors in the program; they devote about half of their time to teaching.

IIHR offers unique opportunities for students to participate actively in the research, analysis, and design aspects of real-world problems. Considerable attention is given to the use of computers in mathematical modeling and in data acquisition and processing. IIHR high-speed computer facilities and advanced graphics and communication software complement the hydrology, hydraulics, and water resources curriculum.

STRUCTURES, MECHANICS, AND MATERIALS

The structures, mechanics, and materials curriculum is designed for students who wish to gain knowledge and skill in the mechanics of solids and structures that they can apply to civil infrastructure systems and other fields. The program concentrates on developing appropriate methodologies for tackling broad, complex issues related to civil infrastructure systems, and on educating engineers in the implementation and application of methodologies to actual engineering projects. Faculty members have expertise in structural engineering, design optimization, solid mechanics, and computational methods.

TRANSPORTATION ENGINEERING

The transportation engineering curriculum aims at graduating students interested in developing specialized knowledge and skills applicable to diverse set of issues associated with transportation. Faculty members have expertise in traffic engineering, infrastructure management systems, pavement engineering, advanced construction materials, dynamic load and pavement simulation, optimal design, winter highway maintenance, real-time simulation, human factors, intelligent sensors, nondestructive testing, transportation planning, and travel demand modeling.

Master of Science

The Master of Science program in civil and environmental engineering requires a minimum of 30 s.h. of graduate credit, with or without thesis. The program enables students to concentrate in one or more areas of their choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and projected demand for M.S. graduates is excellent. Students who choose the thesis program may earn up to 6 s.h. for the thesis.

With the approval of their advisor, students develop a study plan that satisfies the requirements of their chosen curriculum. All M.S. students must maintain a g.p.a. of at least 2.75, pass an oral examination, and in some program options, a written examination.

Consult the department's Graduate Student Manual for more detailed information about the M.S. program in civil and environmental engineering.

Doctor of Philosophy

The Doctor of Philosophy program in civil and environmental engineering requires a minimum of 72 s.h. of graduate credit. The doctoral degree is granted primarily on the basis of achievement rather than on a prescribed course of study.

Students usually need at least three years of full-time graduate study to complete the degree. All students must

pass a qualifying examination. Students also must pass a written and oral comprehensive examination before they may be formally admitted to Ph.D. candidacy; the comprehensive examination usually is taken after all required course work has been completed. Students devote one year to the preparation of a dissertation that contributes to knowledge in the field; they must defend their dissertation successfully in a final examination. Ph.D. students must maintain a g.p.a. of at least 3.00 throughout the program.

Consult the department's Graduate Student Manual for more detailed information about the Ph.D. program in civil and environmental engineering.

Related Certificate: Transportation Studies

The Transportation Studies Program offers the Certificate in Transportation Studies, which requires 18 s.h. of graduate credit. The program focuses on the varied and complex problems of transportation and on interdisciplinary approaches to addressing them. The Departments of Civil and Environmental Engineering, Mechanical and Industrial Engineering, and Geographical and Sustainability Sciences and the School of Urban and Regional Planning participate in the program, which is administered by the Graduate College and the University's Public Policy Center. See Transportation Studies (p. 996) (Graduate College) in the Catalog for more information about the certificate.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Each of the program's curricula is flexible; students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

Applicants to the M.S. program should have a cumulative undergraduate g.p.a. of at least 3.00. Ph.D. applicants should have a graduate g.p.a. of at least 3.00. Applicants whose grade-point average is slightly lower should contact the department.

Applicants should have a combined verbal and quantitative score of at least 301 on the Graduate Record Examination (GRE) General Test. Lower scores are considered with other evidence of academic promise (recommendation letters, grade-point average). GRE General Test scores also are used in financial aid decisions.

Financial Support

A significant number of research assistantships are available on a variety of research projects, as are a limited number of teaching assistantships. Selection of recipients usually is based on scholastic achievement and research interest.

Facilities and Laboratories

Undergraduate Core

The first-year engineering course ENGR:1100 (059:005) Engineering Problem Solving I includes an introduction to the college's Engineering Computer Services. Students

in the course use computer-aided design tools on engineering work stations. All civil engineering courses require knowledge of personal computers and contain significant computer content.

For information about laboratories affiliated with core courses coordinated by other engineering departments, see the Catalog section for each of the departments.

Required and Elective Undergraduate Laboratories

CEE:2015 (053:015) Civil and Environmental Engineering Practice (2 s.h.), CEE:3763 (053:063) Principles of Transportation Engineering (3 s.h.), and CEE:3084 (053:084) Project Design and Management in Civil Engineering (3 s.h.): use of a state-of-the-art laboratory for computer-aided design and drawing.

CEE:3530 (053:030) Soil Mechanics (3 s.h.): equipped for determining the classification, seepage characteristics, stress-strain properties, and strength of soils.

CEE:3155 (053:055) Principles of Environmental Engineering (4 s.h.): conducted at the University Water Treatment Plant and Iowa City Wastewater Plant for demonstrations of unit operations and processes of water and wastewater treatment, and applications in environmental chemistry and microbiology.

CEE:3371 (053:071) Principles of Hydraulics and Hydrology (3 s.h.): hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, with laboratory.

CEE:3586 (053:086) Civil Engineering Materials (3 s.h.): structure, strength and failure, durability, deformation, practice, and processing for primary construction materials systems, including steel, aluminum, concrete, asphalt, fiber-reinforced composites, masonry, timber.

CEE:4153 (053:153) Environmental Chemistry Laboratory (3 s.h.): experiments to demonstrate fundamental principles of aquatic chemistry and chemical analyses for characterization of water and wastewater quality, conducted in the Environmental Engineering Laboratories.

CEE:5154 (053:154) Environmental Microbiology (3 s.h.): typical microorganisms isolated and their physiology and metabolic characteristics studied in the Environmental Engineering Laboratories.

CEE:5156 (053:156) Physical-Chemical Process Fundamentals (3 s.h.) and CEE:4151 (053:151) Biological Treatment Processes (3 s.h.): unit operations, processes studied in bench scale experiments; use of typical process analytical parameters; experiments conducted in the Environmental Engineering Laboratories, University Water Plant, and Iowa City Wastewater Treatment Plant.

Graduate Laboratories

ENVIRONMENTAL ENGINEERING AND SCIENCE

The Environmental Engineering and Science Laboratories provide state-of-the-art facilities, equipment, and expertise to support both undergraduate and graduate-level instruction and research. The laboratories support research in contaminant fate and transport in various media (air, water, soil, plants, and microbes), drinking water disinfection and distribution, wastewater treatment, geochemical-contaminant interactions, bioremediation, and phytoremediation. They also provide resources for analytical chemistry, electrochemistry, molecular

biology, microscopy, computer modeling, and simulated environments on the bench- and pilot-scale levels.

The Environmental Engineering and Science Laboratories are affiliated with the University's Center for Health Effects of Environmental Contamination and its Center for Global and Regional Environmental Research, and with the UI Environmental Health Sciences Research Center, an affiliate of the National Institute of Environmental Health Sciences (NIEHS).

HYDRAULICS, HYDROLOGY, AND WATER RESOURCES

The teaching and research functions of the department are closely connected to the research activities of IIHR—Hydroscience & Engineering. The institute houses some of the most modern research facilities in the world, including a 100-meter towing tank, a wave basin facility for ship hydrodynamics research, several flumes, an array of field instrumentation for hydrologic experiments, extensive laboratory space for hydraulic modeling, state-of-the-art instrumentation for flow measurements and visualization, and comprehensive computational facilities.

Research related to ecohydraulics and the environment takes place at the Lucille A. Carver Mississippi Riverside Environmental Research Station. IIHR—Hydroscience & Engineering operates the 250-square-foot facility, which is located on the Mississippi River near Muscatine, Iowa. The station provides engineers and biological scientists with an ideal facility in which to examine the multifaceted ecohydraulic processes of the upper Mississippi. It is equipped with water quality laboratories, research boats, and a seminar room.

STRUCTURES, MECHANICS, AND MATERIALS

Facilities for computations, materials testing, geotechnical experiments, and small-scale structural testing are available for research and teaching. Faculty, staff, and students in structures, mechanics, and materials (SMM) have access to the computing resources of Engineering Computer Services and the Center for Computer-Aided Design (CCAD). Both centers continuously update their computing facilities to maintain pace with the rapidly changing field.

A wide range of experimental facilities is available for testing structural materials such as Portland cement concrete, asphalt, metals, timber, and composites. These facilities include several loading frames (purely uniaxial, purely torsional, and axial-torsional) that are available with computer-based control and data collection systems. Facilities for creep testing, triaxial soil testing, and high-cycle fatigue testing are also available. The laboratories have a variety of ovens and other facilities for preparation and treatment of test specimens.

Four well-equipped physical testing laboratories are dedicated to SMM teaching and research: the Civil Materials Laboratory, Soil Mechanics Laboratory, Plasticity Laboratory, and the Asphalt Laboratory. The Civil Materials Laboratory currently has a small-scale single-degree-of-freedom shaker table. Faculty, staff, and students have access through CCAD to a six-degree-of-freedom man-rated shaker table with 4000-pound payload and a 12-camera Vicon motion-capture system.

TRANSPORTATION ENGINEERING

The department's Asphalt Laboratory is equipped with a set of SuperPave testing equipment and asphalt mixture

performance testing equipment, which can measure dynamic modulus and flow number of asphalt mixtures. The laboratory has a Hamburg Wheel Tracking Device for measuring the moisture sensitivity of asphalt mixtures; asphalt foaming equipment for mix design of cold in-place recycled asphalt using foamed asphalt; and equipment for Marshall mix design, indirect tensile strength test, and volumetric analysis of asphalt mixtures. The Asphalt Laboratory is one of the department's group of laboratories for testing the strength behavior of other materials.

Courses

Special Topics

CEE:0000 (053:000) Cooperative Education Training Assignment: Civil Engineering 0 s.h.

Civil engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record card. Requirements: admission to the Cooperative Education Program.

CEE:0002 (053:002) Half-time Cooperative Education Training Assignment: Civil and Environmental Engineering 0 s.h.

Registration for work assignment periods; for students participating in the Cooperative Education Program.

CEE:2000 (053:020) CEE Sophomore Seminar 0 s.h.

Introduction to civil and environmental engineering curriculum and profession; presentations by senior undergraduate students, faculty, and professionals; lifelong learning skills and requirements for professional licensure in civil engineering. Requirements: sophomore standing.

CEE:2015 (053:015) Civil and Environmental Engineering Practice 2 s.h.

Concepts of the built environment and the natural environment; infrastructure life cycle; engineering communication (plans, engineering drawings and information systems, computer-aided drafting); field trip to major city.

CEE:2240 (053:040) Introduction to Computer-Aided Design for 3-D Design 3 s.h.

Basic principles of 2-D and 3-D computer-aided drafting; use of AutoCAD software to draw plans, elevations, and sections for objects and interior spaces. Prerequisites: ARTS:1510 (01A:003), ARTS:1520 (01A:004), and TDSN:2210 (01T:021) or CERM:2010 (01C:060) or MTLs:2910 (01G:084) or SCLP:2810 (01N:015). Same as TDSN:2240 (01T:064).

CEE:3001 (053:100) Leadership Seminar 1 s.h.

Survey of leadership ideas and principles as applied to situations commonly encountered in civil engineering practice, especially as they relate to challenges that beginning engineers face; speakers in selected engineering professions provide context and examples; exercises on leadership principles. Requirements: junior standing in civil and environmental engineering.

CEE:3002 (053:106) Professional Skills Seminar 1 s.h.

Development of communication skills through writing and oral presentations; impact of engineering solutions in a global, economic, environmental, and societal context; writings and presentations on current or historical engineering solutions; exposure to professionals with significant experiences to share in these areas. Requirements: junior standing.

CEE:3003 (053:108) Senior Design Seminar 1 s.h.

Review and extension of civil and environmental engineering project management skills in preparation for capstone senior design course; project scheduling, cost estimating, contract types, construction phasing; review for Fundamentals of Engineering Exam (FE) and practice tests in four subdisciplinary areas. Requirements: senior standing.

CEE:3084 (053:084) Project Design and Management in Civil Engineering 3 s.h.

Design of civil engineering systems, individual and team design projects oriented toward the solution of local problems, project management, construction management, contracts, budgeting, bidding. Prerequisites: CEE:2150 (053:050), CEE:3003 (053:108), CEE:3371 (053:071), CEE:3533 (053:033), and CEE:3763 (053:063). Requirements: senior standing.

CEE:3783 (053:083) Surveying and Remote Sensing 3 s.h.

Engineering surveying measurements, methods, computations. Prerequisites: ENGR:1100 (059:005).

CEE:3998 (053:098) Individual Investigations: Civil Engineering arr.

Individual projects for civil engineering undergraduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research.

CEE:4107 (053:107) Sustainable Systems 3 s.h.

New and emerging concepts in sustainable systems design and assessment. Same as CBE:4410 (052:107).

CEE:4116 (053:116) Computer-Aided Design for Civil and Environmental Engineering 3 s.h.

Introduction to engineering design process and graphical communications tools used by civil engineers; fundamentals of engineering drawing, descriptive geometry, multiview projection, graphical analysis, coordinate systems, database manipulation, building information modeling (BIM); AutoCAD. Prerequisites: CEE:2015 (053:015). Requirements: civil and environmental engineering major.

CEE:4511 (053:111) Numerical Calculations 3 s.h.

Development of algorithms for functional approximations, numerical differentiation and integration; solution of algebraic and differential equations, with emphasis on digital computations; initial and boundary value problems. Prerequisites: MATH:2560 (22M:034). Same as ME:4111 (058:111).

CEE:4512 (053:112) Engineering Design Optimization 3 s.h.

Engineering design projects involving modeling, formulation, and analysis using optimization concepts and principles; linear and nonlinear models, optimality conditions, numerical methods. Prerequisites: ENGR:2110 (059:007) and MATH:2550 (22M:033). Requirements: junior standing. Same as ME:4112 (058:112).

CEE:4515 (053:115) Computer-Aided Engineering 3 s.h.

Computational engineering modeling and simulation, geometric modeling, grid generation, finite-element and finite-volume methods, uncertainty analysis, optimization, engineering applications. Prerequisites: ENGR:2750 (057:019) and ME:3052 (058:052). Same as ME:4110 (058:110).

CEE:4187 (053:187) Statistics for Experimenters 3 s.h.

Application of statistical techniques to evaluate data derived from experimental samples designs; use of spreadsheets, statistical software; design and analysis of experiments; regression analysis; model building; practical applications. Same as OEH:4540 (175:182).

CEE:4568 (053:168) Civil Infrastructure 3 s.h.

Analytical methods for developing Infrastructure Management Systems (IMS); evaluation of infrastructure condition, performance modeling, rehabilitation optimization, development of the IMS; basic concepts of information technology applied in solving civil infrastructure management problems. Prerequisites: CEE:2015 (053:015).

CEE:4788 (053:126) International Perspectives: Xicotepec 2-3 s.h.

Introduction to providing service to a community in a less developed country; student projects intended to improve community life in Xicotepec. Requirements: P3 standing. Same as PHAR:8788 (046:126), GHS:4126 (152:126).

CEE:5129 (053:129) Information Systems for Resource Management 3 s.h.

Understanding and managing natural and engineered resources requiring data-rich foundation; management of data; complex data-driven technologies integrated into data and information systems (DIS); hands-on opportunity to develop or use capabilities of DIS for study or research area of interest (science, engineering, industrial operation); wind power generation, an emerging field in Iowa, used as a case study for illustrating key DIS components, links, and functionalities. Same as IE:5129 (056:129), ME:5129 (058:129), ECE:5129 (055:129), GEOG:5129 (044:140).

CEE:5210 (053:210) Developing Professional Service Business 2-3 s.h.

Use of professional skills and functional knowledge in creating a specialized service business. Same as ENTR:9000 (06T:210).

CEE:5513 (053:113) Mathematical Methods in Engineering 3 s.h.

Linear ordinary differential equations, series solutions of differential equations, special functions, Laplace transforms, Fourier series, matrices, linear systems, eigenvalue problems, second-order partial differential equations. Prerequisites: MATH:2550 (22M:033) and MATH:2560 (22M:034). Same as ME:5113 (058:113), CBE:5140 (052:118).

CEE:6310 (053:214) Analytical Methods in Mechanical Systems 3 s.h.

Vector and function spaces; functionals and operators in Hilbert spaces; calculus of variations and functional analysis with application to mechanics; Ritz and Galerkin methods. Prerequisites: ME:5113 (058:113). Same as ME:6214 (058:214).

CEE:7197 (053:297) Teaching Undergraduate Science and Engineering arr.

Basic skills to be a successful undergraduate instructor; teaching of technical subjects and solving problems; emphasis on practical applications of lesson material and class demonstrations; techniques for teaching effective classes; opportunity for students to teach; intended for graduating Ph.D. students with a career interest in a university environment.

Structures, Mechanics, and Transportation

CEE:3135 (053:135) Structural Modeling and Health Monitoring 3 s.h.

Measurements, structural modeling, structural analysis, stiffness method, trusses and frames, structural testing, modal analysis. Prerequisites: CEE:3533 (053:033) and ENGR:2750 (057:019).

CEE:3136 (053:136) Design of Concrete Structures 3 s.h.

Fundamental analysis and design of reinforced concrete members and structures, flexure, shear, bond, continuity, beams, one-way slab system; columns. Prerequisites: CEE:3533 (053:033).

CEE:3142 (053:142) Quality Control 3 s.h.

Basic techniques of statistical quality control; application of control charts for process control variables; design of inspection plans and industrial experimentation; modern management aspects of quality assurance systems. Offered fall semesters. Prerequisites: STAT:2020 (22S:039). Same as IE:3600 (056:162), STAT:3620 (22S:133).

CEE:3179 (053:179) Continuum Mechanics arr.

Mechanics of continuous media; kinematics of deformation, concepts of stress and strain; conservation laws of mass, momentum and energy; constitutive theories; boundary and initial value problems. Prerequisites: ENGR:2510 (057:020) or ENGR:2750 (057:019). Same as ME:3179 (058:179).

CEE:3530 (053:030) Soil Mechanics 3 s.h.

Identification and classification of earth materials; hydraulic and mechanical properties of soils; soil improvement; laboratory testing. Prerequisites: ENGR:2750 (057:019).

CEE:3533 (053:033) Principles of Structural Engineering 3 s.h.

Fundamental principles of structural analysis applied to statically determinate and indeterminate structures, continuous beams, trusses, and frames; external and internal equilibrium, compatibility of deformation, influence lines, virtual work; parallel use of classical and matrix formulation; slope deflection, flexibility and stiffness methods; use of computers. Prerequisites: ENGR:2750 (057:019).

CEE:3586 (053:086) Civil Engineering Materials 3 s.h.

Structure, strength and failure, durability, deformation, practice, and processing for primary construction materials systems, including steel, aluminum, concrete, asphalt, fiber-reinforced composites, masonry, timber. Corequisites: CEE:3530 (053:030) and ENGR:2750 (057:019).

CEE:3763 (053:063) Principles of Transportation Engineering 3 s.h.

History of transportation modes, new transport technologies, traffic operations and control, economic evaluation of transport alternatives, transportation planning, roadway design and construction, route location, preventive maintenance strategies. Corequisites: CEE:2015 (053:015).

CEE:4131 (053:131) Impacts of Technological Singularity 3 s.h.

Technological singularity—what it is, its current standing, impacts, implications; bio-, nano-, and information technologies; how new technologies affect sustainability; ethical issues raised by technologies.

CEE:4160 (053:160) Introduction to Bridge Engineering 3 s.h.

Bridge engineering and design; history of the bridge; factors that affect bridge design; bridges according to use (e.g., road, rail, pedestrian and bicycle) and type (e.g., suspension, cable stay, truss); how sustainability concepts may impact bridge design; substantial design exercise. Prerequisites: CEE:3533 (053:033).

CEE:4167 (053:167) Public Transit Operations and Planning 3 s.h.

Bus, light and heavy rail, and paratransit modes; transit operations, planning, modeling and optimization, transit agency economics, transit finance, and evolving transportation policy; skills essential to planners and engineers who intend to work for a either planning agency, transportation provider, or a transportation or planning consulting firm; individual and group projects involving transit operations. Requirements: undergraduate or graduate standing in engineering, or graduate standing in urban and regional planning. Same as URP:4195 (102:195).

CEE:4176 (053:176) Transportation Demand Analysis 3 s.h.

City planning procedures and traffic engineering techniques applied to transportation problems; trip generation, distribution, assignment, mode choice models; travel surveys, data collection techniques; arterial flow, intersection performance, parking; transit system analysis. Same as URP:4262 (102:162).

- CEE:4532 (053:132) Fundamentals of Vibrations** 3 s.h.
Recent advances and research in transportation engineering. Requirements: senior or graduate standing.
Vibration of linear discrete and continuous mechanical and structural systems; harmonic, periodic, and arbitrary excitation; modal analysis; applications. Prerequisites: ENGR:2750 (057:019). Same as ME:4153 (058:153).
- CEE:4533 (053:133) Finite Element I** 3 s.h.
CEE:5137 (053:137) Composite Materials 3 s.h.
Mechanical behavior of composite materials and their engineering applications; composite constituents (fibers, particles, matrices) and their properties and behavior; macromechanical behavior of composite laminae; micromechanical predictions of composite overall properties; classical lamination theory; composite beams and plates. Prerequisites: ENGR:2750 (057:019). Same as ME:5167 (058:167).
One- and two-dimensional boundary value problems; heat flow, fluid flow, torsion of bars; trusses and frames; isoparametric mapping; higher order elements; elasticity problems; use of commercial software. Prerequisites: ENGR:2750 (057:019). Same as ME:4115 (058:115).
- CEE:4535 (053:134) Design of Steel Structures** 3 s.h.
CEE:5236 (053:236) Optimization of Structural Systems 3 s.h.
Advanced topics; optimization of structural topology, shape, and material; finite dimensional dynamic response optimization, sensitivity analysis, distributed parameter systems; projects.
Concepts and procedures in steel design; LRFD (load and resistance factor design) methodology for beams/columns; analysis and design of indeterminate structures. Prerequisites: CEE:3533 (053:033).
- CEE:4539 (053:139) Foundations of Structures** 3 s.h.
CEE:5540 (053:140) Intermediate Mechanics of Deformable Bodies 3 s.h.
Application of equilibrium analyses, strain-displacement relations, and constitutive relationships to practical structural systems and elementary plane elasticity problems. Prerequisites: ENGR:2750 (057:019). Same as ME:5150 (058:150), BME:5660 (051:151).
Application of soil mechanics to analysis of structural foundations; slope stability analysis; bearing capacity and settlement of shallow and deep foundations; retaining structures, braced cuts, reinforced earth structures; usage of computational models; subsurface exploration methods. Prerequisites: CEE:3530 (053:030).
- CEE:4543 (053:243) Computational Inelasticity** 3 s.h.
CEE:5549 (053:149) Fracture Mechanics 3 s.h.
3-D stress states, definition and criteria for failure, nominal and local yield phenomena, linear elastic and elastic plastic fracture mechanics, plane stress and plane strain fracture toughness, J-Integral, crack opening displacement, environmental assisted cracking, fatigue crack growth, fail safe, and damage tolerant design. Prerequisites: BME:4910 (051:085) or ME:4055 (058:055) or ME:5150 (058:150). Same as ME:5159 (058:159).
Computational techniques and implementations for elastic, hyperelastic, elasto-plastic, visco-elastic, and visco-plastic material models; development of sound numerical integration algorithms from rate constitutive equations. Recommendations: CEE:3179 (053:179).
- CEE:4560 (053:144) Pavement Engineering** 3 s.h.
CEE:6532 (053:233) Finite Element II 3 s.h.
Computer implementation; plate and shell elements; mixed and hybrid formulations; nonlinear analysis; recent development; introduction to boundary element method. Prerequisites: CEE:4533 (053:133). Same as ME:6215 (058:215).
Fundamental design principles; characterization and testing of asphalt and concrete paving materials; stresses and strain development within pavement structure; basic principles of mechanistic-empirical pavement design procedures. Prerequisites: CEE:3763 (053:063).
- CEE:4762 (053:162) Design of Transportation Systems** 3 s.h.
CEE:6534 (053:234) Applied Optimal Design 3 s.h.
Optimal design problem formulation; optimality conditions; linear, quadratic, convex, and nonlinear programming; Lagrangian duality; numerical algorithms for unconstrained and constrained design problems, design sensitivity analysis, engineering applications. Prerequisites: CEE:5513 (053:113).
Overview of different modes within transportation systems; concepts of sustainability and livability in transportation system design; derivation of standards for geometric design of highways; roundabout design; cross-sectional and longitudinal geometric design of highways. Prerequisites: CEE:3763 (053:063).
- CEE:4763 (053:163) Traffic Engineering** 3 s.h.
CEE:6547 (053:247) Advanced Continuum Mechanics 3 s.h.
Continuum mechanics of fluids and solids, balance laws, invariance restrictions, continuum thermodynamics, constraint theory, mixtures, materials with microstructure. Prerequisites: ME:6262 (058:262). Same as ME:6252 (058:252).
Design of traffic control devices; evaluation and analysis of intersections and transportation networks using appropriate computer software. Prerequisites: CEE:3763 (053:063) and STAT:2020 (22S:039).
- CEE:4764 (053:164) Winter Highway Maintenance** 3 s.h.
CEE:6763 (053:263) Application Simulation to Transportation 3 s.h.
Aspects of winter highway maintenance; current and innovative practices and the theory that underpins them.
- CEE:5094 (053:194) Graduate Seminar: Transportation** 0 s.h.

Transportation system management and traffic engineering; application of real-time simulation and visualization. Prerequisites: CEE:3763 (053:063) or CEE:4763 (053:163). Same as URP:6063 (102:263).

CEE:7250 (053:250) Advanced Fracture Mechanics 3 s.h.

Fracture of modern engineering materials; linear-elastic fracture; computational methods; functionally graded materials; elastic-plastic fracture; multiscale fracture and fatigue crack initiation. Prerequisites: ME:5113 (058:113), and ME:4115 (058:115) or ME:5159 (058:159). Same as ME:7250 (058:250).

CEE:7549 (053:249) Multiscale Modeling 3 s.h.

Computational modeling of engineering materials ranging from molecular to continuum scales, molecular dynamics and Monte Carlo methods, nanoscale continuum modeling, scale-coupling methods. Prerequisites: ME:4115 (058:115) or ME:5143 (058:143). Same as ME:6255 (058:255).

Environmental Engineering and Science

CEE:1030 (053:003) Introduction to Earth Science 3-4 s.h.

Relationships between plate tectonics, geologic time, and the rock cycle with volcanoes and igneous, sedimentary, metamorphic rocks; fossils; radioactive isotopes; landscape evolution; mountain building; natural resources; their impacts on civilization. GE: Natural Sciences without Lab; Natural Sciences with Lab. Same as EES:1030 (012:003).

CEE:2150 (053:050) Natural Environmental Systems 3-4 s.h.

Environmental chemistry and biology of air, water, and soil quality, air and water pollution, limnology, global atmospheric change, fate and transport of pollutants; hazardous substances, risk analysis, standard setting. Prerequisites: CHEM:1110 (004:011). Same as GHS:2150 (152:050).

CEE:3155 (053:055) Principles of Environmental Engineering 4 s.h.

Water supply and treatment processes; wastewater treatment processes; processes for air pollution control, groundwater remediation; solid and hazardous waste management. Prerequisites: CEE:2150 (053:050).

CEE:4102 (053:102) Groundwater 3 s.h.

Groundwater quality and quantity; Darcy's Law, 2-D flow equation, unsaturated zone, contaminant transport, redox reactions, drinking water quality, bioremediation; laboratories in permeameter testing, porous media grain size analysis, pump testing, monitoring well installation.

CEE:4104 (053:104) Groundwater Modeling 3 s.h.

Groundwater flow and contaminant transport modeling; numerical methods, applications of groundwater modeling to water supply, groundwater resources evaluation, remediation design using software; GMS (MODFLOW, MODPATH, and MT3D). Prerequisites: EES:4630 (012:166) or CEE:4103 (053:103), and MATH:1860 (22M:026). Same as EES:4660 (012:184).

CEE:4141 (053:141) Design for the Developing World 3 s.h.

Experience working on interdisciplinary teams to solve problems of the developing world; technologies for improving water and sanitation, energy, housing, and health; community building strategies, participatory methods, other techniques essential to good design; service-learning component. Recommendations: junior or higher standing. Same as GHS:4141 (152:141).

CEE:4147 (053:147) Decentralized Wastewater Treatment 3 s.h.

Established and innovative technologies used in decentralized wastewater treatment; lagoons, constructed wetlands, sand filters, and other ecological technologies appropriate for small wastewater flows; need for more sustainable treatment of small wastewater flows; Iowa's approximately 739 unsewered communities throughout the state, high-growth areas surrounding Des Moines and Cedar Rapids-Iowa City corridor with small developments in need of wastewater treatment, developing countries. Prerequisites: CEE:2150 (053:050), CEE:3155 (053:055), and CEE:3371 (053:071).

CEE:4151 (053:151) Biological Treatment Processes 3 s.h.

Applied microbiology and fundamental principles of aerobic and anaerobic biological wastewater treatment processes; sludge processing and advanced wastewater treatment and bioremediation; lectures and laboratory. Prerequisites: CEE:5152 (053:152), CEE:3155 (053:055), and CEE:5154 (053:154). Corequisites: CEE:3155 (053:055) and CEE:5156 (053:156).

CEE:4153 (053:153) Environmental Chemistry Laboratory 3 s.h.

Laboratory experiments to demonstrate important concepts in environmental chemistry and to familiarize students with procedures used to characterize water and wastewater and evaluate certain treatment processes. Prerequisites: CHEM:1120 (004:012). Corequisites: CEE:5152 (053:152).

CEE:4157 (053:157) Environmental Engineering Design 3 s.h.

Application of physical, chemical, and biological operations and processes to the design of water and wastewater treatment systems; applications in solid and hazardous waste treatment. Prerequisites: CEE:2150 (053:050), CEE:3155 (053:055), and CEE:3371 (053:071).

CEE:4158 (053:158) Solid and Hazardous Wastes 3 s.h.

Sources, characteristics, collection, disposal of solid and hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Requirements: for CEE:4158 (053:158) — CEE:2150 (053:050); for OEH:4920 (175:198) — OEH:4240 (175:197). Same as OEH:4920 (175:198).

CEE:4159 (053:159) Air Pollution Control Technology 3 s.h.

Sources, environmental and health impacts, regulations, modeling of air pollution; processes and alternative strategies for control; global climate considerations. Prerequisites: CEE:2150 (053:050). Same as CBE:4459 (052:235).

CEE:4180 (053:180) Fundamentals of Atmospheric Science 3 s.h.

Review of fundamental principles in atmospheric sciences needed for study of interdisciplinary topics involving the Earth's atmosphere; understanding weather and climate processes to address problems in engineering; hydrometeorology of rainfall and its measurement by remote sensing; impact of climate anomalies and climate change on water resources; exchange of water, energy, and chemicals at the land-atmosphere boundary; forecasting of atmospheric chemistry and air quality. Prerequisites: ENGR:2510 (057:020).

CEE:4220 (053:204) U.S. and Global Environmental Health Policy 3 s.h.

Major concerns in environment and human health, legislation enacted to deal with these concerns; emphasis on contemporary issues. Offered fall semesters of odd years. Requirements: for OEH:4220 (175:252) — OEH:4240 (175:197); for CEE:4220 (053:204) — CEE:2150 (053:050). Same as GHS:4220 (152:252), OEH:4220 (175:252).

CEE:5115 (053:161) Atmospheric Chemistry and Physics 3 s.h.

Principal chemical and physical processes affecting atmospheric trace gas and pollutant cycles; emphasis on atmospheric photochemistry, aerosol science, major sources and removal processes. Corequisites: CBE:3120 (052:105). Same as CBE:5425 (052:236).

CEE:5152 (053:152) Environmental Chemistry I 3 s.h.

Principles of general, physical, organic chemistry applied in water and air systems; emphasis on qualitative and quantitative understanding of chemical kinetics and equilibrium; acid-base reactions, complex formation, precipitation, dissolution, and oxidation-reduction reactions; organic nomenclature. Prerequisites: CHEM:1120 (004:012). Same as CBE:5152 (052:231).

CEE:5154 (053:154) Environmental Microbiology 3 s.h.

Fundamentals of microbiology and microbial ecology with application in water quality and biodegradation of priority pollutants; lectures and laboratory. Corequisites: CEE:5152 (053:152).

CEE:5156 (053:156) Physical-Chemical Process Fundamentals 3 s.h.

Theory of physical and chemical operations and processes in water and wastewater treatment, including fundamental aspects of process dynamics; lectures, laboratory. Prerequisites: CEE:2150 (053:050) and CEE:5152 (053:152). Corequisites: CEE:3155 (053:055).

CEE:5875 (053:275) Perspectives in Biocatalysis 1-3 s.h.

Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Requirements: graduate standing in a participating department supported by the Predoctoral Training Program in Biotechnology. Same as CHEM:5875 (004:275), PHAR:5875 (046:275), CBE:5875 (052:275), MICR:5875 (061:275), BIOC:5875 (099:275).

CEE:6151 (053:251) Environmental Systems Modeling 3 s.h.

Mathematical modeling of environmental systems, including rivers, lakes, estuaries, treatment systems for conventional and toxic pollutants. Prerequisites: CEE:2150 (053:050), CEE:3155 (053:055), and CEE:5152 (053:152).

CEE:6253 (053:253) Environmental Chemistry II 3 s.h.

Solid-liquid interface problems, heterogenous equilibria, environmental organic chemistry, modeling chemical equilibrium and kinetics, redox chemistry, atmospheric chemistry. Prerequisites: CEE:5152 (053:152).

Hydraulics, Hydrology, and Water Resources

CEE:3328 (053:128) Fluvial Geomorphology 3 s.h.

Hydrologic principles, stream channel processes, and fluvial geomorphology within drainage basin systems; spatial and temporal variations in water distribution, analysis of hydrological data, flow mechanisms, sediment transport, forecasting procedures, hydrograph construction, modeling. Requirements: EES:3020 (012:102) or another 3000-level geology or hydraulics course. Same as EES:3380 (012:138).

CEE:3371 (053:071) Principles of Hydraulics and Hydrology 3 s.h.

Hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, laboratory. Prerequisites: ENGR:2510 (057:020).

CEE:4103 (053:103) Water Quality 3 s.h.

Sources, availability, uses, characteristics, criteria, best management practices for surface waters; protection of waters impaired by eutrophication, soil erosion and sedimentation; pathogenic organisms, habitat destruction, wastewater discharges, contaminated sediments, atmospheric deposition, watershed development, invasive species, irrigation return flows, stormwater discharges, nonpoint sources, agricultural runoff; laboratory component, measurement of water quality characteristics in the field. Requirements: junior or higher standing.

CEE:4118 (053:118) Probabilistic Methods in Hydroscience 3 s.h.

Common probabilistic models used in hydrology, hydraulics, and water resources; derived distributions; multivariate models and estimation of model parameters; analysis of data and model building; uncertainty analysis. Prerequisites: MATH:2560 (22M:034) and STAT:2020 (22S:039).

- CEE:4119 (053:119) Hydrology** 3 s.h.
Overview of fundamental processes in water cycle, including precipitation, evaporation, infiltration, and runoff; quantitative approaches for predicting streamflow and design discharges; applications to flood hazard assessment and stormwater management. Prerequisites: ENGR:2510 (057:020).
- CEE:4120 (053:120) Water Resources Sustainability** 3 s.h.
Effect of human impact on hydrologic ecosystems (aquifers, watersheds, coastal zones, lakes, and wetlands); quantitative measures of impact and mitigation/attenuation efforts; key questions addressed (What does water resources sustainability mean? How can it be measured? How can it be implemented?); worldwide case studies that illustrate the detrimental effects of unsustainable resource utilization and the benefits of implementing sustainable resource management strategies.
- CEE:4123 (053:123) Hydroclimatology** 3 s.h.
Introduction to fundamental processes governing climate system and hydrological cycle, links between them; measurements of atmospheric and terrestrial components; atmosphere-ocean interactions (e.g., El Nino, Pacific Decadal Oscillation); teleconnections; climatology of atmospheric storms and impacts (e.g., atmospheric rivers, tropical cyclones, floods, droughts); climate change and variability; tools for analysis of climate data. Recommendations: CEE:4118 (053:118), CEE:4119 (053:119), CEE:4180 (053:180), and CEE:4378 (053:178).
- CEE:4146 (053:146) Multiscale Hydrology: Introduction to Multiscale Hydrologic Phenomena** 3 s.h.
Hydrologic principles over the last century developed from experimentation at laboratory and small plot scales; major scientific and engineering challenges, including links between statistical fluctuations that data exhibits; physical, chemical, and biological principles through appropriate mathematical theories, numerical models, and field observations; coupled hydrologic processes at larger scales using newly built on abstraction; observations used in hydrologic engineering at larger scales for several decades and missing a coherent theory that ties them together. Prerequisites: ENGR:2510 (057:020) and MATH:6600 (22M:213). Requirements: three semesters of calculus and college physics, an introductory hydrology course, and a probability and statistics course.
- CEE:4317 (053:117) Remote Sensing** 3 s.h.
Fundamentals of electromagnetic waves, atmospheric radiative transfer, passive remote sensing, weather radar, hydrologic application of remote sensing.
- CEE:4370 (053:170) Flow in Open Channels** 3 s.h.
In-depth analysis of governing flow equations; steady uniform flow in channels of different resistance and cross section; flow control sections; specific energy considerations; analysis and computation of gradually varied profiles and spatially varied flow effected by lateral outflow and inflow; unsteady flow; flood routing. Prerequisites: CEE:3371 (053:071).
- CEE:4371 (053:171) Water Resources Engineering** 3 s.h.
Planning and economics of varied water resources projects; stochastic basis for design; flood damage mitigation, reservoirs, river morphology, economic analysis of water projects, urban water requirements, water supply, hydroelectric power systems, river navigation; contemporary civil-engineering problems and issues associated with water infrastructure development. Prerequisites: CEE:4374 (053:174).
- CEE:4373 (053:173) River Mechanics** 3 s.h.
Laws governing fall velocity, applications to particle-size analysis; incipient motion, bed forms, bed load, suspended load, natural river processes; theory and practice of movable-bed model experiments. Prerequisites: CEE:4370 (053:170).
- CEE:4374 (053:174) Water Resource Design** 3 s.h.
Prerequisites to storm water management systems design, including design flows and rates; analysis and design of storm sewers, detention basins, street and highway drainage facilities, culverts, dams, spillways, measures for energy dissipation; review of wastewater transfer systems and design. Prerequisites: CEE:3371 (053:071) and STAT:2020 (22S:039).
- CEE:4378 (053:178) Hydrometeorology** 3 s.h.
Atmospheric thermodynamics; precipitation processes; evaporation; infiltration; surface runoff; hydrographs, runoff relations; runoff hydrography; storage problems; frequency, intensity, duration studies of storms, floods, droughts; hydrometeorological observations and network design; watershed modeling; urban hydrology climate.
- CEE:4385 (053:185) International Perspectives in Water Sciences and Management** 3 s.h.
Internationalization and water, with focus on a country or a world region; intensive, in-depth exposure to complex issues that affect planning and execution of water projects in large-scale watersheds.
- CEE:5083 (053:183) Introduction to Comp Flow in Pipes and Channels** 3 s.h.
General review of numerical methods in hydraulics (finite-difference, finite-element, and method of characteristics); stability and accuracy of numerical schemes; steady free surface flows; flow transients in pipelines and channels. Prerequisites: CEE:5369 (053:169).
- CEE:5184 (053:184) The Fate and Transport of Contaminated Sediments** 3 s.h.
Rich and complex field of sediment and contaminant transportation; involves physical, chemical, biological processes as well as mathematical modeling of these processes; recently investigated topics not covered elsewhere; physical processes affecting stability/mobility, transport, and fate of contaminants in sediments; lack of general understanding of development of fine-scale sedimentary structure in different systems, particularly contamination and contamination release; issue of suspension effects on turbulent flows; flow dynamics. Prerequisites: CEE:3530 (053:030), CEE:4370 (053:170), and CEE:4373 (053:173).

CEE:5216 (053:216) Coherent Structures in Environmental Hydraulics 3 s.h.

Introduction to coherent structures and their role in explaining the physics of several important categories of environmental flows; focus on examples related to hydraulics, river engineering, stratified flows, and geosciences; turbulence modeling using eddy resolving techniques that can capture the dynamics of coherent structures; no prior experience in coding or numerical methods is expected. Prerequisites: CEE:5369 (053:169). Requirements: M.S. or Ph.D. standing.

CEE:5369 (053:169) Intermediate Mechanics of Fluids 3 s.h.

Basic concepts and definitions; pressure distribution in a fluid; governing equations and boundary conditions; integral and differential analysis; dimensional analysis and similarity; experimental analysis; laminar and turbulent internal and external flows; potential flows; engineering applications. Prerequisites: ENGR:2510 (057:020) and ME:3040 (058:040). Same as ME:5160 (058:160).

CEE:5372 (053:172) Experimental Methods in Fluid Mechanics and Heat Transfer 3 s.h.

Hands-on experience in methodology of conducting experiments in fluid mechanics and heat transfer from design to data acquisition and processing; essential theoretical elements, experimental methodologies, data acquisition systems, uncertainty analysis; wide variety of instruments for fundamental and applied experimentation; work in small groups; design, implement, test, and report an experiment in area of interest. Same as ME:5162 (058:162).

CEE:5375 (053:175) Environmental Fluid Dynamics 3 s.h.

Same as ME:5163 (058:163).

CEE:6372 (053:272) Environmental Dispersion Processes 3 s.h.

Review of classical diffusion theories; longitudinal dispersion, transverse and vertical mixing in free-surface turbulent shear flow; application to natural channels; selected topics including stream-tube models, mixing and dispersion of heated effluents. Corequisites: CEE:5369 (053:169).

CEE:6376 (053:276) Viscous Flow 3 s.h.

Equations of viscous flow; classical analytical and numerical solutions; flow regimes and approximations; laminar boundary layers—equations, solution methods, applications; stability theory and transition; incompressible turbulent flow—mean-flow and Reynolds-stress equations, modeling, turbulent boundary layers and free shear flows. Requirements: for ME:6260 (058:260) — ME:5160 (058:160); for CEE:6376 (053:276) — CEE:5369 (053:169). Same as ME:6260 (058:260).

CEE:6520 (053:220) Watershed Sedimentation 3 s.h.

Exploration of rich and complex field of sediment transport, geomorphology, and contaminant transport; associated physical, chemical, and biological processes with associated mathematical modeling; investigation of current topics not covered elsewhere, including physical processes affecting stability/mobility, transport, and fate of soil/sediments; lack of general understanding in development of fine-scale sedimentary structure in different systems, particularly contamination and contamination release; suspension effects on turbulent flows. Prerequisites: CEE:4370 (053:170) and CEE:4373 (053:173).

Graduate Seminars, Advanced Topics, Research**CEE:4995 (053:195) Contemporary Topics in Civil and Environmental Engineering** arr.

New topics or areas of study not formally offered in other civil and environmental courses; ice engineering, chaos and strange attractors, remote sensing, nonlinear dynamics of hydrologic processes, advanced water and wastewater treatment processes, hazardous waste control, global climate change, damage mechanics; based on faculty/student interest.

CEE:5091 (053:191) Graduate Seminar: Structure, Mechanics, Materials 0 s.h.

Presentation and discussions of recent advances and research in structures, mechanics, and materials engineering by guest lecturers, faculty, students. Requirements: senior or graduate standing.

CEE:5092 (053:192) Graduate Seminar: Environmental Engineering Seminar 0 s.h.

Presentation and discussion of current topics, case studies, and research in environmental science and engineering by students, guest lecturers, faculty. Requirements: senior or graduate standing.

CEE:5093 (053:193) Graduate Seminar: Hydraulics, Hydrology, and Water Resources 0 s.h.

Presentation and discussions of recent advances and research in hydraulics, hydrology, and water resources by guest lecturers, faculty, students. Requirements: senior or graduate standing.

CEE:5998 (053:198) Individual Investigations: Civil and Environmental Engineering arr.

Individual projects for civil and environmental engineering graduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Requirements: graduate standing.

CEE:5999 (053:199) Research: Civil and Environmental Engineering M.S. Thesis arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the M.S. with thesis in civil and environmental engineering. Requirements: graduate standing.

CEE:7999 (053:299) Research: Civil and Environmental Engineering Ph.D. Dissertation arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the Ph.D. in civil and environmental engineering.

Electrical and Computer Engineering

Chair

- Er-Wei Bai

Professors

- Michael Abràmoff, David R. Andersen, Er-Wei Bai, Thomas F. Boggess, Thomas L. Casavant, Gary E. Christensen, Soura Dasgupta, Michael Flatté, Anton Kruger, Jon G. Kuhl, Sudhakar M. Reddy, Punam Saha, Arthur L. Smirl, Milan Sonka

Associate professors

- Mark S. Andersland, Reinhard Beichel, Mona Garvin, Hans Johnson, John Prineas, Tom Schnell, Xiaodong Wu

Assistant professors

- Guadalupe Canahuate, Mathews Jacob, Raghuraman Mudumbai, Hassan Raza, Ananya Sen Gupta, Alf Siochi, Fatima Toor, Weiyu Xu

Lecturers

- Cliff Curry, Jim Maxted, Dan Thedens

Adjunct assistant professors

- Dave Matthews, Ed Ratner, Andreas Wahle

Professors emeriti

- Steve M. Collins, Earl D. Eyman, Adrianus Korpel, Karl E. Lonngren, Norbert R. Malik, John P. Robinson

Undergraduate major: electrical engineering (B.S.E.)

Graduate degrees: M.S. in electrical and computer engineering; Ph.D. in electrical and computer engineering

Web site: <http://www.engineering.uiowa.edu/ece/>

Electrical engineers and computer engineers make vital contributions to nearly all facets of modern society through their work in areas such as computer systems, medical imaging, robotics, wireless communications, and fiber optics. From the World Wide Web to high-definition television, cellular telephones, and computer networks, the contributions of electrical and computer engineers are changing everyday life.

Many benefits that have sprung from electrical engineering technology now are taken for granted—noninvasive imaging of the brain and other internal organs, astonishing views of the solar system's outer planets, and wireless telecommunications. Electrical engineers also play crucial roles in major emerging technologies, for example, wireless Internet, optical communications, and mapping of the human genome.

As the United States strives to retain or enlarge its share of national and international markets, electrical engineers are certain to play an important role in improving productivity through automation, increased efficiency, and new technologies.

Electrical and computer engineers work in research, design, development, manufacturing, sales, market analysis, consulting, field service, and management. They are employed in computer, semiconductor, software, aerospace, telecommunication, medical, radio, television, and power industries.

Undergraduate Program of Study

- Major in electrical engineering (Bachelor of Science in Engineering)

Graduates of the program will:

- exhibit leadership and vision in contributing to the technical and policy decisions of industry, government, and research enterprises;
- demonstrate problem-solving abilities that permit them to contribute in a variety of technical, business, and academic careers;
- thrive in diverse, global, and multidisciplinary environments;
- possess the ability to communicate effectively and participate collaboratively in interactions with engineers and other professionals; and
- participate in lifelong learning activities that enhance their professional and personal development.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. The major in electrical engineering provides technical depth and breadth as well as flexibility and the opportunity for students to customize their programs according to their own goals. Students choose one of several elective focus areas according to the type of job or research they plan to pursue. They also chose one of two tracks to support their elective focus area.

All engineering students complete the B.S.E. core requirements, which include RHET:1030 (010:003) Rhetoric; ENGR:1100 (059:005) Engineering Problem Solving I and ENGR:1300 (059:006) Engineering Problem Solving II; and courses in chemistry, engineering mathematics and fundamentals, and physics. They must earn a grade of C-minus or higher in the core requirements MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus and MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus.

They also complete the curriculum designed for their major program, which covers four major stems: mathematics and basic sciences, engineering topics, an elective focus area, and the general education component (15 s.h. of humanities and social science courses). For information about the curriculum stems, see Bachelor of Science in Engineering (p. 861) in the Catalog.

Electrical engineering students complete the curriculum below. During their second year, they select an elective focus area (EFA) and choose a track that corresponds with it: the computer track or the electrical track. They begin taking track and EFA courses in their third year.

The following study plan includes the B.S.E. core requirements and the curriculum for the electrical engineering major. Some courses in the curriculum are prerequisites for others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

FIRST YEAR**First Semester**

ENGR:1000 (059:090) Engineering Success for First-Year Students (credit does not count toward B.S.E. degree)	1 s.h.
ENGR:1100 (059:005) Engineering Problem Solving I	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
RHET:1030 (010:003) Rhetoric	4 s.h.

Second Semester

ENGR:1300 (059:006) Engineering Problem Solving II	3 s.h.
MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra	2 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.
General education component course	3 s.h.

SECOND YEAR**First Semester**

ENGR:2110 (059:007) Engineering Fundamentals I: Statics	2 s.h.
ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits	3 s.h.
ENGR:2130 (059:009) Engineering Fundamentals III: Thermodynamics	3 s.h.
MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations	3 s.h.
PHYS:1612 (029:082) Introductory Physics II	3-4 s.h.

Second Semester

ECE:2400 (055:040) Linear Systems I	3 s.h.
ECE:2410 (055:018) Principles of Electronic Instrumentation	4 s.h.
ENGR:2730 (057:017) Computers in Engineering	3 s.h.
MATH:3550 (22M:037) Engineering Mathematics V: Vector Calculus	3 s.h.
General education component course	3 s.h.

THIRD YEAR**First Semester**

ECE:3000 (055:091) Professional Seminar: Electrical Engineering	1 s.h.
ECE:3320 (055:032) Introduction to Digital Design	3 s.h.
ECE:3700 (055:070) Electromagnetic Theory	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
Two required track courses	6 s.h.

Second Semester

Three required track courses	9 s.h.
Two elective focus area courses	6 s.h.
General education component course	3 s.h.

FOURTH YEAR**First Semester**

ECE:4880 (055:088) Principles of Electrical Engineering Design	3 s.h.
Track breadth elective	3 s.h.
Three elective focus area courses	9 s.h.
General education component course	3 s.h.

Second Semester

ECE:4890 (055:089) Senior Electrical Engineering Design	3 s.h.
Track depth elective	3 s.h.
Two elective focus area courses	6 s.h.
General education component course	3 s.h.

Elective Focus Area and Track

Students select an elective focus area to personalize their curriculum and to help them prepare for the type of job or research they plan to pursue. More than 20 EFAs are available, such as bioinformatics, business, communication systems, medical imaging, nanotechnology, power systems, and software; visit ECE Elective Focus Areas for a complete list. Students also select one of two tracks—computer or electrical—to support their EFA. They complete seven courses in their track and seven EFA courses.

Students who choose their track and EFA courses carefully may be able to earn the Certificate in Sustainability (p. 1304), the Certificate in Technological Entrepreneurship (p. 937), or one of several undergraduate minors offered by the University without taking courses beyond those required for the electrical engineering major.

The electrical engineering major requires the following track and elective focus area courses.

REQUIRED COMPUTER TRACK COURSES

Students in the computer track complete all of these:

ECE:3330 (055:033) Introduction to Software Design	3 s.h.
ECE:3350 (055:035) Computer Architecture and Organization	3 s.h.
ECE:3360 (055:036) Embedded Systems and Systems Software	3 s.h.
CS:2210 (22C:019) Discrete Structures	3 s.h.
CS:3330 (22C:031) Algorithms	3 s.h.

REQUIRED ELECTRICAL TRACK COURSES

Students in the electrical track complete all of these:

ECE:3400 (055:043) Linear Systems II	3 s.h.
ECE:3410 (055:041) Electronic Circuits	4 s.h.
ECE:3500 (055:050) Communication Systems	3 s.h.
ECE:3600 (055:060) Control Systems	3 s.h.
ECE:3720 (055:072) Electrical Engineering Materials and Devices	3 s.h.

TRACK BREADTH AND DEPTH ELECTIVES

Students complete one track breadth elective and one track depth elective.

Students in the computer track must choose their track breadth elective from the list of required electrical track courses above. Students in the electrical track must

choose their track breadth elective from the list of required computer track courses.

The track depth elective must be an advanced course in a subject area within the student's track—normally numbered 3000 or above—for which one of the required track courses is a prerequisite. For a complete list of depth electives for each track, consult the Department of Electrical and Computer Engineering.

ELECTIVE FOCUS AREA COURSES

Students complete seven elective focus area courses, which they choose according to guidelines established by the department. For a list of EFAs and course selection guidelines, see ECE Elective Focus Areas on the Department of Electrical and Computer engineering web site.

Joint B.S.E./M.S.

The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for electrical engineering undergraduate students who intend to earn an M.S. in electrical and computer engineering. B.S.E./M.S. students may take up to 12 s.h. of graduate-level course work and do thesis-level research while they are still undergraduates. They may count 9 s.h. of graduate course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Electrical and Computer Engineering.

Graduate Programs of Study

- Master of Science in electrical and computer engineering (with or without thesis; software engineering subprogram available)
- Doctor of Philosophy in electrical and computer engineering

The Department of Electrical and Computer Engineering stimulates excellence in scholarship and research through close contact with the faculty and programs tailored to fit students' individual needs.

Students select an advisor and, with the advisor, plan an individual program bounded only by the broad guidelines of the Graduate College and the program. The department maintains close interdisciplinary ties with other University of Iowa departments, especially with the Departments of Physics and Astronomy, Computer Science, Mechanical and Industrial Engineering, and Biomedical Engineering, and the Carver College of Medicine. Principal areas of graduate study include waves and materials, computer systems, wireless communications, signal and image processing, computational genomics, and control systems and systems theory.

Research and Study Areas

BIOINFORMATICS AND COMPUTATIONAL BIOLOGY

The Center for Bioinformatics and Computational Biology (CBCB) is a multidisciplinary research enterprise that

encompasses numerous laboratories and collaborates with many graduate programs on campus. Students may earn the Certificate in Informatics, offered by the Graduate College, to augment their Ph.D. training in disciplines ranging from molecular biology to biochemistry to computer science to engineering.

Since 1994, the Coordinated Laboratory for Computational Genomics, a CBCB affiliate, has engaged in a broad range of research activities that complement the Human Genome Project. Members of the laboratory develop new hardware and software techniques for analysis and annotation of genomic sequence, its transcription and translation, and the proteome. Other efforts are aimed at systematic capture and curation of phenotypic information acquired from massive databases of clinical information derived from collaborations with the College of Medicine. The goal of these projects is to elucidate the mechanisms of human disease and develop promising new methods for cures and treatments.

The laboratory's facilities include more than 200 workstations, 3 Linux clusters, and access to the NSF TeraGrid and other high-performance computing facilities. Projects in the laboratory frequently involve cutting-edge genomic and proteomic instruments such as the Roche 454 next-generation sequencing platform and several high-throughput gene expression (microarray) measurement platforms.

COMPUTER SYSTEMS AND VLSI CIRCUITS

Research emphasis is directed toward design and test of very-large-scale integrated (VLSI) circuits, high-performance computing and networking, and intelligent agent systems. Research in the VLSI area involves development of techniques and algorithms that assist in synthesis and testing of large-scale logic circuits, and incorporation of these techniques into computer-aided design tools. Current projects include new pattern sources for built-in-test, efficient test pattern generation, generation of compact test sets, and methods for reducing test data volumes.

High-performance computing research involves development of collaborative and parallel computing environments and associated software tools, and use of these facilities and tools in varied application domains, including image processing and computational biology. Current work in networking focuses on protocols and layer-integration schemes that support high-performance wireless networking, and on control and coordination of mobile ad hoc networks. Current research facilities in these areas include several large cluster computers and an experimental asynchronous transfer mode (ATM) network.

Departmental facilities that support this work include Linux and Windows workstations and server nodes that provide college-wide networked computer services. Advanced computing facilities also are available at national supercomputing centers and federal laboratories.

CONTROL SYSTEMS AND SYSTEMS THEORY

Control systems and system theory use feedback to improve the predictability and efficiency of engineered systems ranging from electronic amplifiers to vehicle guidance systems, manufacturing processes, communication channels, and the Internet. Work in control systems and systems theory draws heavily on results from mathematics, physics, and computer science to model

the systems that are to be controlled and to implement feedback controllers.

Current research emphasizes optimal, adaptive, digital, robust, and stochastic control and the control of discrete event dynamical systems. Recent work has concerned the estimation, identification, and robust control of linear and nonlinear dynamical systems; set membership identification, control over wireless communication channels; coordinated fault tolerant control of unmanned vehicles; use of control theory to analyze distributed computing, communications, and manufacturing systems; interplay between communications and control; design of fast digital controllers using subband coding; and multirate control systems.

Research in control systems and systems theory is supported by extensive computing resources and collaborations with local industry, the Center for Computer Aided Design, the National Advanced Driving Simulator (NADS), and the Carver College of Medicine.

NANOSCALE ELECTRONICS AND SPINTRONICS

Nanoscale devices and systems provide solutions for low-power logic devices, high-density 3-D stackable electronic and/or spintronic memory elements, and solar/waste energy harvesting applications. Current nanoscale and spintronics work involves post-CMOS transistor research to extend Moore's law in this century; use of novel magnetic and nonmagnetic nanomaterials for enhanced-CMOS and nonvolatile memory; and intelligent solar cells, thermoelectric devices, fuel cells and batteries for efficient solid-state energy conversion. Departmental researchers are pursuing experimental, theoretical, and large-scale computational approaches.

SIGNAL AND IMAGE PROCESSING

Research in image processing and basic and applied signal processing is supported by a digital signal processing laboratory and an image analysis laboratory. Collaborative research with faculty in the Departments of Radiology, Neurology, Psychiatry, Internal Medicine, Ophthalmology and Visual Sciences, Radiation Oncology, and Biomedical Engineering is directed at quantitative analysis of medical images.

In the area of signal processing, current projects include analysis and design of efficient adaptive algorithms for signal processing, efficient coding and transmission of speech, speech processing aids for the hearing-impaired, robust equalization of uncertain channels, application of neural networks to communications systems, multirate signal processing, and subband coding and channel equalization.

Image processing and analysis projects include development of novel methods for image segmentation, image registration, computer-aided detection and diagnosis, early identification of disease patterns from medical image data, computer-aided surgical planning, virtual and augmented reality medical image visualization, building anatomic atlases, and a broad range of translational medicine projects focusing on research and clinical applications of the novel methods. The areas of interest span all scales, from molecules to cells to small animals to humans, and cover a broad range of organ systems and targeted diseases. The spectrum of medical imaging modalities used for research and applications in image processing and analysis is equally

broad, encompassing all existing modalities, including X-ray, CT, MR, PET, SPECT, and OCT.

The Medical Image Analysis Labs consist of several specialized facilities for digital image processing. They are equipped with state-of-the-art devices for data storage, transfer, visualization, and analysis. High-capacity data storage devoted to image processing research offers more than 35 TB of online hard disk space. An augmented reality medical image visualization lab serves as a high-performance collaborative resource for the Iowa Institute for Biomedical Imaging. The institute makes additional resources available to image processing research, including small and large animal as well as human research scanning facilities, and provides a backbone for interdisciplinary medical image analysis research to electrical and computer engineering graduate students and faculty.

WAVES AND MATERIALS

Research in this area is carried out primarily in the Iowa Advanced Technology Laboratories, a well-equipped, modern facility two blocks from the Engineering Building, and in Van Allen Hall. Current research topics are optical and electronic properties of semiconductors, semiconductor devices, electro-optics, nonlinear optics, nonlinear wave propagation in plasmas, nanotechnology, and medical devices.

Much work is done in collaboration with other University of Iowa departments, including the Departments of Physics and Astronomy, Chemistry, Internal Medicine, and Neurosurgery. Facilities include two molecular beam epitaxy reactors (in physics and astronomy), a microfabrication laboratory with micrometer resolution capabilities, electrical characterization capability to 22 GHz, several Ti-sapphire lasers, a mid-infrared optical parametric oscillator, and plasma equipment for nonlinear wave plasma interaction studies.

Examples of current projects are the design and fabrication of diode lasers based on the bandgap engineering of antimony and arsenic-based III-V compound semiconductors, phase control of laser arrays, development of an all-optical power equalizer, characterization of quantum well devices, nonlinear waveguide devices, development of a noncontact method to measure transport properties, plasma and optical soliton excitation and propagation, development of cellular probes, and a noninvasive glucose sensor for medical research.

WIRELESS COMMUNICATION SYSTEMS

The department is engaged in research using wireless sensor networks (WSNs), which consist of spatially distributed autonomous devices that use sensors to cooperatively monitor physical or environmental conditions such as temperature, sound, vibration, pressure, motion, and pollutants at different locations. WSNs are used for environment and habitat monitoring, healthcare applications, home automation, and traffic control. Current research includes the application of WSN, traditional telemetry, and commercial cellular communication infrastructure for geosciences data collection (e.g., rainfall, water quality, soil moisture).

Another important research interest involving distributed sensor networks is the distributed control of power systems, especially requirements of the next-generation electric grid with smart metering and distributed

generation using small-scale wind and solar generators. Research on WSNs also includes the design of cooperative communication techniques for energy efficient WSNs and issues of localization, network organization, and control.

Research activities in communication systems focus on design and analysis of receivers for digital wireless communications, especially the development of effective and practical receivers for multiple-user wireless cellular systems in multipath channels. Projects include the removal of intersymbol interference by blind identification/equalization, multiple-user detection in CDMA without power control, receiver structures for 3G wireless cellular systems, cooperative beam forming for ad hoc wireless networks, resource allocation in OFDM systems, and scheduling in wireless networks. Fundamental theoretical issues and practical implementation are emphasized.

Master of Science

The Master of Science program in electrical and computer engineering requires 30 s.h. of graduate credit with thesis and 36 s.h. of graduate credit without thesis. Either option may precede Ph.D. study.

M.S. students must maintain a cumulative g.p.a. of at least 3.00.

Thesis students must complete at least 12 s.h. from an approved list of electrical and computer engineering courses and 6 s.h. in ECE:5999 (055:199) Research: Electrical and Computer Engineering M.S. Thesis. Nonthesis students must complete at least 18 s.h. from an approved list of electrical and computer engineering courses; nonthesis students may count no more than 3 s.h. of independent study toward the degree. Courses required for the B.S.E. in electrical engineering do not count toward the M.S. requirements.

All M.S. students must successfully complete a final examination, which is conducted by a committee of at least three faculty members. One part of the final examination for thesis students consists of an oral defense of the thesis.

M.S. Subprogram in Software Engineering

A Master of Science subprogram in software engineering is available to both thesis and nonthesis students. The M.S. with software engineering subprogram requires the same amount of graduate credit as the M.S. without the subprogram: a minimum of 30 s.h. for the thesis option, and 36 s.h. for the nonthesis option. All rules for additional credit and the M.S. final examination are the same as for the M.S. without the subprogram. Successful completion of the subprogram results in the designation "with specialization in software engineering" on the student's transcript.

The software engineering subprogram requires the following course work.

ECE:5310 (055:131) Introduction to VLSI Design	3 s.h.
ECE:5320 (055:132) High Performance Computer Architecture	3 s.h.
ECE:5330 (055:133) Graph Algorithms and Combinatorial Optimization	3 s.h.
ECE:5800 (055:180) Fundamentals of Software Engineering	3 s.h.

ECE:5810 (055:181) Formal Methods in Software Engineering	3 s.h.
ECE:5820 (055:182) Software Engineering Languages and Tools	3 s.h.
ECE:5830 (055:183) Software Engineering Project	3 s.h.

In addition to the courses listed above, thesis students complete another 3 s.h. of course work from the approved list of electrical and computer engineering courses; nonthesis students complete another 6 s.h.

Doctor of Philosophy

The Doctor of Philosophy program in electrical and computer engineering requires a minimum of 72 s.h. of graduate credit. At least 45 s.h. must be earned in formal course work (not in thesis work or other independent study), including 30 s.h. from an approved list of electrical and computer engineering courses. Each Ph.D. student's study plan must be approved by the student's advisor and by the graduate committee.

Ph.D. students take a Ph.D. qualifying examination and a Ph.D. comprehensive examination. Then they must successfully complete a research program that includes a minimum of 18 s.h. of Ph.D. research and culminates in the preparation of a thesis. Finally, the candidate must present a successful oral defense of the thesis.

Ph.D. students must maintain a cumulative g.p.a. of 3.25 or higher in all graduate course work.

Acceptance to the Ph.D. program requires successful completion of the Ph.D. qualifying examination. This all-day written exam is given once a year, late in the spring semester. It covers four areas chosen by the student from an extensive list. Students normally are expected to take the qualifying examination within the first 30 s.h. of graduate studies. A cumulative g.p.a. of at least 3.25 is required for admittance to the exam. Students who fail the examination may retake it only once, the next time it is offered.

Following successful completion of the Ph.D. qualifying examination and invitation to the Ph.D. program, a student must complete the two-part Ph.D. comprehensive examination. The first part is a written research proposal that includes a thorough literature survey providing the motivation and background for the proposal. The second part is an oral examination.

Students must pass the Ph.D. qualifying examination before they may take the Ph.D. comprehensive exam, and they must complete the comprehensive exam no later than three calendar years after passing the qualifying exam. Students who fail to meet this deadline must retake the qualifying exam. The qualifying exam and the comprehensive exam may not be taken in the same semester.

The final requirement for completion of the Ph.D. program is the preparation and successful defense of the Ph.D. thesis. This must be completed no sooner than six months but no longer than three years after completion of the comprehensive examination.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations

of the Graduate College or the Graduate College section of the Catalog.

M.S. applicants must have a g.p.a. of at least 3.00, and Ph.D. applicants must have a g.p.a. of at least 3.25, on all electrical and computer engineering, mathematics, and physics course work. M.S. applicants with a g.p.a. between 2.75 and 3.00 in electrical and computer engineering, mathematics, and physics course work may be admitted on probation, if warranted by other aspects of their academic records.

Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer science) may be admitted on conditional status. They may be required to complete additional course work, without earning graduate credit, before being granted regular status.

Each application is reviewed individually. Extenuating circumstances may permit deviations from the usual standards.

Financial Support

A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Facilities and Laboratories

Undergraduate Core

Electrical and computer engineering provides core instruction for the college in electrical circuits, electronics, instrumentation, and computers. A key part of this core teaching responsibility lies in providing students with an early opportunity to use engineering laboratory instrumentation.

Undergraduate Laboratories

The department's undergraduate laboratories include facilities for the study of electrical and electronic circuits, wireless communication, power and sustainable energy, signals and systems, microprocessor-based computers and systems, measurement automation, communication systems, control systems, computer-aided design of VLSI circuits, image processing, robotics, and optics. The laboratories are equipped with modern equipment, including digital oscilloscopes, computer-controlled virtual instrumentation, and software and hardware for embedded-systems development.

Graduate Facilities and Laboratories

The department has laboratories intended primarily for graduate research in the areas of bioinformatics, image processing, software engineering, electro-optics, control systems, medical imaging and image analysis, large-scale intelligent systems, and wireless communication. Linux and Windows workstations and server nodes provide college-wide networked computing support. Through cooperative arrangements, advanced computing facilities at national supercomputing centers, federal laboratories, and other universities are available for graduate research.

Courses

Special Topics

ECE:0000 (055:000) Cooperative Education Training Assignment: Electrical Engineering 0 s.h.

Electrical engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Requirements: admission to Cooperative Education Program.

ECE:0002 (055:002) Half-time Cooperative Education Training Assignment: Electrical Engineering 0 s.h.

Registration for work assignment periods; for students participating in the Cooperative Education Program.

ECE:2120 (055:012) Art and Engineering 3 s.h.

Collaborative, interdisciplinary, cutting-edge opportunity to gain real world engineering experience while learning to think creatively and analytically to create engaging works of art; interdisciplinary collaboration and creative methodologies that enhance life-long creative practice of artists and engineers; basic electronics and Arduino prototyping platform to create programmable, sensor-driven, responsive circuits. Prerequisites: TDSN:2210 (01T:021) or CERM:2010 (01C:060) or MTLs:2910 (01G:084) or SCLP:2810 (01N:015). Same as TDSN:2205 (01T:020).

ECE:2410 (055:018) Principles of Electronic Instrumentation 4 s.h.

Principles of analog signal amplification, signal conditioning, filtering; operational amplifier circuit analysis and design; principles of operation of diodes, bipolar transistors, field effect transistors; discrete transistor amplifier analysis and design; laboratory included. Prerequisites: ENGR:2120 (059:008) and PHYS:1612 (029:082).

ECE:3000 (055:091) Professional Seminar: Electrical Engineering 1 s.h.

Professional aspects of electrical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Requirements: junior standing.

ECE:3998 (055:098) Individual Investigations: Electrical Engineering arr.

Individual projects for electrical engineering undergraduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research.

ECE:4880 (055:088) Principles of Electrical Engineering Design 3 s.h.

Design problems requiring integration of subject matter from other required electrical and computer engineering courses. Prerequisites: ECE:2410 (055:018) and ENGR:2730 (057:017). Requirements: senior standing.

ECE:4890 (055:089) Senior Electrical Engineering Design 3 s.h.

Individual or team project; demonstration of completed project and formal engineering report. Prerequisites: ECE:4880 (055:088). Requirements: completion of three required subprogram courses.

Digital Systems, Computers, Software Engineering

ECE:3320 (055:032) Introduction to Digital Design 3 s.h.

Modern design and analysis of digital switching circuits; combinational logic; sequential circuits and system controllers; interfacing and busing techniques; design methodologies using medium- and large-scale integrated circuits; lab arranged. Requirements: sophomore standing.

ECE:3330 (055:033) Introduction to Software Design 3 s.h.

Design of software for engineering systems; algorithm design and structured programming; data structures; introduction to object-oriented programming in JAVA; applications to engineering problems; lab arranged. Prerequisites: ENGR:2730 (057:017).

ECE:3350 (055:035) Computer Architecture and Organization 3 s.h.

Basic concepts; computer evolution, register transfer level design, simulation techniques, instruction sets (CISC and RISC), assembly language programming, ALU design, arithmetic algorithms and realization of arithmetic functions, hardwired and microprogrammed control, memory hierarchies, virtual memory, cache memory, interrupts and DMA, input/output; introduction to high-performance techniques, pipelining, multiprocessing; introduction to hardware description languages (Verilog, VHDL); students design and simulate a simple processor. Offered fall semesters. Prerequisites: ECE:3320 (055:032) and ENGR:2730 (057:017).

ECE:3360 (055:036) Embedded Systems and Systems Software 3 s.h.

Microprocessors and microcontrollers as components in engineering systems; embedded system design processes; microcontroller/microprocessor architecture; interrupts and traps; memory and device interfacing; low-level and high-level software design for embedded systems; examples of embedded system architecture and design; fundamentals of operating systems; tasks and processes; context switching and scheduling; memory and file management, interprocess communication; device drivers. Prerequisites: ENGR:2730 (057:017).

ECE:5129 (055:129) Information Systems for Resource Management 3 s.h.

Understanding and managing natural and engineered resources requiring data-reach foundation; management of data; complex data-driven technologies integrated into data and information systems (DIS); hands-on opportunity to develop or use capabilities of DIS for study or research area of interest (science, engineering, industrial operation); wind power generation, an emerging field in Iowa, used as a case study for illustrating key DIS components, links, and functionalities. Same as IE:5129 (056:129), ME:5129 (058:129), CEE:5129 (053:129), GEOG:5129 (044:140).

ECE:5220 (055:122) Computational Genomics 3 s.h.

Introduction to computational methods used in genome analysis and functional genomics; biological sequence analysis, sequence database search, microarray data analysis, biological network analysis; in-depth coverage of principal genome science challenges and recent solutions. Prerequisites: BME:5320 (051:123), CS:3110 (22C:104), and BIOS:5110 (171:161) or STAT:3510 (22S:101). Same as BIOL:5320 (002:174), BME:5330 (051:122), GENE:5173 (127:173).

ECE:5300 (055:130) Switching Theory 3 s.h.

Switching algebras; combinational circuits—hazards, minimization, multiple-output networks; sequential circuits—critical races, essential hazards, fundamental-mode, pulse-mode, synchronous circuits-state assignment, state reduction; input-output experiments. Prerequisites: ECE:3320 (055:032).

ECE:5310 (055:131) Introduction to VLSI Design 3 s.h.

MOS devices and circuits; MOS transistor theory, MOS processing technologies, MOS device models; timing and power considerations; performance issues; scaling; various logic schemes; circuit techniques; clocking strategies; I/O structures; design styles; ASIC design; MOS subsystem design; system case studies, use of electronic design automation tools, introduction to hardware description languages, design synthesis, design projects; lab. Prerequisites: ECE:3320 (055:032) and ECE:3410 (055:041).

ECE:5320 (055:132) High Performance Computer Architecture 3 s.h.

Problems involved in designing and analyzing current machine architectures using hardware description language (HDL) simulation and analysis, hierarchical memory design, pipeline processing, vector machines, numerical applications, multiprocessor architectures and parallel algorithm design techniques; evaluation methods to determine relationship between computer design and design goals. Prerequisites: CS:3620 (22C:112) or ECE:3350 (055:035). Same as CS:5610 (22C:160).

ECE:5330 (055:133) Graph Algorithms and Combinatorial Optimization 3 s.h.

Combinatorial optimization problems; time complexity; graph theory and algorithms; combinatorial optimization algorithms; complexity theory and NP-completeness; approximation algorithms; greedy algorithms and matroids. Prerequisites: ECE:3330 (055:033).

ECE:5380 (055:138) Testing Digital Logic Circuits 3 s.h.

Logic models for faults; fault detection in combinational and sequential circuits; fault-diagnosis; design for testability; random testing, compressed data testing, built-in testing. Prerequisites: ECE:3320 (055:032).

ECE:5800 (055:180) Fundamentals of Software Engineering 3 s.h.

Problem analysis, requirements definition, specification, design, implementation, testing/maintenance, integration, project management; human factors; management, technical communication; design methodologies; software validation, verification; group project experience. Prerequisites: CS:2820 (22C:022) or ECE:3330 (055:033). Same as CS:5800 (22C:180).

ECE:5810 (055:181) Formal Methods in Software Engineering 3 s.h.

Models, methods, and their application in all phases of software engineering process; specification methods; verification of consistency, completeness of specifications; verification using tools. Prerequisites: CS:2820 (22C:022) or ECE:3330 (055:033). Recommendations: CS:4350 (22C:188). Same as CS:5810 (22C:181).

ECE:5820 (055:182) Software Engineering Languages and Tools 3 s.h.

Modern agile software development practices for cloud and web-based applications, using state-of-the-art software engineering languages, tools, and technologies; agile software development practices, software-as-a-service (SAAS), and the Ruby on Rails Development Framework. Requirements: ECE:5800 (055:180) or CS:5800 (22C:180); or graduate standing with solid understanding of object-oriented design and programming, and facility with at least one object-oriented programming language. Same as CS:5820 (22C:182).

ECE:5830 (055:183) Software Engineering Project 3 s.h.

Team software development project using concepts and methodologies learned in earlier software engineering classes; practical aspects of large-scale software development. Prerequisites: CS:5800 (22C:180) and CS:5820 (22C:182). Same as CS:5830 (22C:183).

Signal and Image Processing

ECE:2400 (055:040) Linear Systems I 3 s.h.

Introduction to continuous and discrete time signals and systems with emphasis on Fourier analysis; examples of signals and systems; notion of state and finite state machines; causality; linearity and time invariance; periodicity; Fourier transforms; frequency response; convolution; IIR and FIR filters, continuous and discrete Fourier transforms; sampling and reconstruction; stability. Prerequisites: ENGR:2120 (059:008) and MATH:2560 (22M:034).

ECE:3400 (055:043) Linear Systems II 3 s.h.

Continuation of ECE:2400 (055:040), emphasis on Laplace and Z-transform analysis; unilateral and bilateral Laplace transform; region of convergence; stability; block diagram algebra; first- and second-order continuous and discrete time systems; Bode plots. Prerequisites: ECE:2400 (055:040).

ECE:3410 (055:041) Electronic Circuits 4 s.h.

Design and analysis of FET and BJT amplifiers; low, midrange, high-frequency analysis; difference amplifiers; feedback amplifiers; SPICE simulation; power amplifiers; digital logic families. Prerequisites: ECE:2400 (055:040) and ECE:2410 (055:018).

ECE:5410 (055:141) Advanced Circuit Techniques 3 s.h.

Advanced circuit principles; component, signal and noise models; sub-circuit design including oscillators, amplifiers, multipliers, noise generators, frequency converters, phase-locked loops, filters, transmission gates and level-shifters; measurement techniques including bridge, signal averaging and lock-in techniques, case studies of A/D and D/A converters, single-supply op amps, low-noise, large-signal and high frequency circuits; lab. Prerequisites: ECE:3410 (055:041).

ECE:5420 (055:142) Power Electronics 3 s.h.

Fundamental concepts and design techniques of power electronics circuits; switching power pole and various switch-mode DC to DC power conversion topologies; feedback control of switch-mode DC to DC power supplies; diode rectification of AC utility power and Power Factor Control (PFC) circuits; electromagnetic concepts and design of high-frequency inductors and transformers; electrically isolated switch-mode DC power supply topologies and soft-switching DC-DC converters and inverters; techniques for synthesis of DC and low-frequency AC sinusoidal voltages. Prerequisites: ENGR:2120 (059:008) and PHYS:1611 (029:081). Requirements: junior standing.

ECE:5450 (055:145) Pattern Recognition 3 s.h.

Mathematical foundations and practical techniques of pattern recognition; adaptation, learning, description; statistical pattern recognition; syntactic pattern recognition, neural networks for recognition; fuzzy logic for recognition; nonstandard and combined pattern recognition approaches. Prerequisites: ECE:2400 (055:040).

ECE:5460 (055:146) Digital Signal Processing 3 s.h.

Theory, techniques used in representing discrete-time signals; system concepts in frequency and sampling domains; FIR and IIR digital filter theory, design and realization techniques; theory, application of discrete Fourier transforms/FFT. Prerequisites: ECE:3400 (055:043).

ECE:5480 (055:148) Digital Image Processing 3 s.h.

Mathematical foundations and practical techniques for digital manipulation of images; image sampling, compression, enhancement, linear and nonlinear filtering and restoration; Fourier domain analysis; image pre-processing, edge detection, filtering; image segmentation. Prerequisites: BME:2210 (051:080) or ECE:2400 (055:040). Same as BME:5220 (051:148).

ECE:5620 (055:143) Electric Power Systems 3 s.h.

Overview of electric power systems; single phase and three-phase representations of electric power signals and electromagnetic concepts; AC transmission lines and underground cables, power flow in a power system network, AC power transformers, High Voltage DC (HVDC) power transmission, electric power distribution, synchronous generators, voltage regulation and stability, power system transients and dynamic stability, control of interconnected power systems, transmission line faults, transient over-voltages and surge protection. Prerequisites: ENGR:2120 (059:008) and PHYS:1611 (029:081). Requirements: junior standing.

ECE:7450 (055:245) Magnetic Resonance Imaging Systems 3 s.h.

Mathematical foundations and practical implementation for magnetic resonance imaging (MRI); principles of image formation using Fourier and projection techniques, non-Cartesian sampling, tomographic image reconstruction, sources of artifacts and their correction. Prerequisites: ECE:5460 (055:146) and ECE:5480 (055:148).

ECE:7470 (055:247) Image Analysis and Understanding 3 s.h.

Mathematical foundations and practical techniques of digital image analysis and understanding; image segmentation (from edges and regions), object description (from boundaries, regions, scale, scale insensitive descriptions, 3-D shape, texture) pattern recognition (statistical and syntactic methods, cluster analysis), image understanding (knowledge representation, control strategies, matching, context, semantics), image analysis and understanding systems; lab arranged. Prerequisites: ECE:5480 (055:148).

ECE:7480 (055:248) Advanced Digital Image Processing 3 s.h.

Advanced local operators (scale-space imaging, advanced edge detection, line and corner detection), image morphology (binary/gray scale operators, morphological segmentation and watershed), digital topology and geometry (binary/fuzzy digital topology, distance functions, skeletonization), color spaces, wavelets and multi-resolution processing (Haar transform, multi-resolution expansions, wavelet transforms in one or two dimensions, fast wavelet transform, wavelet packets), image registration (intensity correlation, mutual information, and landmark-based deformable registration methods). Prerequisites: ECE:5460 (055:146) and ECE:5480 (055:148).

ECE:7920 (055:292) ECE Graduate Seminar on Image Processing, Computer Vision and Medical Imaging 0 s.h.

Recent advances and research in image processing, computer vision, and medical imaging; presentation by guest lecturers, faculty, students. Requirements: graduate standing.

Communication and Information

ECE:3500 (055:050) Communication Systems 3 s.h.

Introduction to analog and digital communications, with an emphasis on modulation and noise analysis; Fourier analysis, probability theory, random variable and processes, AM, FM, pulse-coded modulation, binary digital modulation, SNR analysis of AM and FM, BER analysis of digital modulation schemes. Prerequisites: ECE:3400 (055:043).

ECE:3540 (055:054) Communication Networks 3 s.h.

Communication networks, layered network architectures, applications, network programming interfaces (e.g., sockets), transport, congestion, routing, data link protocols, local area networks, emerging high-speed networks, multimedia networks, network security, Internet protocol; technology examples. Prerequisites: ENGR:2730 (057:017). Corequisites: STAT:2020 (22S:039).

ECE:5500 (055:150) Communication Theory 3 s.h.

Random processes, source coding, digital transmission at baseband, optimum receiver design for Gaussian noise, error probability and power spectrum analysis, signal design for bandlimited channels, digital carrier modulation, bandwidth/energy/error probability tradeoffs, coding for error detection and correction. Prerequisites: ECE:3500 (055:050) and STAT:2020 (22S:039).

ECE:5520 (055:152) Introduction to Information and Coding Theories 3 s.h.

Quantitative measure of information; source encoding; error detecting codes; block and convolutional codes, design of hardware and software implementations; Viterbi decoding. Prerequisites: ECE:3500 (055:050) and STAT:2020 (22S:039).

ECE:5530 (055:153) Wireless Sensor Networks 3 s.h.

Wireless sensor networks overview; antennas, radio propagation models; WSN power and energy considerations, engineering issues, batteries, networks layers, stacks; medium access control (MAC); spread spectrum, FHSS, CDMA; infrastructure establishment; WSN routing; localization; synchronization; sensors; RFID; WSN case studies; lab. Prerequisites: ECE:3500 (055:050) and STAT:2020 (22S:039). Requirements: senior standing.

Controls

ECE:3600 (055:060) Control Systems 3 s.h.

Fundamental concepts of linear feedback control, mathematical modeling, transfer functions, system response, feedback effects, stability, root-locus and frequency response analysis and design, compensation, lab arranged. Prerequisites: ECE:2400 (055:040).

- ECE:5430 (055:162) Electric Drive Systems** 3 s.h.
Basic characteristics of DC and AC electric motors and their associated power electronics interfaces; applications of electric machines and drives that are essential for wind turbines, electric and hybrid-electric; emphasis on vehicles; electric machines in context of overall drives and associated applications; space-vector theory used to analyze electric machines and drives; DC motor/generator characteristics and control; AC single phase and three-phase motor characteristics and feedback control, including AC synchronous and induction motors. Prerequisites: ENGR:2120 (059:008) and PHYS:1611 (029:081). Requirements: junior standing.
- ECE:5600 (055:160) Control Theory** 3 s.h.
State space approach; controllability, observability, canonical forms, Luenberger observers, feedback control via pole placement, stability, minimal realization and optimal control. Prerequisites: ECE:3600 (055:060). Same as ME:5360 (058:133).
- ECE:5630 (055:163) Sustainable Energy Conversion** 3 s.h.
Overview of sustainable energy conversion technologies; thermal energy conversion; Carnot and Rankine cycles; solar resource and raw energy availability, PV solar cell characteristics, solar panel construction, Maximum Power Point (MPP) tracking and utility grid interface; wind energy conversion resource and available energy, wind turbine configurations, electrical power interface electronics; ocean energy conversion tidal and wave resources and conversion technologies; tidal basin containment conversion and tidal current turbine systems. Prerequisites: ENGR:2120 (059:008) and PHYS:1611 (029:081). Requirements: junior standing.
- ECE:5640 (055:164) Computer-Based Control Systems** 3 s.h.
Discrete and digital control systems; application of computers in control; sampling theorem; discrete time system models; analysis and design of discrete time systems; control design by state variable and input/output methods; advanced topics in digital controls; lab. Prerequisites: ECE:3600 (055:060). Same as ME:5362 (058:134).
- Waves and Materials**
- ECE:3700 (055:070) Electromagnetic Theory** 3 s.h.
Electric and magnetic forces, Maxwell's equations, wave propagation; applications, including radiation, transmission lines, circuit theory. Prerequisites: MATH:3550 (22M:037) and PHYS:1612 (029:082).
- ECE:3720 (055:072) Electrical Engineering Materials and Devices** 3 s.h.
Fundamentals of semiconductor physics and devices; principles of the p-n junction diode, bipolar transistor, field effect transistor. Prerequisites: ECE:3410 (055:041) and PHYS:1612 (029:082).
- ECE:4720 (055:177) Introductory Optics** 3 s.h.
Geometrical and physical optics; interference; diffraction; polarization; microscopic origins of macroscopic optical properties of matter; optical activity; electro-optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisites: PHYS:3812 (029:130). Same as PHYS:4720 (029:180).
- ECE:4728 (055:173) Introductory Solid State Physics** 3 s.h.
Phenomena associated with solid state; classification of solids and crystal structures, electronic and vibrational properties in solids; thermal, optical, magnetic, dielectric properties of solids. Prerequisites: MATH:2850 (22M:028) and PHYS:3741 (029:140). Same as PHYS:4728 (029:193).
- ECE:5700 (055:170) Advanced Electromagnetic Theory** 3 s.h.
Time varying fields; plane wave propagation, reflection, refraction; waves in anisotropic media transmission lines, impedance matching, Smith chart; metallic and dielectric wave guides; resonators; antennas, antenna arrays. Prerequisites: ECE:3700 (055:070).
- ECE:5720 (055:172) Solid State Physical Electronics** 3 s.h.
Advanced topics in semiconductor physics and devices; elementary concepts in quantum and statistical mechanics, diodes, bipolar transistor, field-effect transistor. Prerequisites: ECE:3720 (055:072).
- ECE:5780 (055:178) Optical Signal Processing** 3 s.h.
Linear systems description of optical propagation; diffraction and angular plane wave spectrum; lenses as Fourier transformers, lens configurations as generalized optical processors; lasers, coherence, spatial frequency analysis; holography; convolvers, correlators, matched filters; synthetic aperture radar; optical computing. Requirements: for ECE:5780 (055:178) — ECE:3700 (055:070); for PHYS:4820 (029:184) — PHYS:3812 (029:130). Same as PHYS:4820 (029:184).
- ECE:5790 (055:179) Electro Optics** 3 s.h.
Wave equation solutions; optical birefringence; finite beam propagation in free space, dielectric waveguides and fibers; optical resonators; nonlinear phenomena; electro-optic, acousto-optic modulation; optical detection, noise; application to communication systems. Requirements: for ECE:5790 (055:179) — ECE:3700 (055:070); for PHYS:4726 (029:182) — PHYS:3812 (029:130). Same as PHYS:4726 (029:182).
- ECE:6720 (055:276) Nonlinear Optics** 3 s.h.
Classical treatment of second- and third-order optical nonlinearities; phase matching, harmonic generation, three- and four-wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Requirements: for PHYS:6720 (029:222) — PHYS:3812 (029:130); for ECE:6720 (055:276) — ECE:5700 (055:170) or PHYS:3812 (029:130). Same as PHYS:6720 (029:222).

ECE:6726 (055:274) Laser Principles 3 s.h.

Laser theory, stimulated emission, dispersion theory, broadening mechanisms, rate equations, gain saturation, optical resonators, mode-locking, Q-switching techniques, survey of laser types, modes of operation. Requirements: for PHYS:6726 (029:224) — PHYS:3812 (029:130); for ECE:6726 (055:274) — ECE:5700 (055:170). Same as PHYS:6726 (029:224).

ECE:7720 (055:273) Semiconductor Physics 3 s.h.

Electronic, optical, and materials properties of semiconductors. Prerequisites: PHYS:4728 (029:193) and PHYS:5742 (029:246). Same as PHYS:7720 (029:229).

Graduate Seminars, Advanced Topics, Research

ECE:5000 (055:191) Graduate Seminar: Electrical and Computer Engineering 0 s.h.

Presentation and discussion of recent advances and research in electrical and computer engineering by guest lecturers, faculty, students. Requirements: graduate standing.

ECE:5995 (055:195) Contemporary Topics in Electrical and Computer Engineering arr.

New topics or areas of study not offered in other electrical and computer engineering courses; based on faculty/student interest; not available for individual study.

ECE:5998 (055:198) Individual Investigations: Electrical and Computer Engineering arr.

Individual projects for electrical and computer engineering graduate students; laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Requirements: graduate standing.

ECE:5999 (055:199) Research: Electrical and Computer Engineering M.S. Thesis arr.

Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for M.S. degree with thesis in electrical and computer engineering. Requirements: graduate standing.

ECE:7930 (055:291) Seminar: Plasma Physics arr.

Current research. Same as PHYS:7930 (029:261).

ECE:7995 (055:295) Advanced Topics in Electrical and Computer Engineering arr.

Discussion of current literature in electrical and computer engineering.

ECE:7999 (055:299) Research: Electrical and Computer Engineering Ph.D. Thesis arr.

Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for Ph.D. in electrical and computer engineering.

Mechanical and Industrial Engineering

Chair

- Andrew Kusiak

Professors

- Karim Abdel-Malek, Kurt M. Anstreicher, Jasbir S. Arora, Christoph Beckermann, T.D. Brown, P. Barry Butler, Krishnan B. Chandran, Kyung K. Choi, J.A. Goree, Andrew Kusiak, Ching-Long Lin, Jia Lu, Sharif Rahman, K. Rim, Matthew Rizzo, Frederick Stern, H.S. Udaykumar

Associate professors

- Pablo Carrica, Yong Chen, Pavlo Krokmal, Amaury Lendasse, Albert Ratner, Thomas Schnell, Hiroyuki Sugiyama, Geb W. Thomas, Shaoping Xiao, Olesya Zhupanska

Assistant professors

- James Buchholz, Hongtao Ding, Ibrahim Ozbolat

Lecturers

- Justin Garvin, Arun Pennathur, Kamran Samani

Professors emeriti

- James G. Andrews, Dennis L. Bricker, Lea-Der Chen, Gary W. Fischer, Edward J. Haug, Robert G. Hering, George M. Lance, John M. Liittschwager, Donald H. Madsen, Peter O'Grady, Virendra C. Patel, J. Richard Simon, Theodore F. Smith, Ralph I. Stephens, H.C. Wu

Undergraduate majors: industrial engineering (B.S.E.); mechanical engineering (B.S.E.)

Graduate degrees: M.S. in industrial engineering (optional concentration in wind power management); Ph.D. in industrial engineering; M.S. in mechanical engineering; Ph.D. in mechanical engineering

Web site: <http://www.engineering.uiowa.edu/mie/>

The Department of Mechanical and Industrial Engineering offers distinct undergraduate and graduate degrees and research programs in industrial engineering and in mechanical engineering. It also is the administrative home of the undergraduate Certificate in Wind Energy (p. 939).

INDUSTRIAL ENGINEERING

Industrial engineering is concerned with analysis, design, and implementation of systems through optimal use of resources—human, material, energy, information, and financial. Systems may range from small units to extremely large operations. In order to accomplish these activities, the industrial engineer must be skilled in mathematics, physical sciences, management, and human relations as well as manufacturing, computer systems, economics, optimization, human behavior, and systems analysis and design.

Industrial engineers have many opportunities for employment and service in industrial, government, research, and public service organizations. Employment opportunities are among the most varied in the engineering field. Industrial engineers hold positions as advisors to management or may participate directly in management decisions. Representative job titles include industrial engineer, manufacturing engineer,

systems analyst, quality specialist, operations research analyst, internal consultant, human factors specialist, supervisor, and manager. Industrial engineers are employed by manufacturing and energy firms, wind turbine manufacturers, government agencies, and service organizations such as airlines, banks, hospitals, health care groups, and consulting companies.

MECHANICAL ENGINEERING

Mechanical engineering is broadly concerned with energy, manufacturing, and design of machines. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems—including complex human-machine systems—for energy conversion, biofuel production, environmental control, materials processing, transportation, materials handling, and other purposes. Major subspecialties of mechanical engineering include thermal-fluids engineering and mechanical systems engineering.

Thermal-fluid phenomena occur in many engineering systems and devices, such as aircraft; automobiles; off-road vehicles; ships; gas turbines; heat exchangers; material processes; heating, ventilating, air-conditioning, and refrigerating systems; hydraulic and wind turbines; airbag inflators; fuel cells; biofuel processes; environmental control devices; and biomedical systems.

Machines and mechanical systems and machines are the foundations of human technology. Mechanical systems are found in mechanical engineering systems and devices such as manufacturing equipment, medical equipment, ground vehicles, heavy equipment, farm equipment, aircraft, ships, home appliances, packaging machinery, wind turbine blades and gearboxes, robots, and biomedical systems.

Mechanical engineers find a wide variety of career opportunities in industry, government, and education. Mechanical engineers form an integral part of most industries, including aerospace firms, energy companies, automobile manufacturers, health care providers, food- and metal-processing industries, petroleum refineries, electronic and computer manufacturers, heavy construction and agricultural vehicle manufacturers, wind turbine manufacturers, thermal comfort equipment firms, farm equipment firms, and consulting companies.

Undergraduate Programs of Study

- Major in industrial engineering (Bachelor of Science in Engineering)
- Major in mechanical engineering (Bachelor of Science in Engineering)

INDUSTRIAL ENGINEERING

The educational objective of the B.S.E. program in industrial engineering is to produce graduates who, within a few years of graduation:

- will have successful careers in engineering and beyond and will have assumed professional roles of increasing responsibility and impact;
- will have acquired new knowledge and expertise through professional development opportunities or advanced education; and

- will be engaged in workplace, professional, or civic communities.

Visit Industrial Engineering Program Educational Objectives to learn more.

MECHANICAL ENGINEERING

The educational objective of the B.S.E. program in mechanical engineering is to produce graduates who, within a few years of graduation:

- will have successful careers in engineering and beyond and will have assumed professional roles of increasing responsibility and impact;
- will have acquired new knowledge and expertise through professional development opportunities or advanced education; and
- will be engaged in workplace, professional, or civic communities.

Visit Mechanical Engineering Program Educational Objectives to learn more.

B.S.E.: Industrial Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. The major in industrial engineering requires a strong foundation of courses in engineering science, mathematics, design, manufacturing, social science, and humanities.

Advanced work includes specialty courses in human factors and ergonomics, management, information systems, manufacturing, quality control, and operations research. Design is an integral part of the undergraduate program; all students complete a comprehensive design experience.

All engineering students complete the B.S.E. core requirements, which include RHET:1030 (010:003) Rhetoric, ENGR:1100 (059:005) Engineering Problem Solving I, ENGR:1300 (059:006) Engineering Problem Solving II, and courses in chemistry, engineering mathematics and fundamentals, and physics. They must earn a grade of C-minus or higher in the core requirements MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus and MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus.

They also complete the curriculum designed for their major program, which covers four major stems: mathematics and basic sciences, engineering topics, an elective focus area, and the general education component (15 s.h. of humanities and social science courses). For information about the curriculum stems, see Bachelor of Science in Engineering (p. 861) in the Catalog.

Students must select elective focus area courses according to guidelines established by the Department of Mechanical and Industrial Engineering. See "Elective Focus Area" after the following curriculum list.

The following study plan includes the B.S.E. core requirements and the curriculum for the industrial engineering major. Some courses in the curriculum are prerequisites for others. Students must complete a course's prerequisites before they may register for the course. Those who take courses in the order below satisfy the prerequisite requirements automatically.

FIRST YEAR

First Semester

ENGR:1000 (059:090) Engineering Success for First-Year Students	1 s.h.
ENGR:1100 (059:005) Engineering Problem Solving I	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
RHET:1030 (010:003) Rhetoric	4-5 s.h.

Second Semester

ENGR:1300 (059:006) Engineering Problem Solving II	3 s.h.
MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra	2 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.
General education component course	3 s.h.

SECOND YEAR

First Semester

IE:2000 (056:020) Industrial Engineering Sophomore Seminar	0 s.h.
ENGR:2110 (059:007) Engineering Fundamentals I: Statics	2 s.h.
ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits	3 s.h.
ENGR:2130 (059:009) Engineering Fundamentals III: Thermodynamics	3 s.h.
MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations	3 s.h.
PHYS:1612 (029:082) Introductory Physics II	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.

Second Semester

IE:2500 (056:054) Engineering Economy	3 s.h.
IE:3500 (056:150) Information Systems Design	3 s.h.
ENGR:2720 (057:015) Materials Science	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
Elective focus area course	3 s.h.

THIRD YEAR

First Semester

IE:3000 (056:091) Professional Seminar: Industrial Engineering	0 s.h.
IE:3400 (056:144) Human Factors	3 s.h.
IE:3610 (056:166) Stochastic Modeling	3 s.h.
IE:3700 (056:171) Operations Research	3 s.h.
ENGR:2760 (057:021) Design for Manufacturing	3 s.h.
General education component course	3 s.h.

Second Semester

IE:3300 (056:131) Manufacturing Systems	3 s.h.
IE:3450 (056:147) Ergonomics	3 s.h.
IE:3750 (056:178) Digital Systems Simulation	3 s.h.
IE:3760 (056:176) Applied Linear Regression	3 s.h.

Elective focus area course	3 s.h.
General education component course	3 s.h.

FOURTH YEAR

First Semester

IE:3000 (056:091) Professional Seminar: Industrial Engineering	0 s.h.
IE:3350 (056:134) Process Engineering	4 s.h.
IE:3600 (056:162) Quality Control	3 s.h.
Elective focus area courses	6 s.h.
General education component course	3 s.h.

Second Semester

IE:4600 (056:160) Operational Systems Design	4 s.h.
Elective focus area courses (including math/ science elective)	12 s.h.
Systems elective course	3 s.h.

Elective Focus Area

The industrial engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see Bachelor of Science in Engineering (p. 861) in the Catalog. For a list of standard industrial engineering elective focus area options and guidelines for tailored elective focus areas, see Industrial Engineering Undergraduate Program on the Department of Mechanical and Industrial Engineering web site.

Joint B.S.E./M.S.: Industrial Engineering

The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for industrial engineering undergraduate students who intend to earn an M.S. in industrial engineering. B.S.E./M.S. students may take up to 12 s.h. of graduate-level course work, attend the program's graduate seminar, and work with a faculty member on a master's thesis project while they are still undergraduates. They may count 6 s.h. of graduate course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Mechanical and Industrial Engineering.

Some students in undergraduate majors other than industrial engineering may be admitted to the combined program; they must meet the same admission requirements as industrial engineering majors. In some cases, they may be required to take additional course work to meet the prerequisite requirements for upper-level courses.

B.S.E.: Mechanical Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. The major in mechanical engineering lays a foundation in the basic disciplines of mathematics, physics, and chemistry and in the engineering sciences

of statics, dynamics, thermodynamics, mechanics of deformable bodies, mechanics of fluids and transfer processes, materials science, and electrical sciences. An understanding of these sciences enables mechanical engineers to design parts of systems and understand whole systems, plan the production and use of energy, plan and operate industrial manufacturing facilities, and design automatic control systems for machines and other mechanical systems.

Mechanical engineering students develop an awareness of social and humanistic issues relating to business, environment, government, history, language, religion, and international relations. They also acquire an appreciation of professional and ethical responsibilities.

All engineering students complete the B.S.E. core requirements, which include RHET:1030 (010:003) Rhetoric, ENGR:1100 (059:005) Engineering Problem Solving I, ENGR:1300 (059:006) Engineering Problem Solving II, and courses in chemistry, engineering mathematics and fundamentals, and physics. They must earn a grade of C-minus or higher in the core requirements MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus and MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus.

They also complete the curriculum designed for their major program, which covers four major stems: mathematics and basic sciences, engineering topics, an elective focus area, and the general education component (15 s.h. of humanities and social science courses). For information about the curriculum stems, see Bachelor of Science in Engineering (p. 861) in the Catalog.

Upper-level students work on team projects in a senior capstone design course, ME:4086 (058:086) Mechanical Engineering Design Project. Some students may arrange to participate in established research projects.

Students must select elective focus area courses according to guidelines established by the Department of Mechanical and Industrial Engineering. See "Elective Focus Area" after the following curriculum list.

The following study plan includes the B.S.E. core requirements and the curriculum for the mechanical engineering major. Some courses in the curriculum are prerequisites to others. Students must complete a course's prerequisites before they may register for the course. Those who take courses in the order below satisfy the prerequisite requirements automatically.

FIRST YEAR

First Semester

ENGR:1000 (059:090) Engineering Success for First-Year Students (credit does not count toward B.S.E. degree)	1 s.h.
ENGR:1100 (059:005) Engineering Problem Solving I	3 s.h.
CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
RHET:1030 (010:003) Rhetoric	4 s.h.

Second Semester

ENGR:1300 (059:006) Engineering Problem Solving II	3 s.h.
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MATH:1560 (22M:032) Engineering Mathematics II: Multivariable Calculus	4 s.h.
MATH:2550 (22M:033) Engineering Mathematics III: Matrix Algebra	2 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.
General education component course	3 s.h.

SECOND YEAR**First Semester**

ME:2020 (058:020) Mechanical Engineering Sophomore Seminar	0 s.h.
ENGR:2110 (059:007) Engineering Fundamentals I: Statics	2 s.h.
ENGR:2120 (059:008) Engineering Fundamentals II: Electrical Circuits	3 s.h.
ENGR:2130 (059:009) Engineering Fundamentals III: Thermodynamics	3 s.h.
General education component course	3 s.h.
MATH:2560 (22M:034) Engineering Mathematics IV: Differential Equations	3 s.h.
PHYS:1612 (029:082) Introductory Physics II	3 s.h.

Second Semester

ENGR:2710 (057:010) Dynamics	3 s.h.
ENGR:2720 (057:015) Materials Science	3 s.h.
ENGR:2750 (057:019) Mechanics of Deformable Bodies	3 s.h.
ENGR:2760 (057:021) Design for Manufacturing	3 s.h.
Elective focus area course	3 s.h.

THIRD YEAR**First Semester**

ME:3091 (058:091) Professional Seminar: Mechanical Engineering	0 s.h.
ME:3351 (058:051) Engineering Instrumentation	2 s.h.
ENGR:2510 (057:020) Fluid Mechanics	4 s.h.
ENGR:2730 (057:017) Computers in Engineering	2-3 s.h.
MATH:3550 (22M:037) Engineering Mathematics V: Vector Calculus	3 s.h.
STAT:2020 (22S:039) Probability and Statistics for the Engineering and Physical Sciences	3 s.h.
Elective focus area course	3 s.h.

Second Semester

ME:3040 (058:040) Thermodynamics II	3 s.h.
ME:3045 (058:045) Heat Transfer	3 s.h.
ME:3052 (058:052) Mechanical Systems	4 s.h.
Elective focus area course	3 s.h.
General education component course	3 s.h.

FOURTH YEAR**First Semester**

ME:3091 (058:091) Professional Seminar: Mechanical Engineering	0 s.h.
ME:4048 (058:048) Energy Systems Design	4 s.h.
ME:4055 (058:055) Mechanical Systems Design	3 s.h.

Elective focus area courses	6 s.h.
General education component course	3 s.h.

Second Semester

ME:4080 (058:080) Experimental Engineering	4 s.h.
ME:4086 (058:086) Mechanical Engineering Design Project	3 s.h.
Elective focus area courses	6 s.h.
General education component course	3 s.h.

Elective Focus Area

The mechanical engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see Bachelor of Science in Engineering (p. 861) in the Catalog. For a list of standard mechanical engineering elective focus area options and guidelines for tailored elective focus areas, see Mechanical Engineering Undergraduate Program on the Department of Mechanical and Industrial Engineering web site.

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To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Mechanical and Industrial Engineering.

Certificate in Wind Energy

The Department of Mechanical and Industrial Engineering (College of Engineering) and the Department of Geographical and Sustainability Sciences (College of Liberal Arts and Sciences) administer the undergraduate certificate program in wind energy; see Wind Energy (p. 939) in the Catalog.

Graduate Programs of Study

- Master of Science in industrial engineering (with or without thesis; optional concentration in windpower management)
- Doctor of Philosophy in industrial engineering
- Master of Science in mechanical engineering (with or without thesis)
- Doctor of Philosophy in mechanical engineering

Research and Study in Industrial Engineering

Graduate study in industrial engineering is tailored individually. Each student's study program is based on his or her background and career objectives and is designed according to sound academic practice. The curriculum is highly flexible; the goal is academic excellence.

The program offers six principal academic focus areas: design and manufacturing, human factors engineering and ergonomics, engineering management, reliability and production systems, operations research and applied statistics, and information systems. Graduate students participate in research in their academic concentration areas.

ENGINEERING MANAGEMENT

Current research in engineering management consists of entrepreneurship, parametric cash flow analysis, strategic management, and economic risk analysis. Engineering management studies concentrate on engineering administration, engineering economics, and information systems. This area is covered by courses in the 50 series.

HUMAN FACTORS AND ERGONOMICS

Current research in human factors and ergonomics includes investigation of the effects of visual and auditory displays on human information processing and development of computer systems that ease the challenges of controlling complex medical and robotic systems. This work examines how engineers should shape information technology to enhance productivity, safety, and customer satisfaction. Industrial engineering faculty members and students work to improve the effectiveness of robot systems for exploration of Mars and the Moon, to improve driving safety, and to design new cockpit interfaces. The department has several medical, flight, and driving simulators. It also conducts research in other facilities, including National Advanced Driving Simulator, the most advanced simulation facility in the world.

Human factors and ergonomics studies concentrate on designing systems compatible with human capabilities and limitations. Human factors engineering integrates components from the fields of psychology, cognitive sciences, physiology, statistics, and technical sciences to address issues of human-interface design and human-systems design. Specific considerations include human cognitive abilities and limitations, visual performance, error reduction, workload assessment and mitigation, design of jobs in the industrial environment, information acquisition and processing, choice of action, operator performance measurement, and economic concerns. This area is covered by courses in the 40 series.

INFORMATION SYSTEMS

Studies in information systems concentrate on system design. Design problems involve devising information systems that meet a diverse set of requirements. Contemporary topics include network-based systems, client/server systems, internet systems, and medical informatics.

MANUFACTURING

Ongoing manufacturing research consists of flexible manufacturing systems, optimum control of processes, and reliability assessment. Manufacturing courses, denoted by the 30 series, delve into selecting appropriate

manufacturing methods, planning processing operations, devising control strategies, and designing products and manufacturing systems. Contemporary topics include computer-aided process planning, computer-aided design, computer-controlled manufacturing, concurrent engineering, and applications of artificial intelligence in manufacturing.

OPERATIONS RESEARCH AND APPLIED STATISTICS

Ongoing research in operations research and applied statistics deals with the application of optimization techniques for informed decision making in the public and private sectors. The primary focus of this work is modeling, simulating, and optimizing the design and operation of systems such as logistics, communications, health care, and manufacturing. Studies in operations research and applied statistics concentrate on mathematical programming, statistical, and computer sciences for modeling, analyzing, and optimizing systems. Various methodologies in this area include mathematical programming, heuristic optimization, statistical analysis, and digital systems simulation. This area is covered by courses in the 70 series.

QUALITY CONTROL AND PRODUCTION SYSTEMS

Current research in quality control and production systems focuses on measures for corporate quality and reliability, computer-aided layout and scheduling, just-in-time production, inspection, and online expert systems in process control. Studies of quality control and production systems focus on reliability engineering, quality control, and production systems. This area is covered by courses in the 60 series.

Research and Study in Mechanical Engineering

The graduate programs in mechanical engineering educate students in more depth and breadth than is possible at the baccalaureate level. This prepares the graduate to use contemporary methods at advanced levels in professional careers in engineering design, development, teaching, and research. Each student's plan of study is based on his or her background and career objectives, and is designed according to sound academic practice. Faculty members in the program have teaching and research expertise in energy and power conversion, fluid and thermal sciences, solid mechanics, mechanical systems, and related areas.

Students may develop programs emphasizing fluid mechanics, thermodynamics, heat transfer, fatigue and fracture mechanics, and mechanical systems. Some may pursue more general programs that combine emphases. Others may specialize in interdisciplinary areas (e.g., energy engineering, materials engineering, automatic control, chemical processes), which involve a combination of mechanical and industrial engineering departmental courses and appropriate electives from other departments in the College of Engineering and across the University. Ph.D. programs may center on any one of these areas through choice of appropriate course work and research topic.

For more information, see the Mechanical Engineering Graduate Student Handbook, available from the department.

The mechanical engineering program offers the following research and study areas.

FLUID MECHANICS

The graduate program in fluid mechanics provides a rigorous and broad foundation in theoretical, numerical, and experimental aspects of the subject. It is especially suitable for those seeking careers in teaching and/or research in academic and industrial organizations. The program focuses on fundamental principles and techniques of solving problems in the varied fields of fluids engineering. It emphasizes computer use, both in mathematical modeling of flow phenomena and in acquisition and processing of experimental data.

Although most of the relevant courses are offered by the Department of Mechanical and Industrial Engineering, students are strongly encouraged to take applied mathematics and classical mechanics courses offered by the Departments of Mathematics (p. 469) and Physics and Astronomy (p. 520) in the College of Liberal Arts and Sciences and by other College of Engineering departments.

Current research projects include computational modeling of viscous and turbulent flows; vortex dynamics; unsteady flows; pulmonary flow; flow separation and control; atmospheric flows; environmental flows; ship hydrodynamics; viscous flow around ships; propulsor flow and propulsor-body interactions; free-surface effects; nonlinear wave theory; biomimetic fluid mechanics; hydraulic turbines; quantitative flow visualization and image processing; computational fluid dynamics; LDV and thermal anemometry for flow analysis; and uncertainty analysis.

MECHANICAL SYSTEMS

The graduate program in mechanical systems is designed to provide students with a broad, strong background in theoretical, computational, experimental, and applied aspects of the subject. It prepares future graduates for careers in industry, teaching, and government. The program emphasizes fundamental principles, computational techniques, multiscale modeling and simulation, and experimentation used to analyze and design mechanical systems. Areas of concentration include reliability-based design and optimization, nanotechnology, tissue mechanics, machine and vehicle dynamics, optimal design, structural sensitivity analysis and optimization, computational solid mechanics, probabilistic mechanics, mechanics of composite materials, reliability, and fatigue and fracture mechanics.

Although most courses relevant to the specialization areas are offered by the Department of Mechanical and Industrial Engineering, students are encouraged to consider appropriate course work from other areas, including courses offered by other College of Engineering departments and in disciplines such as mathematics (p. 469), statistics (p. 627), and physics (p. 520).

Current research projects include computational mechanics, tissue mechanics, multiphysics, and multiple-scale problems; mechanics of multifunctional composites and nanocomposites, electromagnetic and thermal effects in composites, micromechanical modeling of multiphase composites and nanocomposites, impact and failure of composites, contact mechanics problems with friction and adhesion; stochastic meshfree and finite element methods; design sensitivity analysis of nonlinear structural

systems; reliability-based design optimization; surrogate modeling for reliability-based design optimization; shape optimal design of elastoplastic materials; optimal design of metal stamping process; probabilistic and elastic-plastic fracture mechanics; damage tolerant design; fatigue behavior and life prediction under constant and variable amplitude loading; design sensitivity analysis of rigid and flexible mechanical systems; multibody system dynamics, tire dynamics, wheel and rail contact dynamics; wind turbine drivetrain dynamics; and vehicle system dynamics.

THERMAL SCIENCES

The graduate program in thermal sciences and systems is designed to provide students with a rigorous and broad foundation in theoretical and experimental aspects of the subject. It prepares future graduates for careers in industry, teaching, and government. The program emphasizes fundamentals of thermodynamics and heat transfer, and associated analytical, numerical, and experimental methods used in energy systems. Areas of concentration include fluid mechanics, thermodynamics, heat transfer, phase-change, combustion, and fuel cells.

Most courses relevant to the specialization areas are offered by the Department of Mechanical and Industrial Engineering. Students are encouraged to balance their programs by supplementing these with appropriate course work from other areas, including courses offered by other College of Engineering departments and in disciplines such as mathematics (p. 469) and physics (p. 520).

Current research projects include biomass gasification; turbulent flames; combustion of biomass; alternative and renewable fuels; combustion instability; spray atomization and combustion; transport modeling of fuel cells; transport phenomena in materials processing, melting, and solidification; and optical-based diagnostics of complex thermal processes.

M.S.: Industrial Engineering

The Master of Science program in industrial engineering requires a minimum of 30 s.h. of graduate credit with thesis, and a minimum of 36 s.h. of graduate credit without thesis. Students who intend to pursue a Ph.D. should select the thesis option; those who hold research or teaching assistantships may be required to select the thesis option. The M.S. concentration in wind power management is open to students in either option.

All M.S. students must earn 21 s.h. in graduate-level industrial engineering courses. They earn a minimum of 9 s.h. in 5000-level industrial engineering courses and complete at least one 3000- or 5000-level course from each of three focus areas: human factors, operations research, and reliability and systems design. Thesis students who plan to pursue a Ph.D. may choose to take two 5000-level courses in each of the three focus areas in order to complete their Ph.D. breadth requirement before entering the doctoral program. Students select other courses in consultation with their advisors; choices are documented in the student's plan of study.

Thesis students may count a maximum of 6 s.h. of research credit toward the degree and may include that credit in the required 21 s.h. of graduate-level industrial engineering courses. The thesis option does not include research credit.

All graduate students must register for IE:5000 (056:191) Graduate Seminar: Industrial Engineering (1 s.h.) each

semester of enrollment. They may not substitute seminar credit for regular course work or research credit.

M.S. students must maintain a g.p.a. of at least 3.00 on all graduate work at The University of Iowa and must pass a final comprehensive examination as specified by their examining committees.

Entering students must have strong verbal and written skills in English and a background in computer programming (e.g., C++, C, VB), probability, statistics, and mathematics equivalent to that required by accredited undergraduate engineering programs. Students with insufficient academic background must remedy deficiencies by taking appropriate courses beyond those normally required for the study plan.

Entering students are advised by the department chair or by a designated faculty advisor. The department chair or the graduate program coordinator assigns an advisor to each student during his or her first regular semester in residence.

During that semester, the student and the advisor prepare a study plan, which they submit to the department chair for approval. Once the plan is approved, it is filed with the student's record. It is the student's responsibility to assure that the study plan is submitted to the department chair.

M.S. students must pass a final comprehensive examination, as specified by their examination committees. Examination committees consist of at least three Graduate College faculty members and must be approved by the department chair.

The comprehensive examination may consist of both oral and written parts. Its purpose is to assess the adequacy of the student's defense of thesis and/or course preparation. The final study plan, approved by the Graduate College dean, is prerequisite to the exam. The student should consult with his or her advisor on the composition of the advisory/examination committee and the time and place for the exam.

It is the student's responsibility to submit a degree application to the Graduate College by the college's deadline.

For more detailed information about M.S. program requirements, including a list of focus area courses, see the Industrial Engineering Graduate Handbook or link to industrial engineering graduate programs on the Department of Mechanical and Industrial Engineering web site.

M.S. Concentration in Wind Power Management

M.S. students in industrial engineering may elect to concentrate in wind power management. They must meet all regular requirements for the M.S. in industrial engineering. In addition, thesis option students must take three courses (9 s.h.) from the list of recommended courses. Nonthesis option students must take four courses (12 s.h.) from the list of recommended courses and one course (3 s.h.) from the list of electives. Students' course selections must be approved by their advisors.

WIND POWER MANAGEMENT: RECOMMENDED COURSES

CEE:4107 (053:107) Sustainable Systems	3 s.h.
CEE:4317 (053:117) Remote Sensing	3 s.h.

CEE:6151 (053:251) Environmental Systems Modeling	3 s.h.
IE:3350 (056:134) Process Engineering	4 s.h.
IE:3600 (056:162) Quality Control	3 s.h.
IE:3610 (056:166) Stochastic Modeling	3 s.h.
IE:3700 (056:171) Operations Research	3 s.h.
IE:3750 (056:178) Digital Systems Simulation	3 s.h.
ME:5143 (058:143) Computational Fluid and Thermal Engineering	3 s.h.
ME:5195 (058:195) Contemporary Topics in Mechanical Engineering	3 s.h.
ME:6255 (058:255) Multiscale Modeling	3 s.h.
ME:7268 (058:268) Turbulent Flows	3 s.h.

WIND POWER MANAGEMENT: ELECTIVES

IE:3760 (056:176) Applied Linear Regression	3 s.h.
CS:4400 (22C:144) Database Systems	3 s.h.
EES:3140 (012:114) Energy and the Environment	3 s.h.
GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy	3 s.h.
GEOG:4930 (044:135) Urban Geography	3 s.h.
MSCI:6190 (06K:234) Knowledge Management	3 s.h.
MSCI:9200 (06K:226) Business Programming	3 s.h.
MSCI:9260 (06K:228) Web and Multimedia	3 s.h.
OEH:5410 (175:192) Occupational Safety	3 s.h.

Ph.D.: Industrial Engineering

The Doctor of Philosophy program in industrial engineering requires a minimum of 72 s.h. It is granted upon demonstration of comprehensive knowledge and scholarly work at the highest level.

A maximum of 36 s.h. earned toward the M.S. may be counted toward the 72 s.h. required for the Ph.D. Students must spend at least two semesters in residence at The University of Iowa. They also must maintain a g.p.a. of at least 3.25 on all graduate work done at the University.

The degree requires broad academic background with considerable depth in at least one area of specialization that clearly demonstrates the student's capability to do high-level research. Ph.D. students must complete a series of written and oral examinations and a written dissertation based upon the results of an original investigation.

Students without a Master of Science in industrial engineering or a closely allied area must satisfy all requirements for the M.S. in industrial engineering before they may be admitted to the Ph.D. program.

Entering students are advised by the department chair or by a designated faculty advisor. During the student's first regular semester in residence, an advisor is assigned by the department chair or the graduate program coordinator. Students are expected to identify an industrial engineering faculty member willing to serve as their advisor by the end of their first regular semester in the program.

Once the student is assigned an advisor, he or she works with the advisor to prepare a study plan, which is submitted to the department chair for approval. Once the plan is approved by the department chair, it is filed with the student's record. At the beginning of each academic year, the industrial engineering faculty reviews the study plan and gives the student feedback regarding progress

toward his or her degree objective. It is the student's responsibility to assure that the study plan is submitted to the program chair.

Admission to degree candidacy requires a g.p.a. of at least 3.25 on all graduate work taken at The University of Iowa, demonstration of capacity for individual research achievement (typically a dissertation research proposal), and successful completion of the comprehensive examination given by the examining committee.

The comprehensive examination is scheduled with approval of the student's advisor and the industrial engineering program coordinator or the graduate coordinator once the student's study plan is essentially completed. The examining committee determines the composition of the exam, including written and oral parts, and determines whether the student is ready to begin dissertation research.

For more detailed information about Ph.D. program requirements, see the Industrial Engineering Graduate Handbook or link to industrial engineering graduate programs on the Department of Mechanical and Industrial Engineering web site.

All Ph.D. students must satisfy the following requirements.

Graduate students must register for IE:5000 (056:191) Graduate Seminar: Industrial Engineering (1 s.h.) each semester of enrollment. They may not substitute seminar credit for regular course work or research credit.

INDUSTRIAL ENGINEERING BREADTH REQUIREMENT

Each Ph.D. student must pass at least two 5000-level industrial engineering courses in each of three focus areas: human factors, operations research, and reliability and systems design. Students who have earned an M.S. in the program may already have satisfied this requirement.

QUALIFYING EXAM

Each student must satisfy the qualifying exam requirement in two of the three focus areas. The requirement for a focus area can be satisfied by passing a written qualifying exam in the focus area or by earning a grade of A-minus or higher in each of two 5000-level industrial engineering courses in the focus area.

FOCUS AREA

Students select one of the three focus areas and take additional course work in that area. They fulfill the minimum requirement of the focus area, completing at least two additional 5000-level industrial engineering courses in the area.

COMPREHENSIVE EXAMINATION

Each student must demonstrate his or her ability to carry out creative individual research by completing and defending his or her dissertation research proposal in a comprehensive examination. The exam includes written and oral parts and is conducted by an examining committee of at least five industrial engineering and Graduate College faculty members. It is scheduled after the qualifying examination requirement has been satisfied. The examining committee determines whether the student is ready to begin dissertation research. Once the student has completed the comprehensive examination satisfactorily, he or she is accepted as a candidate for the Ph.D.

FINAL EXAMINATION (THESIS DEFENSE)

Each student must defend his or her completed dissertation in the final examination, which is conducted by the examining committee.

Ph.D. Concentration in Wind Power Management

Ph.D. students who concentrate in wind power management must meet all regular requirements for the doctoral degree. In addition, they must gain sufficient breadth and depth of domain knowledge in their study area by taking energy-related courses.

Related Certificate: Informatics

The Graduate College offers the Certificate in Informatics with a health informatics subtrack, which requires 18 s.h. of credit. The subtrack emphasizes the organization, management, and use of health care information; health care research, education, and practice; and information technology developments in the socioeconomic context of health care. Industrial engineering students working toward the certificate complete IE:5860 (056:186) Health Informatics I, IE:5870 (056:287) Health Informatics II, and approved electives. Completion of the certificate is noted on the student's transcript. To learn more, see "Certificate" in the Informatics (p. 972) (Graduate College) section of the Catalog.

M.S.: Mechanical Engineering

The Master of Science program in mechanical engineering requires a minimum of 30 s.h., with or without thesis. Thesis students may count 6-9 s.h. earned for thesis research and writing toward the degree. Each student determines a study plan in consultation with an advisor and submits the plan to the department chair for approval.

All M.S. students must register for ME:6191 (058:191) Graduate Seminar: Mechanical Engineering each semester.

To earn the M.S., the student must maintain a g.p.a. of at least 3.00 on graduate work used to satisfy the degree requirements and must be successful in the final examination. This examination is administered by the student's committee, which consists of at least three faculty members, including at least one with primary appointment in the Department of Mechanical and Industrial Engineering.

The requirements for the M.S. may be completed within one calendar year. However, students with assistantship duties or other constraints may take up to two calendar years to complete the degree.

Ph.D.: Mechanical Engineering

The Doctor of Philosophy program in mechanical engineering requires 72 s.h. of graduate credit, including at least 54 s.h. in course work (excluding thesis research) and at least 12 s.h. earned for Ph.D. thesis research. Students must pass the qualifying examination administered by the program to be formally admitted to the doctoral program.

Each student takes the comprehensive examination after passing the qualifying examination and when the course work specified in the study plan is nearly completed; in any case, the comprehensive examination should be taken no later than 28 months after the first

registration in the Ph.D. program. To be admitted to the comprehensive examination, a student must be in good academic standing and must be recommended by his or her advisor. The exam is administered by the student's committee. Admission to Ph.D. candidacy is recognized upon successful completion of the comprehensive examination.

Having satisfactorily completed the exam, the student usually has only to complete and defend the dissertation at the final examination.

Requirements for the Ph.D. usually can be completed in three to four years beyond the M.S.

Admission

Applicants must meet the admission requirements of the Graduate College; for detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

INDUSTRIAL ENGINEERING

Reference letters, student research interests, grade-point average for previous graduate study, and factors such as faculty availability are considered in admission decisions.

M.S. applicants may be admitted from an ABET-accredited baccalaureate curriculum in any engineering discipline, or in the mathematical sciences, the physical sciences, or the computer sciences with a g.p.a. of at least 3.00 and an acceptable score on the Graduate Record Examination (GRE) General Test. Applicants from institutions outside the United States must meet equivalent conditions for regular admission. Students with lesser qualifications may be considered for conditional admission.

Students from business or social science programs who have mathematical preparation similar to that of engineering students are considered for regular or conditional admission. Students on conditional status must achieve regular status within two sessions of their first registration by attaining an acceptable grade-point average and gaining regular acceptance by the industrial engineering program faculty; otherwise, they are dismissed. Admissions may be limited by available resources.

Ph.D. applicants may be admitted from an ABET Inc.-accredited baccalaureate curriculum or a postbaccalaureate curriculum in any engineering discipline or in the mathematical sciences, computer science, or physical sciences with a g.p.a. of at least 3.25 and an acceptable GRE General Test score. Applicants from outside the United States must meet equivalent standards for regular admission as determined by The University of Iowa. Students also may be admitted from business or social science programs as determined individually.

Applicants who intend to pursue a Ph.D. and who have a B.S. or an M.S. without thesis usually are admitted first to the M.S. program. All admissions to the Ph.D. program are reviewed by the graduate studies committee.

MECHANICAL ENGINEERING

Applicants who have earned a baccalaureate or master's degree in engineering curriculum or in the mathematical or physical sciences are eligible to be considered for admission to graduate study in mechanical engineering. In order to be considered for regular admission, applicants

must have a g.p.a. of at least 3.00 on a 4.00 scale on all previous college-level work and Graduate Record Examination (GRE) General Test scores of at least 500 verbal, 750 quantitative, and 4.5 analytical writing. Students whose first language is not English must score at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applicants with a lower grade-point average and/or GRE or TOEFL test scores may be considered for conditional admission, under exceptional circumstances. Applicants admitted conditionally must achieve regular standing within one semester (excluding summer sessions) after admission by attaining a g.p.a. of at least 3.00 on their first 9 s.h. at The University of Iowa. The Graduate College cancels registration for the subsequent semester for students who have not submitted their GRE and/or TOEFL scores by the end of the first semester after admission.

Financial Support

INDUSTRIAL ENGINEERING

A number of one-quarter-time and one-half-time teaching and research assistantships are available for graduate students. Awards are based on students' academic records and assessment of their potential contribution to the research and teaching goals of the program. Advanced graduate students also may qualify for appointments as graduate teaching fellows. Contact the chair of the Department of Mechanical and Industrial Engineering for details.

MECHANICAL ENGINEERING

Financial support is available to M.S. and Ph.D. students, primarily through graduate assistantships in teaching or research from the Department of Mechanical and Industrial Engineering, the Center for Computer-Aided Design, IHR—Hydroscience and Engineering, and the National Advanced Driving Simulator. These awards may be made on a semester, academic year, or calendar year basis. Awards and reappointments are competitive and are based on the student's potential contribution to the teaching and research goals of the department. Students who fulfill their assistantship responsibilities and continue to make satisfactory progress toward their degree objective receive preference in new assistantship awards. All applications for financial support should be submitted directly to the department chair.

M.S. students with assistantship appointments of one-quarter-time or more are required to register for a minimum of 9 s.h. during fall and spring semesters until they have completed 30 s.h. of course and research work beyond the baccalaureate degree. Ph.D. students with assistantship appointments of one-quarter-time or more must register for a minimum of 9 s.h. during fall and spring semesters until they have completed 72 s.h. of course and research work beyond the baccalaureate degree. Once they meet these minimums, graduate students must register for a graduate seminar each semester until they have successfully completed their final examination or thesis defense. All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty.

Facilities and Laboratories

DESIGN FOR MANUFACTURING LABORATORY

The Design for Manufacturing Laboratory is used by students in industrial engineering and in mechanical engineering. The laboratory provides students with experience in CAD/CAM systems. It is equipped with 4-axis CNC mills (Haas and Tormach), CNC router (Techno-CNC), CNC metal lathe (Haas and Techno-CNC), drill press, plastic injection molder, thermoforming machine, band saw, disc sander, bench grinder, polishing wheel, hand drill, sandblasting cabinet, press, foot shear, and welding station. The lab has the latest software technology, such as Pro/ENGINEER and Rhinoceros.

Industrial Engineering

The following facilities and laboratories are used by undergraduate and graduate students. For information about laboratories affiliated with core courses coordinated by other College of Engineering departments, see those departments' Catalog sections.

ACTIVE LEARNING FACILITY

The Active Learning Facility (ALF) is designed to encourage group interaction in a small classroom setting. The reconfigurable classroom is equipped with nine tables and 20 HP workstations. It is used for industrial engineering courses and for small groups working together on computer assignments.

BIOMANUFACTURING LABORATORY

The Biomanufacturing Laboratory teaches students about emerging processes and techniques in cell-biomaterial interactions and gives them hands-on laboratory experience. Work in the laboratory is interdisciplinary, spanning engineering, medicine, biology, and biotechnology. The laboratory provides facilities for engineered living tissue systems. Next generation manufacturing tools are used to build biologically inspired structures intended to replace diseased or damaged organs and tissues. Laboratory research projects and activities focus primarily on design, modeling, and fabrication of tissue replacement parts; tissue scaffolds and medical devices; and cell and organ printing. Diverse software and hardware are available to support bioadditive manufacturing platforms.

COGNITIVE SYSTEMS LABORATORY

The Cognitive Systems Laboratory is devoted to examining the safety, performance, and user acceptance implications of technology insertion into complex systems. The laboratory has networked computers, a video editing workstation, a process control simulation, and a low-cost driving simulator. The simulator is equipped with five cameras, instrumentation to record all driver activity, and an eye tracking system. The Cognitive Systems Laboratory shares the driving simulator and an instrumented vehicle with the Operator Performance Laboratory. The equipment supports class projects, system development, and undergraduate and graduate research.

DESIGN PROJECT LABORATORY

The Design Project Laboratory is equipped with standard computers and videoconferencing facilities. It supports senior design project courses.

GROK LAB

The GROK Lab develops technologies to help scientists and doctors improve their understanding and control of complex systems such as robots, distributed sensor networks, and augmented-reality systems. The lab designs and builds software, electronic circuits, and mechanical devices that create or modify complex systems and that extend scientists' understanding of how to make these systems perform their intended tasks better.

The laboratory has a variety of software development platforms and manufacturing tools, including CNC machines and supplies for casting and molding, as well as a suite of equipment for circuit design, testing, and assembly. The GROK lab has developed technologies used by NASA to control robots exploring South America and Mars. Its most recent projects have focused on using distributed sensor networks to track the activities of health care workers and on developing training simulators for orthopedic surgeons.

INTELLIGENT SYSTEMS LABORATORY

The Intelligent Systems Laboratory provides facilities for research in computational intelligence leading to applications in industry, service organizations, and health care. Research in the laboratory is funded by government agencies and industrial corporations. Solutions to practical problems and enhancement of engineering education are emphasized. Most of the laboratory's recent projects concentrate on development of software tools for product development, manufacturing, and health care applications.

The Intelligent Systems Laboratory is furnished with the latest computer technology to support research on numerous computing platforms. Diverse software is available for modeling, design, and construction of intelligent systems—for example, data mining software, neural networks, expert systems, and simulation software.

OPERATOR PERFORMANCE LABORATORY

Research in the Operator Performance Laboratory (OPL) focuses on determining human performance in a variety of situations, with particular emphasis on driving and flight deck environments. Much of the research is performed in the field using a state-of-the-art instrumented vehicle that is equipped with five cameras, eye movement equipment, two computers, video equipment, and a suite of sensors. The OPL also features a scale Boeing 737-400 fixed-base flight simulator with six channels of visuals. The flight simulator is equipped with a remote eye-tracking device that allows the activation of selected virtual controls in the flight deck. A specially designed stimulus presentation booth is used for color research and for photometry applications. Computer models of operator performance are designed based on the data obtained in the laboratory and field research.

Mechanical Engineering

Mechanical Engineering Undergraduate Instruction

ENGINEERING CORE

The laboratories for fluid flows and transport processes contain a wind tunnel; a water flume; a water table; four water channels with porous media; three air-jet tables; various air, water, and oil flow devices; and facilities for

numerous small-scale experiments to demonstrate the principles of mass, momentum, and energy transfer.

For information about laboratories affiliated with core courses coordinated by other College of Engineering departments, see the departments' Catalog sections.

COMPUTATIONAL FLUIDS LABORATORY

The Computational Fluids Laboratory is equipped with 20 computers running ANSYS Fluent software used in fluid mechanics courses.

DESIGN PROJECT LABORATORY

The Design Project Laboratory supports all senior design project courses. It is equipped with eight mid-level workstations as well as a high-end workstation, which enables students to manipulate full design models and interactive WebEx sessions with companies using the analysis software during the session. Research versions of ANSYS Fluent and ProE, standard computers, and videoconferencing facilities also are available.

EXPERIMENTAL FLUID MECHANICS LABORATORY

The Experimental Fluid Mechanics Laboratory acquaints students with ongoing research in fluid mechanics and hydraulics. The laboratory focuses on literature, experiments, numerical simulations, audio-video aids, and links to educational and scientific internet sites. Students using the laboratory develop an understanding of basic flow mechanisms and become familiar with the latest developments in experimental techniques and instrumentation.

RALPH AND BARBARA STEPHENS EXPERIMENTAL ENGINEERING LABORATORY

The Ralph and Barbara Stephens Experimental Engineering Laboratory supports the required undergraduate courses ME:3351 (058:051) Engineering Instrumentation and ME:4080 (058:080) Experimental Engineering. The laboratory is equipped with varied instruments and test rigs that help students learn basic measurement principles and laboratory procedures. It also offers sensors for measurement of displacement, mass, temperature, pressure, velocity and flow rate, heat flux, force, torque, and so forth.

SOLIDIFICATION LABORATORY

The Solidification Laboratory supports research in fundamental aspects of solidification and their application in casting of metals. Research in the laboratory ranges from basic experimental and computational studies of microstructure evolution to modeling and simulation of a wide variety of industrial metal casting processes. Collaboration with the casting industry has resulted in custom-made software for process control, new capabilities in commercially available casting simulation software, and strategies for yield improvement and defect prevention. Facilities include numerous state-of-the-art computer workstations and experimental test setups.

THERMAL AND HEAT TRANSFER LABORATORY

The Thermal and Heat Transfer Laboratory is equipped with data acquisition systems to process data online. It also provides facilities for experiments in heat transfer measurements.

Mechanical Engineering Graduate Facilities

FLUID MECHANICS

The program in fluid mechanics is conducted in close collaboration with IIHR—Hydroscience & Engineering. The equipment available to graduate students includes several wind tunnels and hydraulic flumes, an environmental flow facility, a towing tank, two special low-temperature flow facilities for investigation of ice phenomena, hot-wire and laser anemometer systems, particle-image velocimetry systems, and computer-based data acquisition systems.

Facilities available in the department include a flow visualization and imaging system with CCD (charge-coupled devices) camera, and a low-speed wind tunnel. IIHR and College of Engineering shops provide the necessary support. In addition to using in-house workstations and computers, the department's faculty members and students make extensive use of supercomputers at national centers.

MECHANICAL SYSTEMS

Computer-based simulation research activities in the mechanical systems area are carried out mainly in the Center for Computer-Aided Design (CCAD). CCAD maintains a variety of high-performance computer systems in support of its technology research and development efforts. General computing services are supported by a number of LINUX and Windows applications servers connected to centralized file servers. CAD/CAE, software development, virtual prototyping, and virtual environment development applications are hosted on numerous high-performance workstations. Standard desktop, multimedia, and office productivity applications are hosted on a network of more than 40 workstations.

THERMAL SCIENCES

Facilities for research in the thermal sciences and systems consist of a low-pressure combustion chamber, a high-pressure continuous flow combustion chamber, a high-pressure chamber for atomization study, a test rig for heat transfer to near supercritical fluids, a diffusion flame test rig, an enclosed laminar flame test rig, an air atomization spray apparatus, test stands for melting and solidification studies, various optical measurement systems, and two fuel cell test rigs. Laser-based diagnostics (e.g., laser-induced fluorescence, imaging, and laser Doppler anemometry) are available for solidification, turbulent flow, heat transfer, and combustion studies. Flow visualization and imaging by CCD camera are available for the study of complex fluid motion and heat convection, and combustion flows.

Courses

Industrial Engineering

Special Topics

IE:0000 (056:000) Cooperative Education Training Assignment: Industrial Engineering

0 s.h.

Industrial engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Requirements: admission to Cooperative Education Program.

IE:0002 (056:002) Half-time Cooperative Education Training Assignment: Industrial Engineering 0 s.h.

Registration for work assignment periods; for students participating in the Cooperative Education Program.

IE:1000 (056:010) Industrial Engineering First-Year Seminar 0 s.h.

Introduction to curriculum and profession; ethics and professionalism in classroom and workplace. Requirements: first-year or transfer standing in engineering.

IE:2000 (056:020) Industrial Engineering Sophomore Seminar 0 s.h.

Curriculum and profession; ethics and professionalism in classroom and workplace. Requirements: sophomore or transfer standing in engineering.

IE:3000 (056:091) Professional Seminar: Industrial Engineering 0 s.h.

Professional aspects of industrial engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Requirements: junior standing.

IE:3998 (056:098) Individual Investigations: Industrial Engineering arr.

Independent projects in industrial engineering for undergraduate students, including laboratory study, an engineering design project, analysis and simulation of an engineering system, computer software development, CAD/CAM applications, or research.

Manufacturing

IE:3138 (056:138) Biomanufacturing 3 s.h.

Design and manufacturing technologies in development of biomedical related products (customized implants, medical devices, tissue scaffolds, engineered tissues, organs, biological systems); tissue engineering, BioCAD, biomedical imaging and processing for customized implant development, reverse engineering, biomaterials, regenerative medicine and drug delivery, traditional manufacturing processes for tissue engineering, rapid prototyping and layered manufacturing, rapid tooling, bioadditive fabrication, bionanofabrication and new frontiers in biomanufacturing (organ printing); hands-on laboratory projects and assignments. Prerequisites: ENGR:2760 (057:021).

IE:3300 (056:131) Manufacturing Systems 3 s.h.

Manufacturing and logistics systems, supply chain management, MRP/ERP systems, lean manufacturing, concurrent engineering, value stream mapping and six sigma. Offered spring semesters. Prerequisites: IE:3700 (056:171) and ENGR:2760 (057:021). Same as ME:4131 (058:131).

IE:3350 (056:134) Process Engineering 4 s.h.

Methodologies, algorithms, and tools for processing modeling, analysis, and reengineering; modeling issues in product and component design, product and process modularity, quality, reliability, agility. Offered spring semesters. Prerequisites: IE:3700 (056:171).

IE:4116 (056:116) Manufacturing Processes and Automation 3 s.h.

Material processing, metal cutting theories, forming, micro/nano fabrication, programmable logic controller, computer numerical controllers, discrete control system, DC and AC servo motors, Command generation. Prerequisites: ENGR:2760 (057:021). Same as ME:4116 (058:116).

IE:4172 (056:172) Big Data Analytics 3 s.h.

Principles of data mining and machine learning in context of big data; basic data mining principles and methods —pattern discovery, clustering, ordering, analysis of different types of data (sets and sequences); machine learning topics including supervised and unsupervised learning, tuning model complexity, dimensionality reduction, nonparametric methods, comparing and combining algorithms; applications of these methods; development of analytical techniques to cope with challenging and real "big data" problems; introduction to MapReduce, Hadoop, and GPU computing tools (Cuda and OpenCL). Prerequisites: MATH:3800 (22M:072) and STAT:2020 (22S:039). Requirements: basic programming skills in C, C++, Java, or Python; knowledge of Matlab, Octave, or R; and knowledge of a word processor. Recommendations: IE:3760 (056:176), CS:4400 (22C:144), CS:3330 (22C:031), and MATH:2550 (22M:033).

IE:4550 (056:155) Wind Power Management 3 s.h.

Principles of wind power production, wind turbine design, wind park location and design, turbine and wind park control, predictive modeling, integration of wind power with a grid.

IE:5129 (056:129) Information Systems for Resource Management 3 s.h.

Understanding and managing natural and engineered resources requiring data-reach foundation; management of data; complex data-driven technologies integrated into data and information systems (DIS); hands-on opportunity to develop or use capabilities of DIS for study or research area of interest (science, engineering, industrial operation); wind power generation, an emerging field in Iowa, used as a case study for illustrating key DIS components, links, and functionalities. Same as ME:5129 (058:129), CEE:5129 (053:129), ECE:5129 (055:129), GEOG:5129 (044:140).

IE:6232 (056:232) Advanced Computer-Aided Design and Manufacturing 3 s.h.

In-depth study of CAD and manufacturing (CAD/CAM); review of CAD/CAM, computer graphics, NURBS modeling (curves/surfaces, solid modeling, design data exchange); computational geometry for product development, heterogeneous object modeling, rapid prototyping (RP) and layered manufacturing, computer-aided path planning, CAD applications (computer-aided tissue engineering, biomedical imaging and processing, biomanufacturing); related lab projects and assignments. Requirements: knowledge of one programming language (C, C++, C#, VB, or Java).

IE:6350 (056:235) Computational Intelligence 3 s.h.

Concepts, models, algorithms, and tools for development of intelligent systems; data mining, expert systems, neural networks for engineering, medical and systems applications. Prerequisites: IE:3700 (056:171). Same as NURS:6900 (096:313).

Human Factors and Ergonomics

IE:3400 (056:144) Human Factors 3 s.h.

Design of human-machine systems; development of optimum work environments by applying principles of behavioral science and basic knowledge of human capacities and limits. Offered fall semesters. Prerequisites: PSY:1001 (031:001).

IE:3450 (056:147) Ergonomics 3 s.h.

Ergonomic design of jobs and products in an industrial and consumer market setting; principles of good design, examples of poor design; consequences of poor job and product design; principles of work sampling, usability studies, performance rating, sizing and planning of workstations, hand tool design, ergonomic design in transportation; related group project.

IE:6211 (056:211) Human Factors in Healthcare Systems 3 s.h.

Solving human factors problems in health care work systems; cognitive systems engineering, interface design, health care productivity, patient safety; specific research including decision making, information transfer, and communication; discrete event and dynamic systems simulation modeling; human computer interaction; health information technology/systems; usability; business models of organizational, technical, and social elements of health care systems.

IE:6410 (056:241) Research Methods in Human Factors Engineering 3 s.h.

Logic and methods for research and for analysis and evaluation of complex human-machine systems; advanced techniques for enhancement of human interaction with advanced information technology; emphasis on cognitive task analysis techniques for innovative design, understanding of how technology affects safety, performance, user acceptance.

IE:6420 (056:242) Human/Computer Interaction 3 s.h.

Development of projects using human factors principles in the design of computer interfaces.

IE:6440 (056:244) Airborne Design of Experiments 3 s.h.

Issues in design of airborne human factors research, and techniques applicable to ground transportation research; statistical, human factors, flight mechanics, and organizational principles in flight test engineering; basic understanding of systematic approach to human factors flight testing, development of test points and test apparatus, flight envelope, proper briefing techniques, mission execution, and after-action review; securing, synchronizing, and analyzing data.

IE:6450 (056:245) Human Factors in Aviation 3 s.h.

Measuring, modeling, and optimizing human visual performance; display design for optimal legibility, research in visibility, legibility, conspicuity, and camouflage; visibility model development.

IE:6460 (056:246) The Design of Virtual Environments 3 s.h.

Development of techniques for designing and creating three-dimensional representations of information for simulation, scientific visualization, and engineering; emphasis on human factors issues, software.

Engineering Management

IE:2500 (056:054) Engineering Economy 3 s.h.

Basic concepts of engineering economy: time value of money, cash flow equivalence, depreciation, tax considerations, continuous cash flows, cost accounting overview; main analysis techniques—present worth, uniform annual cost, rate of return, benefit/cost ratio, replacement and break-even analysis. Corequisites: STAT:2020 (22S:039).

IE:3500 (056:150) Information Systems Design 3 s.h.

Structure and design of computer-based information systems; concepts of information systems, decision making; computer hardware, software, data structures; methods for determining system requirements; designing, implementing, evaluating, managing information systems; applied projects. Prerequisites: ENGR:1300 (059:006).

Quality Control and Production Systems

IE:3600 (056:162) Quality Control 3 s.h.

Basic techniques of statistical quality control; application of control charts for process control variables; design of inspection plans and industrial experimentation; modern management aspects of quality assurance systems. Offered fall semesters. Prerequisites: STAT:2020 (22S:039). Same as STAT:3620 (22S:133), CEE:3142 (053:142).

IE:3640 (056:164) Six Sigma Operations and Quality Control 3 s.h.

Six Sigma techniques for the DMAIC cycle (Define, Measure, Analyze, Improve, Control); what is needed for data collection (process inputs and outputs, measurement tools), conduct analysis (hypothesis testing, process capability studies), and conduct process improvement studies (design of experiments, response surface methodology); overview of Six Sigma, process and project management skills.

IE:4600 (056:160) Operational Systems Design 1-4 s.h.

Projects involving product and related operational system design in an industrial or service organization; associated entrepreneurial or intrapreneurial planning. Offered spring semesters. Corequisites: IE:3300 (056:131), IE:3350 (056:134), IE:3400 (056:144), IE:3450 (056:147), IE:3500 (056:150), IE:3600 (056:162), and IE:3750 (056:178); if not taken as prerequisites.

IE:4610 (056:161) Enhanced Design Experience 2-3 s.h.

Real-world, in-depth design experience in student teams, working with engineers at major companies in the region; application of industrial engineering knowledge and skills to design products and related operational systems.

IE:5610 (056:268) Reliability Theory and Applications 3 s.h.

Fundamental topics in reliability engineering, including system reliability modeling, statistical inference of lifetime data, basic preventive maintenance models; statistics and random process models, and online monitoring and change detection techniques. Prerequisites: MATH:2550 (22M:033) and STAT:2020 (22S:039).

Operations Research and Applied Statistics**IE:3610 (056:166) Stochastic Modeling** 3 s.h.

Fundamental probabilistic models and applications of industrial engineering; overview of probability and distributions, stochastic processes and Markov chains, queuing theory, inventory theory, decision theory under uncertainty, and elements of risk management. Prerequisites: STAT:2020 (22S:039). Corequisites: IE:3700 (056:171).

IE:3700 (056:171) Operations Research 3 s.h.

Operations research models and applications; emphasis on deterministic model (linear programming, duality). Offered fall semesters. Prerequisites: MATH:2550 (22M:033). Corequisites: STAT:2020 (22S:039).

IE:3750 (056:178) Digital Systems Simulation 3 s.h.

Simulation modeling and analysis; emphasis on construction of models, interpretation of modeling results; input and output analysis; hands-on usage of ARENA simulation software, manufacturing, health care, and service. Offered spring semesters. Prerequisites: IE:3610 (056:166) and IE:3760 (056:176).

IE:3760 (056:176) Applied Linear Regression 3 s.h.

Regression analysis with focus on applications; model formulation, checking, selection; interpretation and presentation of analysis results; simple and multiple linear regression; logistic regression; ANOVA; hands-on data analysis with computer software. Prerequisites: STAT:2010 (22S:030) or STAT:2020 (22S:039). Same as STAT:3200 (22S:152).

IE:5860 (056:186) Health Informatics I 3 s.h.

Technological tools that support health care administration, management, and decision making. Requirements: graduate standing. Same as MED:5300 (050:283), SLIS:5900 (021:275), RSNM:3195 (074:191), HMP:5370 (174:226), BME:5250 (051:187), IGPI:5200 (200:110).

IE:5870 (056:287) Health Informatics II 3 s.h.

Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as BME:5252 (051:189), RSNM:5301 (074:192), SLIS:5910 (021:280), IGPI:5210 (200:120).

IE:6300 (056:230) Innovation Science and Studies 3 s.h.

Innovative typology and sources, classical innovation models, measuring innovation, innovation discovery from data, evolutionary computation in innovation, innovation life cycle.

IE:6600 (056:270) Linear Programming 3 s.h.

Mathematical programming models; linear and integer programming, transportation models, large-scale linear programming, network flow models, convex separable programming. Requirements: calculus and linear algebra. Same as MSCI:6600 (06K:286).

IE:6720 (056:271) Nonlinear Optimization 3 s.h.

Mathematical models, theory, algorithms for constrained and unconstrained optimization; nonlinear, geometric, quadratic, dynamic programming; optimality conditions; aspects of duality theory.

IE:6750 (056:274) Stochastic Optimization 3 s.h.

General tools and approaches used in decision making under uncertainties; modeling of uncertainties and risk, changes that uncertainties bring to the decision process, difficulties of incorporating uncertainties into optimization models, common techniques for solving stochastic problems.

IE:6760 (056:275) Statistical Pattern Recognition 3 s.h.

Fundamental mathematical tools for multivariate statistical analysis and decision-making processes in pattern recognition.

IE:6770 (056:276) Game Theory 3 s.h.

Problems, challenges, solution strategies, and other elements that arise among decisions makers who have aligned or opposing objectives; changes that collaboration and competition bring to decision making and problem solving; how ideas and concepts of game theory can be used to understand economic, industrial, social, and biological phenomena. Requirements: basic linear programming and probability.

IE:6780 (056:277) Financial Engineering and Optimization 3 s.h.

Quantitative methods of modeling various financial instruments (i.e., stocks, options, futures) and tools for measurement and control of risks inherent to financial markets; fundamentals of interest rates; options and futures contract valuation, including weather and energy derivatives; risk management and portfolio optimization; emphasis on modeling and solution techniques based on optimization and simulation approaches traditional to industrial engineering and operations research. Recommendations: basic knowledge of probability and statistics, numerical methods, and optimization.

Graduate Seminars, Advanced Topics, Research

IE:5000 (056:191) Graduate Seminar: Industrial Engineering 1 s.h.

Recent advances and research in industrial engineering presented by guest lecturers, faculty, students. Requirements: graduate standing.

IE:5995 (056:195) Contemporary Topics in Industrial Engineering arr.

New topics or areas of study not offered in other industrial engineering courses; topics based on faculty/student interest.

IE:5998 (056:198) Individual Investigations: Industrial Engineering arr.

Individual projects for industrial engineering graduate students: laboratory study, engineering design, analysis and simulation of an engineering system, computer software development, research. Requirements: graduate standing.

IE:5999 (056:199) Research: Industrial Engineering M.S. Thesis arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in industrial engineering. Requirements: graduate standing.

IE:7995 (056:295) Advanced Topics: Industrial Engineering arr.

Discussion of current literature in industrial engineering.

IE:7998 (056:298) Special Topics in Industrial Engineering arr.

IE:7999 (056:299) Research: Industrial Engineering Ph.D. Dissertation arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in industrial engineering.

Mechanical Engineering

Special Topics

ME:0000 (058:000) Cooperative Education Training Assignment: Mechanical Engineering 0 s.h.

Mechanical engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Requirements: admission to the Cooperative Education Program.

ME:0002 (058:002) Half-time Cooperative Education Training Assignment: Mechanical Engineering 0 s.h.

Registration for work assignment periods; for students participating in the Cooperative Education Program.

ME:4098 (058:098) Individual Investigations: Mechanical Engineering arr.

Individual projects for mechanical engineering undergraduate students; laboratory study; engineering design project; analysis, synthesis, simulation of an engineering system; computer software development, research.

General Topics

ME:2020 (058:020) Mechanical Engineering Sophomore Seminar 0 s.h.

Introduction to the mechanical engineering profession and curriculum; ethics and professionalism in classroom and workplace; mentorship program and professional societies; visits to laboratories and local companies. Requirements: sophomore or transfer standing.

ME:3091 (058:091) Professional Seminar: Mechanical Engineering 0 s.h.

Professional aspects of mechanical engineering: presentations, student/faculty interaction, professional society involvement, panel discussions, plant trip. Requirements: junior standing.

ME:3351 (058:051) Engineering Instrumentation 2 s.h.

Basic elements of measuring circuits (bridges, voltage dividers, shunts, transformers); laboratory instrumentation (oscilloscopes, multimeters, power supplies, signal generators); amplifiers; frequency response principles; sensors; data acquisition, signal processing, filtering using Labview. Prerequisites: ENGR:2120 (059:008) and PHYS:1612 (029:082).

ME:4080 (058:080) Experimental Engineering 4 s.h.

Principles of physical measurements; standards calibration, estimation of error; static and dynamic performance of measuring systems; laboratory experience, experiment planning, report writing. Prerequisites: ME:3351 (058:051). Corequisites: ME:3045 (058:045) and ME:3052 (058:052).

ME:4086 (058:086) Mechanical Engineering Design Project 2-3 s.h.

Application of mechanical, thermal, fluid systems design; student or team design projects initiated at various levels in the design process and carried through to higher levels; emphasis on synthesis, written and oral communication. Corequisites: ME:4048 (058:048) or ME:4055 (058:055).

ME:4110 (058:110) Computer-Aided Engineering 3 s.h.

Computational engineering modeling and simulation, geometric modeling, grid generation, finite-element and finite-volume methods, uncertainty analysis, optimization, engineering applications. Prerequisites: ENGR:2750 (057:019) and ME:3052 (058:052). Same as CEE:4515 (053:115).

ME:4111 (058:111) Numerical Calculations 3 s.h.

Development of algorithms for functional approximations, numerical differentiation and integration; solution of algebraic and differential equations, with emphasis on digital computations; initial and boundary value problems. Prerequisites: MATH:2560 (22M:034). Same as CEE:4511 (053:111).

ME:4112 (058:112) Engineering Design Optimization 3 s.h.

Engineering design projects involving modeling, formulation, and analysis using optimization concepts and principles; linear and nonlinear models, optimality conditions, numerical methods. Prerequisites: ENGR:2110 (059:007) and MATH:2550 (22M:033). Requirements: junior standing. Same as CEE:4512 (053:112).

ME:4114 (058:114) Predictive Human Modeling 3 s.h.

Introduction to basic concepts of predictive human modeling, fundamental programming, Denavit-Hartenberg notation (robotics), optimization, posture prediction, interface development, validation, and applied problems for digital human models (DHM). Prerequisites: ENGR:1300 (059:006) and MATH:2550 (22M:033).

ME:4115 (058:115) Finite Element I 3 s.h.

One- and two-dimensional boundary value problems; heat flow, fluid flow, torsion of bars; trusses and frames; isoparametric mapping; higher order elements; elasticity problems; use of commercial software. Prerequisites: ENGR:2750 (057:019). Same as CEE:4533 (053:133).

ME:4131 (058:131) Manufacturing Systems 3 s.h.

Manufacturing and logistics systems, supply chain management, MRP/ERP systems, lean manufacturing, concurrent engineering, value stream mapping and six sigma. Offered spring semesters. Prerequisites: IE:3700 (056:171) and ENGR:2760 (057:021). Same as IE:3300 (056:131).

ME:4186 (058:186) Enhanced Design Experience 2-3 s.h.

Experience working in teams on industry-sponsored design and product development projects scheduled for production; emphasis on practical experience with the complete design process, from conceptualization through prototyping, evaluation, testing, and production; written and oral communication. Prerequisites: ME:4086 (058:086).

ME:5113 (058:113) Mathematical Methods in Engineering 3 s.h.

Linear ordinary differential equations, series solutions of differential equations, special functions, Laplace transforms, Fourier series, matrices, linear systems, eigenvalue problems, second-order partial differential equations. Prerequisites: MATH:2550 (22M:033) and MATH:2560 (22M:034). Same as CBE:5140 (052:118), CEE:5513 (053:113).

ME:5129 (058:129) Information Systems for Resource Management 3 s.h.

Understanding and managing natural and engineered resources requiring data-rich foundation; management of data; complex data-driven technologies integrated into data and information systems (DIS); hands-on opportunity to develop or use capabilities of DIS for study or research area of interest (science, engineering, industrial operation); wind power generation, an emerging field in Iowa, used as a case study for illustrating key DIS components, links, and functionalities. Same as IE:5129 (056:129), CEE:5129 (053:129), ECE:5129 (055:129), GEOG:5129 (044:140).

Thermal Engineering and Fluids

ME:3040 (058:040) Thermodynamics II 3 s.h.

Power and refrigeration cycles; mixtures of gases, psychometric mixtures; availability; thermodynamics of combustion and chemical equilibrium. Prerequisites: ENGR:2130 (059:009).

ME:3045 (058:045) Heat Transfer 3 s.h.

Principles of heat transfer by conduction, convection, radiation; analytical and numerical methods of solution; applications to engineering problems. Prerequisites: ENGR:2510 (057:020) and MATH:3550 (22M:037). Corequisites: ENGR:2730 (057:017).

ME:4048 (058:048) Energy Systems Design 4 s.h.

Principles and design of energy conversion systems, including solar, wind, and geothermal power systems; design of thermal-fluid system components, modeling and simulation of systems, optimization techniques; design projects. Prerequisites: ME:3040 (058:040) and ME:3045 (058:045).

ME:4125 (058:125) Biomimetic Fluid Dynamics 3 s.h.

Study and development of engineered systems that mimic the structure and function of biological systems; overview of the fluid dynamic principles that govern locomotion by swimming or flapping flight; equations of motion, fundamentals of aerodynamics; analytical models of force generation for swimming and flight; parameters governing effective locomotion; experimental and numerical studies to understand the present state of the art, challenges, and important questions. Prerequisites: ENGR:2510 (057:020).

ME:4142 (058:142) Wind Turbine Aerodynamics 3 s.h.

Fluid mechanics of wind turbines and wind farms; engineering methodologies to design wind turbine blades; evaluation of rotor wakes; interaction between machines; effects of topography on wind turbine and wind farm performance. Prerequisites: ENGR:2510 (057:020).

ME:4164 (058:164) Fundamentals of Wind Turbines arr.

Application of fundamental principles of thermodynamics, fluid mechanics, and mechanical systems to wind turbine engineering; fundamentals of horizontal-axis wind turbines, wind energy conversion to useful work; wind turbine aerodynamics, performance, design of components; overview of wind resource and historical development of wind turbines; introduction to wind turbine installation and wind farm operation.

ME:5143 (058:143) Computational Fluid and Thermal Engineering 3 s.h.

Governing equations of fluid flow and heat transfer; basic numerical techniques for solution of the governing equations; estimation of accuracy and stability of the approximations; boundary conditions; grid generation; applications to flows and heat transfer in engineering systems; familiarity with software for analysis and design of thermo-fluids systems. Prerequisites: ME:3045 (058:045).

ME:5145 (058:145) Intermediate Heat Transfer 3 s.h.

Steady and unsteady conduction; forced and natural convection; surface and gaseous radiation; condensation and evaporation; analytical and numerical methods and applications. Prerequisites: ME:3045 (058:045).

ME:5146 (058:146) Modeling of Materials Processing 3 s.h.

Manufacturing processes for metals, polymers, semiconductors; processing by casting, solidification, crystal growth, polymer molding and extrusion, welding, heat treating, application of optical (laser) and electromagnetic energy; processes that use momentum, heat, mass transfer principles; measurement and instrumentation for materials processing; current topics in materials processing. Corequisites: ME:3045 (058:045).

ME:5149 (058:149) Propulsion Engineering 3 s.h.

Opportunity to develop basic understanding and knowledge of rocket and airbreathing propulsion systems, relevant terminology and analysis techniques, parametric cycle analysis for ideal engines, off-design analysis methods, problem-solving methodology. Requirements: ME:3040 (058:040) or graduate standing.

ME:5160 (058:160) Intermediate Mechanics of Fluids 3 s.h.

Basic concepts and definitions; pressure distribution in a fluid; governing equations and boundary conditions; integral and differential analysis; dimensional analysis and similarity; experimental analysis; laminar and turbulent internal and external flows; potential flows; engineering applications. Prerequisites: ENGR:2510 (057:020) and ME:3040 (058:040). Same as CEE:5369 (053:169).

ME:5162 (058:162) Experimental Methods in Fluid Mechanics and Heat Transfer 3 s.h.

Hands-on experience in methodology of conducting experiments in fluid mechanics and heat transfer from design to data acquisition and processing; essential theoretical elements, experimental methodologies, data acquisition systems, uncertainty analysis; wide variety of instruments for fundamental and applied experimentation; work in small groups; design, implement, test, and report an experiment in area of interest. Same as CEE:5372 (053:172).

ME:5163 (058:163) Environmental Fluid Dynamics 3 s.h.

Same as CEE:5375 (053:175).

ME:5180 (058:180) Measurements in Fluid Mechanics: Fundamental and Advanced Topics 3 s.h.

General concepts in fluid mechanics measurement; classical methods for flow rate, pressure, velocity, temperature, concentration, and wall shear stress; state-of-the-art methods for flow visualization and full-field quantitative measurement; introduction to advanced optical measurement method, i.e., particle image velocimetry (PIV), and related image processing techniques; hands-on training with a class project assignment on writing a computer program to evaluate experimental image recordings. Prerequisites: ENGR:2510 (057:020). Requirements: primary knowledge of fluid mechanics, thermodynamics, and heat transfer; basic skill in computer language.

ME:5210 (058:140) Intermediate Thermodynamics 3 s.h.

Fundamental principles of thermodynamics as applied to phase equilibrium; properties of fluids, first and second law, variable composition systems, behavior of real fluids, mathematical techniques for solution thermodynamics. Requirements: CBE:3105 (052:103) or ME:3040 (058:040) or graduate standing. Same as CBE:5110 (052:117).

ME:6245 (058:245) Diffusive Transport 3 s.h.

Diffusive transport of heat, mass, and momentum; phenomenological laws and analogies; analytical and numerical solution techniques; inverse heat conduction; multiphase and multicomponent systems. Prerequisites: ME:5145 (058:145). Same as CBE:6145 (052:272).

ME:6260 (058:260) Viscous Flow 3 s.h.

Equations of viscous flow; classical analytical and numerical solutions; flow regimes and approximations; laminar boundary layers—equations, solution methods, applications; stability theory and transition; incompressible turbulent flow—mean-flow and Reynolds-stress equations, modeling, turbulent boundary layers and free shear flows. Requirements: for ME:6260 (058:260) — ME:5160 (058:160); for CEE:6376 (053:276) — CEE:5369 (053:169). Same as CEE:6376 (053:276).

ME:6262 (058:262) Inviscid Flow 3 s.h.

Derivation of governing equations for fluid flow; general theorems for motion of inviscid, incompressible flows; solution techniques for two- and three-dimensional irrotational flows; forces and moments acting on immersed bodies; vortex kinematics and dynamics; steady and unsteady aerodynamic theory. Prerequisites: ME:5160 (058:160).

ME:6263 (058:263) Compressible Flow arr.

Compressible flow behavior; 1-D unsteady flow and appropriate use of x-t diagrams; 2-D flows and use of the method of characteristics; Burgers' Equation and its properties.

ME:6275 (058:275) Advanced Heat Transfer 3 s.h.

Conservation laws, forced and natural convection; surface and gaseous radiation; analytical and numerical methods; applications. Prerequisites: ME:5145 (058:145).

ME:7248 (058:248) Combustion Theory 3 s.h.

Laminar flame theory; turbulent combustion; spray combustion; thermal ignition; pollutant formation, oxidation; combustion diagnostics. Prerequisites: ME:5145 (058:145) and ME:5160 (058:160).

ME:7266 (058:266) Interfacial Flows and Transport Processes 3 s.h.

Physics of fluid interfaces and numerical techniques to simulate interface dynamics; interfacial flow coupled with thermal-fluid transport, from molecular interactions to continuum approximations; development of computer code segments to track and represent interface-flow interactions. Prerequisites: ME:5145 (058:145) and ME:5160 (058:160).

ME:7267 (058:267) Multiphase Flow and Transport 3 s.h.

Thermodynamic and mechanical aspects of interfacial phenomena and phase transitions; nucleation, phase-change, species transport, particulate flows, liquid-vapor systems, solidification, porous media. Prerequisites: ME:5145 (058:145) and ME:5160 (058:160).

ME:7268 (058:268) Turbulent Flows 3 s.h.

Origin; need for modeling, averages, Reynolds equations, statistical description; experimental methods and analysis; turbulence modeling; free shear layers and boundary layers; complex shearflows; development of computational strategies; recent literature on theory and applications, chaos phenomena. Prerequisites: ME:5160 (058:160).

ME:7269 (058:269) Computational Fluid Dynamics and Heat Transfer 3 s.h.

Development of numerical and algebraic approximations for elliptic, parabolic, hyperbolic partial differential equations; finite-volume, spectral, pseudo-spectral, Galerkin techniques; stability of numerical methods; CFL condition; stiff problems; adaptive grid generation and boundary-fitted coordinates; numerical solutions for one- and two-dimensional compressible and incompressible fluid flow and heat transfer problems. Prerequisites: ME:4111 (058:111) and ME:5160 (058:160).

ME:7296 (058:296) Advanced Topics in Thermal and Fluid Engineering arr.

Thermodynamics, fluid mechanics, heat and mass transfer, related experimental and analytical techniques; selection of subject and content determined by instructor/student interest.

Mechanical Systems**ME:3052 (058:052) Mechanical Systems** 4 s.h.

Topics in mechanical behavior and failure of materials; materials selection in design; stress and deflection analysis; static failure theories; fatigue and durability in design; fracture, statistical, and reliability considerations; introduction to finite element analysis using commercial software packages; standards, product liability, engineering ethics. Prerequisites: ENGR:2750 (057:019). Corequisites: ENGR:2720 (057:015), ENGR:2760 (057:021), and STAT:2020 (22S:039).

ME:3179 (058:179) Continuum Mechanics arr.

Mechanics of continuous media; kinematics of deformation, concepts of stress and strain; conservation laws of mass, momentum and energy; constitutive theories; boundary and initial value problems. Prerequisites: ENGR:2510 (057:020) or ENGR:2750 (057:019). Same as CEE:3179 (053:179).

ME:4055 (058:055) Mechanical Systems Design 3 s.h.

Kinematics of mechanisms, dynamics and vibration of machines, cam and gear, machine elements, computer-aided analysis of machines. Prerequisites: ENGR:2710 (057:010) and ME:3052 (058:052).

ME:4116 (058:116) Manufacturing Processes and Automation 3 s.h.

Material processing, metal cutting theories, forming, micro/nano fabrication, programmable logic controller, computer numerical controllers, discrete control system, DC and AC servo motors, Command generation. Prerequisites: ENGR:2760 (057:021). Same as IE:4116 (056:116).

ME:4153 (058:153) Fundamentals of Vibrations 3 s.h.

Vibration of linear discrete and continuous mechanical and structural systems; harmonic, periodic, and arbitrary excitation; modal analysis; applications. Prerequisites: ENGR:2750 (057:019). Same as CEE:4532 (053:132).

ME:5130 (058:136) Digital Human Modeling and Simulation 3 s.h.

Fundamentals of using computational methods in modeling, simulating, and animating articulated kinematic chains such as robots and humans; underlying mathematics, introductory concepts in kinematics and dynamics, serial chain kinematics and multibody dynamics; methods from kinematics and dynamics, coupled with biomechanical concepts, provide an integrated approach to predicting and analyzing serial link motion (e.g., human and robotic manipulator motion). Prerequisites: ENGR:2710 (057:010). Same as BME:5710 (051:162).

ME:5150 (058:150) Intermediate Mechanics of Deformable Bodies 3 s.h.

Application of equilibrium analyses, strain-displacement relations, and constitutive relationships to practical structural systems and elementary plane elasticity problems. Prerequisites: ENGR:2750 (057:019). Same as CEE:5540 (053:140), BME:5660 (051:151).

- ME:5154 (058:154) Intermediate Kinematics and Dynamics** 3 s.h.
Kinematic and dynamic analysis of mechanical systems; computational kinematics, Lagrangian dynamics, principle of virtual work in dynamics, constrained dynamics, spatial dynamics. Prerequisites: ENGR:2710 (057:010).
- ME:5159 (058:159) Fracture Mechanics** 3 s.h.
3-D stress states, definition and criteria for failure, nominal and local yield phenomena, linear elastic and elastic plastic fracture mechanics, plane stress and plane strain fracture toughness, J-Integral, crack opening displacement, environmental assisted cracking, fatigue crack growth, fail safe, and damage tolerant design. Prerequisites: BME:4910 (051:085) or ME:4055 (058:055) or ME:5150 (058:150). Same as CEE:5549 (053:149).
- ME:5167 (058:167) Composite Materials** 3 s.h.
Mechanical behavior of composite materials and their engineering applications; composite constituents (fibers, particles, matrices) and their properties and behavior; macromechanical behavior of composite laminae; micromechanical predictions of composite overall properties; classical lamination theory; composite beams and plates. Prerequisites: ENGR:2750 (057:019). Same as CEE:5137 (053:137).
- ME:5360 (058:133) Control Theory** 3 s.h.
State space approach; controllability, observability, canonical forms, Luenberger observers, feedback control via pole placement, stability, minimal realization and optimal control. Prerequisites: ECE:3600 (055:060). Same as ECE:5600 (055:160).
- ME:5362 (058:134) Computer-Based Control Systems** 3 s.h.
Discrete and digital control systems; application of computers in control; sampling theorem; discrete time system models; analysis and design of discrete time systems; control design by state variable and input/output methods; advanced topics in digital controls; lab. Prerequisites: ECE:3600 (055:060). Same as ECE:5640 (055:164).
- ME:6214 (058:214) Analytical Methods in Mechanical Systems** 3 s.h.
Vector and function spaces; functionals and operators in Hilbert spaces; calculus of variations and functional analysis with application to mechanics; Ritz and Galerkin methods. Prerequisites: ME:5113 (058:113). Same as CEE:6310 (053:214).
- ME:6215 (058:215) Finite Element II** 3 s.h.
Computer implementation; plate and shell elements; mixed and hybrid formulations; nonlinear analysis; recent development; introduction to boundary element method. Prerequisites: CEE:4533 (053:133). Same as CEE:6532 (053:233).
- ME:6246 (058:246) Advanced Numerical Methods for Mechanical Systems** 3 s.h.
- Introduction to meshfree particle methods, extended finite element method, material stability analysis, thermal-mechanical coupling, and coupling of finite element/meshfree methods. Requirements: ME:4115 (058:115) or ME:5143 (058:143) or background in computational mechanics, computational chemistry, or computational physics.
- ME:6247 (058:247) Contact Mechanics** 3 s.h.
Varied aspects of contact mechanics and engineering applications, including stationary contacts, sliding, rolling, impact, and fretting fatigue; emphasis on theoretical basis of solutions of contact mechanics problems; mathematical methods of solving contact problems using Green's function method; complex potentials and integral transform methods. Prerequisites: ME:5113 (058:113) and ME:5150 (058:150).
- ME:6252 (058:252) Advanced Continuum Mechanics** 3 s.h.
Continuum mechanics of fluids and solids, balance laws, invariance restrictions, continuum thermodynamics, constraint theory, mixtures, materials with microstructure. Prerequisites: ME:6262 (058:262). Same as CEE:6547 (053:247).
- ME:6255 (058:255) Multiscale Modeling** 3 s.h.
Computational modeling of engineering materials ranging from molecular to continuum scales, molecular dynamics and Monte Carlo methods, nanoscale continuum modeling, scale-coupling methods. Prerequisites: ME:4115 (058:115) or ME:5143 (058:143). Same as CEE:7549 (053:249).
- ME:6258 (058:258) Computational Ship Hydrodynamics** 3 s.h.
Introduction to computation of problems in three main areas of ship hydrodynamics: resistance and propulsion, seakeeping, and maneuvering; focus on issues of simulating operating ships, modeling methods, and numerical techniques used to approach ship hydrodynamics. Prerequisites: ME:5160 (058:160). Corequisites: ME:5143 (058:143).
- ME:6261 (058:261) Multibody System Dynamics** 3 s.h.
Introduction to principles of analytical and computational dynamics for rigid and flexible multibody systems; spatial kinematics and dynamics of rigid body systems, numerical solution procedures for multibody dynamics analysis, and flexible multibody dynamics. Prerequisites: ME:5154 (058:154).
- ME:6278 (058:278) Nonlinear Elasticity** 3 s.h.
Nonlinear elasticity theory; modern applications in biomechanics; vectors and tensors, constitutive theory of elastic material, some exact solutions of boundary value problems, inverse deformation relations, stability of elastic material, theories of tissue adaptive response. Prerequisites: ME:5150 (058:150). Requirements: elementary linear elasticity.
- ME:7250 (058:250) Advanced Fracture Mechanics** 3 s.h.

Fracture of modern engineering materials; linear-elastic fracture; computational methods; functionally graded materials; elastic-plastic fracture; multiscale fracture and fatigue crack initiation. Prerequisites: ME:5113 (058:113), and ME:4115 (058:115) or ME:5159 (058:159). Same as CEE:7250 (053:250).

ME:7256 (058:256) Computational Solid Mechanics 3 s.h.

Advanced computational methods for nonlinear and dynamic analysis of solids, structures; new space- and time-discretization methods for problems, including highly nonlinearities, large deformation, contact/impact conditions. Prerequisites: ME:4115 (058:115) and ME:5113 (058:113).

ME:7257 (058:257) Probabilistic Mechanics and Reliability 3 s.h.

Stochastic and reliability analysis of mechanical systems; computational methods for structural reliability; random eigenvalue problem; random field and stochastic finite element methods. Prerequisites: ME:4115 (058:115) and ME:5113 (058:113).

ME:7259 (058:259) Mechanical Design in Structures 3 s.h.

Discrete and continuum variational equilibrium equations, discrete design sensitivity analysis for static responses and eigenvalues, interactive design workstation, continuum sizing design sensitivity analysis for static responses and eigenvalues, design sensitivity analysis of structural dynamics, differentiability theory, shape optimal design, shape design sensitivity analysis, design sensitivity of nonlinear structural systems. Prerequisites: ME:4115 (058:115), ME:5113 (058:113), and ME:5150 (058:150).

ME:7265 (058:265) Multiphysics Modeling of Solids 3 s.h.

Coupling of mechanical, electrical, electromagnetic, and thermal fields in solids; how to formulate and solve applied multiphysics problems where mechanical, electromagnetic, and thermal loads must be taken into account. Prerequisites: ME:5150 (058:150).

ME:7295 (058:295) Advanced Topics in Mechanical Systems 3 s.h.

Advanced contemporary topics in mechanical systems engineering not covered in other courses and determined by student/faculty interest.

Graduate Seminars, Advanced Topics, Research

ME:5195 (058:195) Contemporary Topics in Mechanical Engineering arr.

New topics in fluid and thermal sciences and mechanical systems not covered in other courses; topic and coverage determined by student/faculty interest. Requirements: junior standing.

ME:6191 (058:191) Graduate Seminar: Mechanical Engineering 0 s.h.

Presentation and discussion of recent advances and research in mechanical engineering by guest lecturers, faculty, students.

ME:6198 (058:198) Individual Investigations: Mechanical Engineering arr.

Individual project in mechanical engineering, for department graduate students; laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research.

ME:6199 (058:199) Research: Mechanical Engineering M.S. Thesis arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in mechanical engineering.

ME:7299 (058:299) Research: Mechanical Engineering Ph.D. Dissertation arr.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in mechanical engineering.

Technological Entrepreneurship

Undergraduate certificate: technological entrepreneurship

Web site: <http://www.engineering.uiowa.edu/about/college-services/earn-technological-entrepreneurship-certificate>

The College of Engineering partners with the Tippie College of Business to offer the Certificate in Technological Entrepreneurship. The program is administered by the John Pappajohn Entrepreneurial Center in the business college.

Undergraduate Program of Study

- Certificate in Technological Entrepreneurship

Certificate

The Certificate in Technological Entrepreneurship requires a minimum of 18 s.h. of credit. Certificate students study how the entrepreneurial process relates to technology-based businesses. The program is intended for students who plan to start and operate their own businesses as well as for those who would like to develop an understanding of how to manage innovation in business environments.

Students who complete the certificate program are able to:

- understand sound business thinking;
- use team-building skills in small and large companies;
- understand the entrepreneurial approach to acquiring and managing resources;
- create a business plan;
- bridge engineering and business principles; and
- network with businesses and industries.

The certificate program is open to Bachelor of Science in Engineering students who have earned at least 45 s.h. of credit toward the B.S.E. and have a University of Iowa g.p.a. of at least 2.75. Students must declare their intention to pursue the certificate on ISIS and must apply for admission using the application form available online.

Students must complete at least 12 s.h. of the 18 s.h. required for the certificate at The University of Iowa or in approved study abroad courses. They must maintain a g.p.a. of at least 2.00 in work toward the certificate. Students must be granted the B.S.E. and complete all certificate requirements in order to receive the certificate. Completion of the certificate is noted on the student's transcript.

The Certificate in Technological Entrepreneurship requires the following course work.

FOUNDATION COURSE

One of these:

ENTR:1350 (06T:050) Foundations in Entrepreneurship	2 s.h.
IE:2500 (056:054) Engineering Economy	3 s.h.

ENTREPRENEURSHIP CORE

Both of these:

ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.

ENTREPRENEURSHIP COURSE IN THE MAJOR

One of these, depending on the student's engineering major:

BME:4910 (051:085) Biomedical Engineering Senior Design I (biomedical engineering majors)	4 s.h.
CBE:4109 (052:184) Chemical Engineering Process Design I (chemical engineering majors)	2 s.h.
CEE:3084 (053:084) Project Design and Management in Civil Engineering (civil engineering majors)	3 s.h.
ECE:4890 (055:089) Senior Electrical Engineering Design (electrical engineering majors)	3 s.h.
IE:4600 (056:160) Operational Systems Design (industrial engineering majors)	4 s.h.
ME:4086 (058:086) Mechanical Engineering Design Project (mechanical engineering majors)	3 s.h.

ENTREPRENEURSHIP ELECTIVES

Students customize their programs with their choice of electives. They earn sufficient elective credit to reach the total of 18 s.h. required for the certificate.

BME:4920 (051:086) Biomedical Engineering Senior Design II	4 s.h.
ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.
ENTR:3300 (06T:145) Legal Aspects of Entrepreneurship	3 s.h.
ENTR:3400 (06T:146) Strategic Management of Technology and Innovation	3 s.h.
ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.
ENTR:3595 (06T:144) Nonprofit Organizational Effectiveness I	3 s.h.
ENTR:3600 (06T:148) E-Commerce Strategies for Entrepreneurs	3 s.h.
ENTR:4000 (06T:190) Seminar in Entrepreneurship	3 s.h.
ENTR:4200 (06T:192) Entrepreneurship: Business Consulting	3 s.h.
ENTR:4300 (06T:194) Entrepreneurship: Advanced Business Planning	3 s.h.
ENTR:4400 (06T:150) Managing the Growth Business	3 s.h.
ENTR:4450 (06T:151) Professional Sports Management	3 s.h.
ENTR:4460 (06T:152) Entrepreneurship and Global Trade	3 s.h.
ENTR:4510 (06T:155) Arts Leadership Seminar	3 s.h.
ENTR:4600 (06T:193) Advanced Venture Finance	3 s.h.
ENTR:4900 (06T:199) Academic Internship	1-9 s.h.
ENTR:9000 (06T:210) Developing Professional Service Business	3 s.h.

Any entrepreneurship course (prefix ENTR),
with certificate advisor's approval

Wind Energy

Director

- Andrew Kusiak

Affiliated faculty

- David Bennett (Geographical and Sustainability Sciences), Pablo Carrica (Mechanical and Industrial Engineering), Andrew Kusiak (Mechanical and Industrial Engineering), Marc Linderman (Geographical and Sustainability Sciences), Marian Muste (Mechanical and Industrial Engineering)

Undergraduate certificate: wind energy

Web site: <http://www.engineering.uiowa.edu/mie/undergraduate-program/certificate-wind-energy>

Wind energy has become a major source of clean energy and is expected to grow over the coming decades. That growth will create new jobs and a need for professionals who have diverse backgrounds and knowledge of wind energy fundamentals. The Certificate in Wind Energy introduces undergraduate students to wind energy. The program is interdisciplinary, integrating course work and faculty expertise from the Departments of Mechanical and Industrial Engineering, Civil and Environmental Engineering, and Electrical and Computer Engineering (College of Engineering) and the Department of Geographical and Sustainability Sciences (College of Liberal Arts and Sciences).

Undergraduate Program of Study

- Certificate in Wind Energy

Certificate

The Certificate in Wind Energy requires 18 s.h. of credit. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

College of Engineering students earning the certificate are advised by the Department of Mechanical and Industrial Engineering; College of Liberal Arts and Sciences students are advised by the Department of Geographical and Sustainability Sciences.

Students must apply to enter the certificate program by completing the Certificate in Wind Energy Application on the certificate's web site. The site also provides information about wind energy research at the University and graduate study in wind power management.

Work for the certificate focuses on energy, environment, and information science and includes core courses and electives. Mechanical engineering students may use the certificate as a tailored engineering focus area by adding an approved math/science elective.

Several certificate courses have prerequisites; students must complete all of a course's prerequisites before they may register for the course. Prerequisites do not count toward the 18 s.h. required for the certificate. Prerequisites

for certificate courses are listed on the Certificate in Wind Energy web site.

The Certificate in Wind Energy requires the following course work.

CORE COURSES

All students complete both of these:

GEOG:3560 (044:130) Spatial Analyses of Wind Energy	3 s.h.
IE:4550 (056:155) Wind Power Management	3 s.h.

ELECTIVES

Students complete 12 s.h. in courses chosen from these:

CBE:2030 (052:030) Energy and Society	3 s.h.
CBE:3160 (052:133) Engineering Analysis of Alternative Energy Systems	3 s.h.
CBE:4410 (052:107) Sustainable Systems	3 s.h.
ECE:5620 (055:143) Electric Power Systems	3 s.h.
ECE:5630 (055:163) Sustainable Energy Conversion	3 s.h.
GEOG:2310 (044:101) Climatology	3 s.h.
GEOG:3500 (044:105) Introduction to Environmental Remote Sensing	3 s.h.
GEOG:3520 (044:110) GIS for Environmental Studies	3 s.h.
GEOG:3540 (044:109) Introduction to Geographic Visualization	3 s.h.
GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy	3 s.h.
GEOG:3780 (044:120) U.S. Energy Policy in Global Context	3 s.h.
GEOG:4010 (044:180) Field Methods in Physical Geography	2-4 s.h.
GEOG:4030 (044:150) Senior Project Seminar (registration required for wind energy project credit)	3 s.h.
GEOG:4500 (044:145) Applications in Environmental Remote Sensing	4 s.h.
GEOG:4520 (044:128) GIS for Environmental Studies: Applications	3 s.h.
GEOG:4580 (044:141) Introduction to Geographic Databases	3 s.h.
GEOG:4750 (044:125) Environmental Impact Analysis	4 s.h.
IE:5129 (056:129)/CEE:5129 (053:129)/ECE:5129 (055:129)/ME:5129 (058:129)/GEOG:5129 (044:140) Information Systems for Resource Management	3 s.h.
ME:4142 (058:142) Wind Turbine Aerodynamics	3 s.h.
ME:4164 (058:164) Fundamentals of Wind Turbines	arr.

Graduate College

Dean

- John C. Keller

Senior associate dean

- Dale Eric Wurster

Associate deans

- Daniel Berkowitz, Minnetta Gardinier

Assistant dean

Web site: <http://www.grad.uiowa.edu/>

The University of Iowa has been a leading center of advanced study for more than a century. Presently, the Graduate College accounts for nearly one-fifth of the University's total enrollment. This high ratio reflects the breadth of the University's graduate programs and resources, the strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarship, fellowship, and research assistantship funds, the college encourages research and strengthening of departments. In cooperation with the Office of the Vice President for Research, it offers assistance to individual faculty members in finding the resources necessary for research projects, and it works with the other colleges and departments of the University to formulate policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College is made up of all University tenure-track faculty members at the ranks of assistant professor, associate professor, and professor. A 17-member Graduate Council, elected from and by the graduate faculty and the Graduate Student Senate, is the executive committee of the graduate faculty and is advisory to the dean of the Graduate College.

Degrees Offered

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Accountancy (M.Ac.), Master of Arts in Teaching (M.A.T.), Master of Computer Science (M.C.S.), Master of Fine Arts (M.F.A.), Master of Health Administration (M.H.A.), Master of Physical Therapy (M.P.T.), Master of Public Health (M.P.H.), Educational Specialist (Ed.S.), Master of Science in Nursing (M.S.N.), Master of Social Work (M.S.W.), Doctor of Philosophy (Ph.D.), Doctor of Musical Arts (D.M.A.), Doctor of Nursing Practice (D.N.P.), Doctor of Physical Therapy (D.P.T.), and Doctor of Audiology (Au.D.) degrees.

The college currently confers degrees in the following major fields.

Accounting: M.Ac.**
 African American World Studies: M.A.*
 American Studies: M.A.*, Ph.D.
 Anatomy and Cell Biology: M.S., Ph.D.
 Anthropology: M.A.*, Ph.D.
 Applied Mathematical and Computational Sciences: Ph.D.
 Art: M.A.*, M.F.A.

Art History: M.A.*, Ph.D.
 Asian Civilizations: M.A.*
 Astronomy: M.S.*
 Biochemistry: M.S., Ph.D.
 Biology: M.S.***, Ph.D.*** (see Integrated Biology)
 Biomedical Engineering: M.S.*, Ph.D.
 Biostatistics: M.S.*, Ph.D.
 Book Arts: M.F.A.
 Business Administration: M.A.*, Ph.D.
 Chemical and Biochemical Engineering: M.S.*, Ph.D.
 Chemistry: M.S.*, Ph.D.
 Civil and Environmental Engineering: M.S.*, Ph.D.
 Classics: M.A.*, Ph.D.
 Clinical Investigation: M.S.*
 Communication Studies: M.A.*, Ph.D.
 Community and Behavioral Health: M.S., Ph.D.
 Comparative Literature: Ph.D.***
 Comparative Literature—Translation: M.F.A.
 Computer Science: M.S.*, M.C.S.***, Ph.D.
 Dance: M.F.A.
 Dental Public Health: M.S.
 Economics: M.A.*, Ph.D.
 Education: M.A.*, M.A.T.***, Ed.S.***, Ph.D.
 Educational Policy and Leadership Studies: M.A.*, Ed.S.***, Ph.D.
 Electrical and Computer Engineering: M.S.*, Ph.D.
 English: M.A.*, M.F.A., Ph.D.
 Epidemiology: M.S.*, Ph.D.
 Exercise Science: M.S.***, Ph.D.***
 Film and Video Production: M.A.*, M.F.A.
 Film Studies: M.A.*, Ph.D.
 Free Radical and Radiation Biology: M.S.*, Ph.D.
 French and Francophone World Studies: M.A.*, Ph.D.
 Genetics: Ph.D.
 Geography: M.A.*, Ph.D.
 Geoscience: M.S.*/***, Ph.D.
 German: M.A.*, Ph.D.***
 Greek: M.A.*
 Health and Human Physiology: M.S.*, Ph.D.
 Health and Sport Studies: M.A.***, Ph.D.***
 Health Management and Policy: M.H.A.***, Ph.D.
 Health Services and Policy: Ph.D.
 History: M.A.*, Ph.D.
 Human Toxicology: M.S., Ph.D.
 Immunology: Ph.D.
 Industrial Engineering: M.S.*, Ph.D.
 Informatics: M.S.*, Ph.D.
 Integrated Biology: M.S.*, Ph.D.
 Integrative Physiology: Ph.D.*** (see Health and Human Physiology)
 International Studies: M.A.***
 Journalism: M.A.*
 Latin: M.A.*
 Leisure Studies: M.A.*
 Library and Information Science: M.A.*
 Linguistics: M.A.*, Ph.D.
 Mass Communications: Ph.D.
 Mathematics: M.S.*, Ph.D.
 Mechanical Engineering: M.S.*, Ph.D.
 Microbiology: M.S., Ph.D.
 Molecular and Cellular Biology: Ph.D.
 Molecular Biology: Ph.D.
 Molecular Physiology and Biophysics: M.S.*, Ph.D.
 Music: M.A.*, M.F.A., D.M.A., Ph.D.
 Neuroscience: Ph.D.
 Nursing: M.S.N.*, D.N.P., Ph.D.
 Occupational and Environmental Health: M.S.*, Ph.D.
 Operative Dentistry: M.S.***

Oral Science: M.S., Ph.D.**
 Orthodontics: M.S.
 Pathology: M.S.
 Pharmacology: M.S., Ph.D.
 Pharmacy: M.S.*, Ph.D.
 Philosophy: M.A.*, Ph.D.
 Physical Rehabilitation Science: Ph.D.
 Physical Therapy: M.A.*, D.P.T.
 Physics: M.S.*, Ph.D.
 Political Science: M.A.*, Ph.D.
 Psychological and Quantitative Foundations: M.A.*, Ed.S.**,
 Ph.D.
 Psychology: M.A.*, Ph.D.
 Public Health: M.P.H.**
 Rehabilitation and Counselor Education: M.A.*, Ph.D.
 Religious Studies: M.A.*, Ph.D.
 Science Education: M.S.*, M.A.T.***, Ph.D.
 Second Language Acquisition: Ph.D.
 Social Work: M.S.W.*, Ph.D.
 Sociology: M.A.*, Ph.D.
 Spanish: M.A.*, Ph.D.
 Spanish Creative Writing: M.F.A.
 Speech and Hearing Science: Ph.D.
 Speech Pathology and Audiology: M.A.*, Au.D.
 Statistical Genetics: Ph.D.**
 Statistics: M.S.*, Ph.D.
 Stomatology: M.S.**
 Strategic Communication: M.A.**
 Teaching and Learning: M.A.*, M.A.T.***, Ph.D.
 Theatre Arts: M.F.A.
 Translational Biomedicine: M.S.***, Ph.D.
 Urban and Regional Planning: M.A.*, M.S.*
 Women's Studies: Ph.D.***

*Degree offered with or without thesis

**Nonthesis degree

***Student entry suspended

Interdisciplinary Degree Programs

The Graduate College participates in a number of University of Iowa interdisciplinary degree programs. Detailed information about the following master's and doctoral degree programs is provided later in these Graduate College sections of the Catalog: Applied Mathematical and Computational Sciences (p. 949), Genetics (p. 965), Human Toxicology (p. 968), Immunology (p. 970), Informatics (p. 972), International Studies (p. 975), Molecular and Cellular Biology (p. 986), Neuroscience (p. 989), and Translational Biomedicine (p. 993).

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of interdisciplinary master's and doctoral degrees. Students seeking approval for interdisciplinary master's and doctoral programs must previously have been admitted to and enrolled in a departmental program in the Graduate College. See sections X.A. and XII.D. in the Manual of Rules and Regulations of the Graduate College on the college's web site or in this section of the Catalog.

Joint Programs

Joint Programs Offered Through the Graduate College

Various joint programs have been developed whereby students work simultaneously toward two degrees. Consult the appropriate Catalog sections for more information. Established joint programs include business administration/library and information science; health management and policy/business administration; health management and policy/urban and regional planning; occupational and environmental health/urban and regional planning; public health/law; public health/medicine; public health/pharmacy; public health/veterinary medicine; and social work/urban and regional planning.

Joint B.S./Ph.D.: Biochemistry

The joint B.S./Ph.D. program in biochemistry enables Bachelor of Science students majoring in biochemistry to begin work toward the Ph.D. while completing the bachelor's degree. Students admitted to the program may count 12 s.h. of credit toward both the B.S. and Ph.D. degree requirements. Offered by the Graduate College, the College of Liberal Arts and Sciences, and the Carver College of Medicine; see Biochemistry (p. 1055) in the Catalog.

Joint B.A.: Biology/M.P.H. with Epidemiology Subprogram or M.S.: Epidemiology

The joint B.A. in biology/M.P.H. with epidemiology subprogram and the joint B.A. in biology/M.S. in epidemiology enable Bachelor of Arts students majoring in biology to begin work toward the M.P.H. or M.S. while completing the bachelor's degree. Students admitted to either program may count 12 s.h. of credit toward both the B.A. and the M.P.H. or M.S. degree requirements; they also may maximize their selection of upper-level classes for advanced training in epidemiology. Offered by the Graduate College, the College of Liberal Arts and Sciences, and the College of Public Health; see Biology (p. 122), Master of Public Health Program (p. 1225), and Epidemiology (p. 1208) in the Catalog.

Joint B.S.E./M.S.: Biomedical Engineering

The joint B.S.E./M.S. program in biomedical engineering enables undergraduate students majoring in biomedical engineering to begin work toward the M.S. while completing the bachelor's degree. Students admitted to the program may count a limited amount of credit toward both the B.S.E. and M.S. degree requirements. They also may attend and participate in the departmental graduate seminar and work on a master's thesis or research project before they have been awarded the B.S.E. degree. Offered by the Graduate College and the College of Engineering; see Biomedical Engineering (p. 871) in the Catalog.

Joint B.S.E.: Biomedical Engineering/M.S.: Occupational and Environmental Health

The joint B.S.E. in biomedical engineering/M.S. in occupational and environmental health enables undergraduate students majoring in biomedical

engineering to begin work toward the M.S. in occupational and environmental health while completing the bachelor's degree. Students admitted to the program may count a limited amount of credit toward both the B.S.E. and M.S. degree requirements. Offered by the Graduate College, the College of Engineering, and the College of Public Health; see Biomedical Engineering (p. 871) and Occupational and Environmental Health in the Catalog.

Joint B.S.E.: Chemical Engineering/ M.S.: Chemical and Biochemical Engineering

The joint B.S.E. in chemical engineering/M.S. in chemical and biochemical engineering enables undergraduate students majoring in chemical engineering to begin work toward the M.S. while completing the bachelor's degree. Students admitted to the program may count 12 s.h. of course work, typically advanced chemistry sequences and electives, toward both the B.S.E. and M.S. degree requirements. Offered by the Graduate College and the College of Engineering; see Chemical and Biochemical Engineering (p. 881) in the Catalog.

Joint B.S.E.: Chemical Engineering/ M.S.: Civil and Environmental Engineering

The joint B.S.E. in chemical engineering/M.S. in civil and environmental engineering enables undergraduate students majoring in chemical engineering to begin work toward the M.S. in civil and environmental engineering while completing the bachelor's degree. Students admitted to the program may count 12 s.h. of course work toward both the B.S.E. and M.S. degree requirements. Offered by the Graduate College and the College of Engineering; see Chemical and Biochemical Engineering (p. 881) and Civil and Environmental Engineering (p. 892) in the Catalog.

Joint B.S.E.: Civil Engineering/M.S.: Civil and Environmental Engineering

The joint B.S.E. in civil engineering/M.S. in civil and environmental engineering enables undergraduate students majoring in civil engineering to begin work toward the M.S. while completing the bachelor's degree. Students admitted to the program may count a limited amount of credit toward both the B.S.E. and M.S. degree requirements. They also may attend and participate in the departmental graduate seminar and work on a master's thesis or research project before they have been awarded the B.S.E. degree. Offered by the Graduate College and the College of Engineering; see Civil and Environmental Engineering (p. 892) in the Catalog.

Joint B.A. or B.S.: Computer Science/ M.C.S.

The joint B.A. or B.S. in computer science/M.C.S. program enables undergraduate students majoring in computer science to begin work toward the M.C.S. while completing the bachelor's degree. Students admitted to the program may count 12 s.h. of course work, typically advanced technical courses and electives, toward both the bachelor's and the M.C.S. degree requirements. Offered by the Graduate College and the College of Liberal Arts and Sciences; see Computer Science (p. 204) (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.E.: Electrical Engineering/ M.S.: Electrical and Computer Engineering

The joint B.S.E. in electrical engineering/M.S. in electrical and computer engineering enables undergraduate students majoring in electrical engineering to begin work toward the M.S. while completing the bachelor's degree. Students admitted to the program may count 9 s.h. toward both the B.S.E. and M.S. degree requirements. They also may count an additional 3 s.h. toward the M.S. degree requirements and engage in thesis-level research before they have been awarded the B.S.E. degree. Offered by the Graduate College and the College of Engineering; see Electrical and Computer Engineering (p. 906) in the Catalog.

Joint B.A./M.A.: German

The joint B.A./M.A. program in German enables undergraduate students majoring in German to begin work toward the M.S. while completing the bachelor's degree. Students admitted to the program may count 12 s.h. of credit toward both the B.A. and M.A. degree requirements. They also have the opportunity for early entrance into advanced courses in German. Offered by the Graduate College and the College of Liberal Arts and Sciences; see German (p. 347) (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.E./M.S.: Industrial Engineering

The joint B.S.E./M.S. program in industrial engineering enables undergraduate students majoring in industrial engineering to begin work toward the M.S. while completing the bachelor's degree. Students admitted to the program may count 6 s.h. toward both the B.S.E. and M.S. degree requirements. They also may count an additional 6 s.h. toward the M.S. degree requirements, attend one of the department's graduate seminars, and work on master's thesis research before they have been awarded the B.S.E. degree. Offered by the Graduate College and the College of Engineering; see Mechanical and Industrial Engineering (p. 917) in the Catalog.

Joint Law and Graduate Degrees

The College of Law and several Graduate College programs and schools have developed joint programs in which students pursue the Juris Doctor (J.D.) degree and a graduate degree concurrently. Offered by the Graduate College and the College of Law; see College of Law (p. 1005) in the Catalog.

Joint M.A.: Library and Information Science/Certificate in Book Studies

The joint M.A. in library and information science and Certificate in Book Studies/Book Arts and Technologies prepares students for careers in special collections librarianship. Students admitted to the program receive training in the management of varied types of special collections, such as rare books, manuscripts, archives, graphics, music, and ephemera. Offered by the Graduate College; see Library and Information Science (p. 978) and Center for the Book (p. 956) (both Graduate College) in the Catalog.

Joint B.A./M.A.: Linguistics with TESL Focus

The joint B.A./M.A. program in linguistics with TESL (Teaching English as a Second Language) focus enables students majoring in linguistics to begin work toward the M.A. while completing the bachelor's degree. Students admitted to the program may count 12 s.h. of advanced course work toward both the B.A. and M.A. degree requirements and may take selected graduate-level courses before they have been awarded the B.A. degree. They also may gain experience teaching ESL at the college level early in their graduate careers. Offered by the Graduate College and the College of Liberal Arts and Sciences; see Linguistics (p. 462) (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.E./M.S.: Mechanical Engineering

The joint B.S.E./M.S. program in mechanical engineering enables undergraduates majoring in mechanical engineering to begin work toward the M.S. while completing the bachelor's degree. Students admitted to the program may count 6 s.h. toward both the B.S.E. and M.S. degree requirements. They also may count an additional 6 s.h. toward the M.S. degree requirements, attend a graduate seminar, and participate in master's thesis research before they have been awarded the B.S.E. degree. Offered by the Graduate College and the College of Engineering; see Mechanical and Industrial Engineering (p. 917) in the Catalog.

Joint B.S.E.: Mechanical Engineering/M.S.: Civil and Environmental Engineering

The joint B.S.E. in mechanical engineering/M.S. in civil and environmental engineering enables undergraduate students majoring in mechanical engineering to begin work toward the M.S. in civil and environmental engineering while completing the bachelor's degree. Students admitted to the program may count 9 s.h. of course work toward both the B.S.E. and M.S. degree requirements. They also may count an additional 3 s.h. toward the M.S. degree requirements before they have been awarded the B.S.E. degree. Offered by the Graduate College and the College of Engineering; see Mechanical and Industrial Engineering (p. 917) and Civil and Environmental Engineering (p. 892) in the Catalog.

Joint M.D./Ph.D. (Medical Scientist Training Program)

The joint Doctor of Medicine/Doctor of Philosophy program prepares students for careers in academic medicine, with emphasis on basic and clinical research. Offered by the Graduate College and the Carver College of Medicine; see Medical Scientist Training (p. 1086) Program (Carver College of Medicine) in the Catalog.

Joint B.S./Ph.D.: Microbiology

The joint B.S./Ph.D. program in microbiology enables undergraduate students majoring in microbiology to begin work toward the Ph.D. while completing the bachelor's degree. Students admitted to the program may count 12 s.h. of credit toward both the B.S. and Ph.D. degree requirements. Offered by the Graduate College, the

College of Liberal Arts and Sciences, and the Carver College of Medicine; see Microbiology (p. 1088) in the Catalog.

Joint B.A.: Psychology/M.P.H. with Community and Behavioral Health Subprogram

The joint B.A. in psychology/M.P.H. program with community and behavioral health subprogram enables Bachelor of Arts students majoring in psychology to begin work toward the M.P.H. while completing the bachelor's degree. Students admitted to the program may count 12 s.h. of credit toward both the B.A. and M.P.H. degree requirements. Offered by the Graduate College, the College of Liberal Arts and Sciences, and the College of Public Health; see Psychology (p. 551) and Master of Public Health Program (p. 1225) in the Catalog.

Joint B.A./M.A.T. with Science Education Subprogram

The joint B.A./M.A.T. program with science education subprogram enables Bachelor of Arts students majoring in biology, chemistry, environmental sciences, or physics to begin work toward the M.A.T. while completing the bachelor's degree. Students admitted to the program may count 18 s.h. of credit toward both the B.A. and M.A.T. degree requirements. Offered by the Graduate College, the College of Liberal Arts and Sciences, and the College of Education; see Biology (p. 122), Chemistry (p. 139), Environmental Sciences (p. 288), or Physics and Astronomy (p. 520) (College of Liberal Arts and Sciences) and Teaching and Learning (p. 814) (College of Education) in the Catalog.

Joint Au.D./Ph.D.: Speech and Hearing Science

The joint Au.D./Ph.D. program in speech and hearing science is designed for students who would like to practice audiology and hold a faculty position at a university. Students admitted to the program work concurrently toward the Doctor of Audiology and the Doctor of Philosophy; they may count 30 s.h. toward the requirements of both degrees. Offered by the Graduate College and the College of Liberal Arts and Sciences; see Communication Sciences and Disorders (p. 171) (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.: Statistics/M.P.H. with Quantitative Methods Subprogram

The joint B.S. in statistics/M.P.H. program with quantitative methods subprogram enables Bachelor of Science students majoring in statistics to begin work toward the M.P.H. while completing the bachelor's degree. Students admitted to the program may count 12 s.h. of credit toward both the B.S. and M.P.H. degree requirements. Offered by the Graduate College, the College of Liberal Arts and Sciences, and the College of Public Health; see Statistics (p. 627) and Master of Public Health Program (p. 1225) in the Catalog.

Certificate Programs

Several Graduate College programs offer certificates. For detailed information about each one, see Center for the Book (p. 956), Cognitive Science of Language

(p. 961), Informatics (p. 972), Public Health (p. 1200), and Transportation Studies (p. 996).

The Graduate College also participates with other University of Iowa colleges in offering the following graduate certificates.

Advanced Practice Nursing

The Certificate in Advanced Practice Nursing is a program for Doctor of Nursing Practice (D.N.P.) students that offers advanced clinical training in five specialty areas: adult/gerontology nurse practitioner, family nurse practitioner, neonatal nurse practitioner, pediatric nurse practitioner, and psychiatric/mental health nursing. Students who complete the D.N.P. program and the certificate requirements are qualified to sit for a professional certification exam. Completion of the certificate program is noted on the student's transcript. See College of Nursing (p. 1156) in the Catalog.

Aging Studies

The Aging Studies Program is a multidisciplinary certificate program administered by the College of Liberal Arts and Sciences in cooperation with other University of Iowa colleges. The program is designed to complement graduate degree programs or to serve as a stand-alone nondegree program for students with academic, professional, research, or service career interests in aging. Completion of the certificate program is noted on the student's transcript. See Aging Studies (p. 33) (College of Liberal Arts and Sciences) in the Catalog.

Agricultural Safety and Health

The Certificate in Agricultural Safety and Health is a postbaccalaureate program for practicing health care professionals serving rural areas and for health professions students who intend to practice in rural areas. The program is designed to help rural health professionals address safety and health issues in farm settings. Completion of the certificate program is noted on the student's transcript. See Agricultural Safety and Health (p. 1193) (College of Public Health) in the Catalog.

American Indian and Native Studies

The American Indian and Native Studies Program (AINSP) offers an interdisciplinary certificate program focusing on the histories, cultures, languages, arts, religious traditions, political and social organizations, economies, geographies, literatures, and contemporary legal and political concerns of Native Americans of the United States as well as other indigenous peoples of the Western Hemisphere. Completion of the certificate program is noted on the student's transcript. See American Indian and Native Studies (p. 36) (College of Liberal Arts and Sciences) in the Catalog.

Biostatistics

The Certificate in Biostatistics is open to students in University of Iowa graduate degree programs outside biostatistics and to individuals admitted to the Graduate College as nondegree students. The certificate program enables students to add a formal biostatistics emphasis to their degree programs. Students who complete the certificate in conjunction with a graduate degree may count a maximum of 6 s.h. of certificate credit toward their graduate degree. See Biostatistics (p. 1194) (College of Public Health) in the Catalog.

College Teaching

The Certificate in College Teaching complements discipline-oriented graduate programs and prepares students for careers in postsecondary education. The program is open to graduate students working toward a Ph.D. or other terminal graduate degree. Completion of the certificate program is noted on the student's transcript. See College of Education (p. 755) in the Catalog.

Emerging Infectious Disease Epidemiology

The Certificate in Emerging Infectious Disease Epidemiology is a postbaccalaureate program designed to meet the training needs in emerging infectious disease of international public health professionals as well as University of Iowa graduate students. Applicants to the program must hold a bachelor's degree. Completion of the certificate program is noted on the student's transcript. See Emerging Infectious Disease Epidemiology (p. 1207) (College of Public Health) in the Catalog.

Gender, Women's, and Sexuality Studies

The Certificate in Gender, Women's, and Sexuality Studies is open to students enrolled in graduate degree programs. Completion of the certificate program is noted on the student's transcript. See Gender, Women's, and Sexuality Studies (p. 312) (College of Liberal Arts and Sciences) in the Catalog.

Global Health Studies

The Global Health Studies Program emphasizes international health problems and solutions in the developing and developed worlds, including the United States. The interdisciplinary certificate program is open to both graduate and undergraduate students. Admission is competitive but does not require previous academic study in the health sciences. Completion of the certificate program is noted on the student's transcript. See Global Health Studies (p. 354) (College of Liberal Arts and Sciences) in the Catalog.

Multicultural Education and Culturally Competent Practice

The Certificate in Multicultural Education and Culturally Competent Practice is open to graduate students enrolled in graduate degree programs and to postbaccalaureate nondegree graduate students. The curriculum, which consists of five courses (15 s.h.), begins with an introductory course and ends with a capstone course. Contact the Office of Graduate Inclusion to learn more about the certificate program.

Sacred Music

The Certificate in Sacred Music is an interdisciplinary program with courses in sacred music, choral conducting and literature, keyboard, voice, religion, and art and art history. The program is open to students enrolled in a graduate degree program and to nondegree students who have been admitted to the Graduate College and who have consent of the certificate's faculty advisor. Completion of the certificate program is noted on the student's transcript. See Music (p. 488) (College of Liberal Arts and Sciences) in the Catalog.

Translational and Clinical Investigation

The Certificate in Translational and Clinical Investigation is designed for clinicians who seek advanced training in clinical methodology and applied patient-oriented research skills. Students in the certificate program must be practicing academic clinicians who have completed doctoral training. Completion of the program is noted on the student's transcript. See Epidemiology (p. 1208) (College of Public Health) in the Catalog.

Affiliated Program

The Office of Graduate Inclusion (OGI) is dedicated to providing academic assistance to graduate students from underrepresented populations across graduate programs; to helping build a sustainable practice of inclusion that nourishes and attracts underrepresented graduate students campuswide; and to helping build community through individual and group activities focused on successful academic progress.

OGI's specific goals are to increase numbers of underrepresented minorities in graduate programs; increase the number of doctoral students among U.S. minorities in graduate programs at Iowa; create a department-centered effort of graduate inclusion; offer support to University of Iowa departments and programs that are interested in building, extending, or sustaining their practices of inclusion; support faculty-based efforts for recruiting top graduate scholars who are members of underrepresented minorities; provide mentoring and support for students throughout their degree programs; and provide information on grant opportunities for departments and programs that are pursuing graduate inclusion.

Research Resources

Many of the University's diverse research activities are centrally administered by the Office of the Vice President for Research, which has a cooperative relationship with the Graduate College.

Financial Support

Approximately half of the University's graduate students receive some form of University-administered financial assistance. For eligibility requirements and application procedures, see "Section VII. Graduate Appointments" in the Manual of Rules and Regulations of the Graduate College. The following are the primary sources of assistance.

Teaching and Research Assistantships

Teaching and research assistantships are available in most departments. Assistantship stipends typically range between \$18,080 for a half-time academic-year appointment and \$22,090 for a half-time fiscal-year appointment; assistants also are eligible for tuition scholarships. Assistants (one-quarter-time or more) are classified as residents for fee purposes.

Iowa Arts Fellowships

Iowa Arts Fellowships are for University of Iowa graduate students entering M.F.A. programs. Typical stipends are \$18,500 for the academic year, with all tuition (excluding mandatory fees) paid, plus a health insurance allowance, for a maximum of two years (the second year being

contingent on demonstrated exceptional progress toward completion of the M.F.A.). There are no departmental service obligations.

Iowa Performance Fellowships

Iowa Performance Fellowships are for first-year D.M.A. candidates in a performance area of music. Recipients are nominated by the School of Music. Awards include academic-year fellowships (\$17,500 for year one, \$8,287.50 for years two and three), summer fellowships (\$2,000 for years one and two), and tuition (excluding mandatory fees). The School of Music provides a one-quarter-time research assistantship in years two and three.

Dean's Graduate Research Fellowships

Dean's Graduate Research Fellowships are awarded to first-year graduate students who are members of minority groups underrepresented in the nominating department's discipline area. Doctoral students receive an annual stipend of \$22,000 (\$18,000 for the academic year and \$4,000 for summer session) plus tuition (excluding mandatory fees) for the first year and final dissertation year. They also receive a half-time research or teaching assistantship stipend, tuition (excluding mandatory fees), and a summer stipend (\$4,000 if they register) during years two and three. Students earning a terminal master's degree (e.g., M.F.A.) receive fellowship support equivalent to one academic year (\$17,000) and are eligible to receive two summer session stipends (\$3,000 each if they register) and tuition (excluding mandatory fees) for two years. The master's fellowship support may be distributed over two academic years (\$8,500 per year), if requested. Both doctoral and master's degree fellows are expected to conduct mentored research and/or scholarly activities while on fellowship support during the academic year and summer sessions.

Presidential Graduate Fellowships

Presidential Graduate Fellowships provide five-year awards for doctoral students on a year-round basis. Fellows receive an annual stipend of \$24,000 (\$18,500 for the academic year and a \$5,500 summer stipend), plus full tuition (excluding mandatory fees) for years one and four; a research assistant or teaching assistant stipend during the academic year and a \$5,500 summer stipend and full tuition (excluding mandatory fees) for years two and three. Recipients have no duties during their fellowship years and are eligible for up to four summers of support. In their final year, awardees are eligible to apply for a Ballard and Seashore Dissertation-Year Fellowship; those who do not receive the fellowship are awarded a research assistantship, a teaching assistantship, or a fellowship from their department.

Graduate College Summer Fellowships

Graduate College Summer Fellowships are for advanced doctoral students who have completed their comprehensive exams, are working to complete their dissertations, and so do not otherwise have funding for the summer session. Awards provide a summer stipend of \$3,000 plus tuition for 1-2 s.h. at the College of Liberal Arts and Sciences tuition rate. Awardees must enroll for the six-week, eight-week, or twelve-week summer session; students enrolled in the four-week summer session are not eligible to receive the fellowship.

T. Anne Cleary International Research Fellowships

The T. Anne Cleary International Research Fellowships are for doctoral students who have completed all predissertation requirements, including the comprehensive examination, and who will use the fellowship for dissertation research outside North America. The awards may vary from \$1,500 to \$5,000 and are meant to supplement other research funds. Doctoral students in any discipline may apply. Past recipients of the Cleary fellowship and Doctor of Musical Arts students who choose the D.M.A. essay option are not eligible.

Ballard and Seashore Dissertation-Year Fellowships

Ballard and Seashore Dissertation-Year Fellowships are final-year fellowships for doctoral students in the humanities and social sciences who have completed all doctoral degree requirements except their dissertation. Recipients are nominated by their departments. Fellowships provide \$20,000 for the academic year plus tuition (excluding mandatory fees) for up to 2 s.h. and a health insurance allowance.

Scholarships

Scholarships provide up to full tuition.

GRADUATE STUDENT TRAVEL AWARDS

Graduate student travel awards provide reimbursement for travel by students who present research and scholarship results to professional conferences. Awards are competitive across disciplines and vary from \$200 to \$400. Funds are administered by the Graduate Student Senate and the Graduate College.

Other Sources

For other sources of financial support, contact the Office of Student Financial Aid.

Many departments offer additional support through traineeships, part-time employment in research, or part-time teaching appointments. The Office of the Vice President for Research maintains a library of information on public and private agencies that provide funds for research and graduate study. Much material has been collected concerning awards for overseas study.

Graduate Student Senate

The Graduate Student Senate is the University graduate student body representative organization. Representatives are elected annually from each University department that has a graduate degree program. The senate's primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The senate advises the dean of the Graduate College on matters pertaining to the college.

Manual of Rules and Regulations of the Graduate College

The current edition of the Manual of Rules and Regulations of the Graduate College is published on the Graduate College web site.

Courses

Most Graduate College courses are offered by the college's programs and schools. They are listed and described in the corresponding General Catalog sections; see the links under "Index: Academic Programs" toward the top of this page.

The college also offers the following nondepartmental courses.

GRAD:0006 (650:006) SROP Scholars Program 0 s.h.

GRAD:0008 (000:008) CIC Scholar Nongraduate Level arr.

GRAD:3030 (650:030) SROP/McNair Scholars Academic Development for Juniors 0-1 s.h.

Training and mentorship opportunities to enhance academic and professional success; academic preparation (including the GRE) and exploration of doctoral graduate training programs; seminars, interactive workshops, readings, written assignments. Requirements: UI SROP/McNair Scholar and junior standing.

GRAD:3040 (650:040) SROP/McNair Scholars Academic Development for Seniors 0-1 s.h.

Training and mentorship opportunities to enhance academic and professional success; academic preparation and professional development to navigate the graduate admissions process (including preparation of personal statements, selection of referees, mock interviews); seminars, interactive workshops, readings, written assignments. Requirements: UI SROP/McNair Scholar and senior standing.

GRAD:6000 (000:000) PhD Postcomprehensive Registration 2 s.h.

GRAD:6001 (000:001) Master's Final Registration 2 s.h.

Requirements: master's degree candidate.

GRAD:6002 (000:002) Doctoral Continuous Registration 2 s.h.

Requirements: doctoral degree candidate who has passed comprehensive examinations.

GRAD:6003 (000:003) Doctoral Final Registration 2 s.h.

Requirements: doctoral degree candidate in final session of enrollment.

GRAD:6217 (650:217) Seminar in College Teaching 1-3 s.h.

Preparation for college teaching; for graduate students planning to teach. Same as PSQF:6217 (07P:217).

GRAD:6300 (650:300) Writing for Learned Journals 1-4 s.h.

Help for graduate students in bringing written work to publishable form; analysis of target journals' audiences and interests; submission, response to criticism.

- GRAD:6313 (650:313) Digital Rhetorics** 3 s.h.
Current discourse (utopic, dystopic, other strands) about the Internet as it shapes and is shaped by competing forces.
- GRAD:6800 (000:800) CIC Scholar** arr.
- GRAD:6801 (000:801) Regents Exchange Program** arr.
- GRAD:6997 (000:997) Graduate/ Professional Transfer** arr.
- GRAD:6998 (000:998) Undergraduate Transfer** arr.
- GRAD:6999 (000:999) Resident/Fellow/ Post-Doctoral** 0 s.h.
- GRAD:7270 (650:270) Principles of Scholarly Integrity** 0-1 s.h.
Training in the responsible conduct of research and scholarly activities; discussion of case studies—student/mentor responsibilities in the pursuit of scholarly work (ownership, authorship, plagiarism/falsification/fabrication of data); student/mentor relationships and intellectual dialogues (communication, collaboration, grievance management); student responsibilities to the institution/scholarly community/society (intellectual property, conflict of interest, fiscal responsibilities, human/animal subjects). Requirements: enrollment in Graduate College degree-seeking program. Recommendations: first-year graduate standing (Ph.D., M.S./M.A.) and involvement in conducting NSF/NIH-funded research.
- GRAD:7280 (650:280) Obermann Center for Advanced Studies Special Topics Seminars** 1-3 s.h.
Active participation and engagement in a major program, such as the annual Humanities Symposium; readings on interdisciplinary histories, contexts, and theoretical perspectives that frame featured events; work of artists, scholars, and researchers participating in the program. Requirements: admission to Graduate College.
- GRAD:7285 (650:285) Obermann Center Professional Development Seminar** 1 s.h.
Active participation and engagement in a series of classes dedicated to connecting public engagement, research, and teaching; readings and media viewings that frame course topics; production of a short film, marketing materials, grant, and syllabi relevant to public engagement project. Requirements: admission to Graduate College and completion of Obermann Graduate Institute on Engagement and the Academy.
- GRAD:7290 (650:290) Obermann Center Theory and Practice in Digital Public Humanities** 3 s.h.
Overview of theories and use of technology to preserve, deploy, visualize, map, and analyze concepts; discussions with practicing digital public scholars; assignments tailored to student research; final group project; introductory course in digital public humanities certificate. Same as SLIS:7290 (021:297).
- GRAD:7385 (650:385) Teaching and Learning in Higher Education** 3 s.h.
Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as PSQF:7385 (07P:385), EPLS:7385 (07B:385), EDTL:7385 (07S:384), RCE:7385 (07C:385).
- GRAD:7400 (650:380) Practicum in College Teaching** arr.
Supervised college teaching experience; teaching in collaboration with faculty, observation and critiques of teaching, participation in course planning and evaluation procedures; ethical and multicultural considerations. Requirements: admission to the graduate certificate in college teaching program.
- GRAD:7601 (650:601) Postdoctoral Research Scholar** 0 s.h.
Requirements: postdoctoral standing.
- GRAD:7602 (650:602) Postdoctoral Research Fellow** 0 s.h.
Requirements: postdoctoral standing.
- GRAD:7604 (650:604) Principles of Scholarly Integrity** 0 s.h.
Training in the responsible conduct of research and scholarly activities; discussion of case studies—student/mentor responsibilities in the pursuit of scholarly work (ownership, authorship, plagiarism/falsification/fabrication of data); student/mentor relationships and intellectual dialogues (communication, collaboration, grievance management); student responsibilities to the institution/scholarly community/society (intellectual property, conflict of interest, fiscal responsibilities, human/animal subjects). Requirements: postdoctoral standing. Recommendations: first-year postdoctoral scholar/fellow (FP01/FP02) conducting NSF/NIH-funded research.
- GRAD:7614 (650:614) Principles of Scholarly Integrity** 0 s.h.
Training in the responsible conduct of research (RCR) and scholarly activities; discussion of case studies—student/mentor responsibilities in the pursuit of scholarly work (ownership; authorship; plagiarism/falsification/fabrication of data); student/mentor relationships and intellectual dialogues (communication, collaboration, grievance management); student responsibilities to the institution/scholarly community/society (intellectual property, conflict of interest, fiscal responsibilities, human/animal subjects); may meet the RCR training obligation of the K award. Requirements: junior faculty member holding a federally-funded NIH individual K award.
- Applied Mathematical and Computational Sciences (p. 949)
Biosciences (p. 951)
Center for the Book (p. 956)
Cognitive Science of Language (p. 961)
College Teaching (p. 963)
Digital Public Humanities (p. 964)
Genetics (p. 965)

Human Toxicology (p. 968)

Immunology (p. 970)

Informatics (p. 972)

International Programs (p. 975)

International Writing Program (p. 976)

Library and Information Science (p. 978)

Molecular and Cellular Biology (p. 986)

Neuroscience (p. 989)

Rhetorics of Inquiry (POROI) (p. 992)

Translational Biomedicine (p. 993)

Transportation Studies (p. 996)

Urban and Regional Planning (p. 998)

Applied Mathematical and Computational Sciences

Chair

- Weimin Han (Mathematics)

Affiliated faculty

- Karim A. Abdel-Malek (Mechanical Engineering/Biomedical Engineering), Kurt Anstreicher (Management Sciences/Computer Science/Industrial Engineering), Marc P. Armstrong (Geographical and Sustainability Sciences), Bruce Ayati (Orthopaedics and Rehabilitation/Mathematics), Samuel Burer (Management Sciences), Jianfeng Cai (Mathematics), Ann M. Campbell (Management Sciences), Gregory R. Carmichael (Civil and Environmental Engineering/Chemical and Biochemical Engineering), Thomas L. Casavant (Ophthalmology and Visual Science/Electrical and Computer Engineering/Biomedical Engineering), Yong Chen (Mechanical and Industrial Engineering), Kyung K. Choi (Mechanical and Industrial Engineering), James F. Cremer (Computer Science), Rodica Curtu (Mathematics), Isabel Darcy (Mathematics), Soura Dasgupta (Electrical and Computer Engineering), Weimin Han (Mathematics), Stephen D. Hendrix (Biology), Gregory G. Howes (Physics and Astronomy), Jian Huang (Statistics and Actuarial Science/Biostatistics), Laurent Jay (Mathematics), Douglas W. Jones (Computer Science), Palle Jorgensen (Mathematics), Alan R. Kay (Biology), Joseph K. Kearney (Computer Science), Pavlo Krokhmal (Mechanical and Industrial Engineering), Johna Leddy (Chemistry), Russell V. Lenth (Statistics and Actuarial Science), Tong Li (Mathematics), Ching-Long Lin (Mechanical and Industrial Engineering), John Logsdon (Biology), Jia Lu (Mechanical and Industrial Engineering), Michael Mackey (Biomedical Engineering/Pathology), John R. Manak (Stead Family Department of Pediatrics/Biology), Yannick L. Meurice (Physics and Astronomy), Colleen Mitchell (Mathematics), George Neumann (Economics), Jeffrey W. Ohlmann (Management Sciences), Suely Oliveira (Computer Science/Mathematics), Wayne Polyzou (Physics and Astronomy), Sharif Rahman (Mechanical and Industrial Engineering), R. Rajagopal (International Programs/Civil and Environmental Engineering/Geographical and Sustainability Sciences), Alberto M. Segre (Nursing/Computer Science), Elias Shiu (Statistics and Actuarial Science), Milan Sonka (Ophthalmology and Visual Science/Electrical and Computer Engineering/Radiation Oncology), John P. Spencer (Psychology), David Stewart (Mathematics), Osnat Stramer (Statistics and Actuarial Science), Gerhard O. Strohmer (Mathematics), Kai Tan (Internal Medicine/Biomedical Engineering), Qihe Tang (Statistics and Actuarial Science), Lihe Wang (Mathematics), George G. Woodworth (Statistics and Actuarial Science), Chun-Fang Wu (Biology), Nicholas Yannelis (Economics), Yangbo Ye (Mathematics), Hantao Zhang (Computer Science), Ying Zhang (Biostatistics), Olesya Zhupanska (Mechanical and Industrial Engineering)

Graduate degree: Ph.D. in applied mathematical and computational sciences

Web site: <http://www.amcs.uiowa.edu/>

Applied mathematical scientists formulate scientific concepts and problems in mathematical terms; solve the resulting mathematical problems using analytical and computational methods; and discuss, interpret, and evaluate the solutions. They explore areas of mathematical application and develop mathematical theories in new areas.

Career opportunities for applied mathematicians include positions in colleges, universities, governmental laboratories, business, industry, and consulting firms.

Graduate Program of Study

- Doctor of Philosophy in applied mathematical and computational sciences

Doctor of Philosophy

The Doctor of Philosophy program in applied mathematical and computational sciences requires a minimum of 72 s.h. of graduate credit. The Ph.D. program is autonomous, broadly based, and interdisciplinary. It is designed to help students achieve a command of theoretical and applied mathematics and obtain basic knowledge in another area (engineering, medicine, or one of the behavioral, biological, physical, or social sciences).

The program is flexible; students can concentrate on applied mathematics, such as differential equations and numerical analysis, or on other applicable techniques in mathematics. Scientific computing is an important part of applied mathematics, so it is often a part of student training and dissertation research.

Prospective students should have a desire to apply a mathematical science (mathematics or statistics) to relevant problems in another area.

Course of Study

Faculty members help each student plan a course of study that is consistent with the student's background, interests, and goals.

These individual programs are designed to help students develop expertise in methods of applied mathematics and build a good foundation in related topics of theoretical mathematics. The individual programs also provide sufficient knowledge in an outside area to enable students to use mathematical techniques in that area.

Students can arrange their study plans to earn a master's degree from another department after they complete part of their plan. Students find suitable thesis problems and supervisors with the help of the faculty.

QUALIFYING AND COMPREHENSIVE EXAMINATIONS

Students take a qualifying examination over three of the four core course sequences required for the Ph.D. (analysis, differential equations, numerical analysis, and topology). They also take a comprehensive examination over the chosen outside area.

One program objective is to have each student's dissertation research include many of the activities of an applied mathematical scientist. For example, a student might formulate a model, do a quantitative analysis of the model, and interpret the results.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. To be prepared for graduate-level course work in mathematics and an additional area, applicants should have a bachelor's or master's degree with a strong mathematics component and some background in the additional area.

Applications for fall admission are due on January 15. For application forms and more information about the academic program, contact the chair of the Applied Mathematical and Computational Sciences Program.

Financial Support

Fellowships and research and teaching assistantships are available to qualified applicants. Fellowship support is available during summers. Applications for financial support should be submitted at the same time as applications for admission.

Courses

AMCS:5900 (22A:397) Seminar: Applied Mathematical and Computational Sciences arr.
Current research by faculty, students, guests.

AMCS:7990 (22A:399) Reading and Research arr.

Biosciences

Director

- Daniel Tranel

Affiliated faculty

- Paul Abbas (Otolaryngology—Head and Neck Surgery/Communication Sciences and Disorders), Francois Abboud (Internal Medicine/Molecular Physiology and Biophysics), Karim Abdel-Malek (Mechanical and Industrial Engineering/Biomedical Engineering), Michael Abramoff (Ophthalmology and Visual Sciences/Electrical and Computer Engineering/Biomedical Engineering), Brian Adams (Orthopaedics and Rehabilitation/Biomedical Engineering), Christopher Adams (Internal Medicine/Molecular Physiology and Biophysics), Chris Ahern (Molecular Physiology and Biophysics), Lee-Ann Allen (Microbiology/Internal Medicine), Annunziato Amendola (Orthopaedics and Rehabilitation/Physical Therapy and Rehabilitation Science/Health and Human Physiology), Brad Amendt (Anatomy and Cell Biology), Donald Anderson (Orthopaedics and Rehabilitation/Biomedical Engineering), Mark Anderson (Internal Medicine/Radiation Oncology/Molecular Physiology and Biophysics), Michael G. Anderson (Ophthalmology and Visual Science/Molecular Physiology and Biophysics), Steven Anderson (Neurology), Nancy C. Andreasen (Psychiatry/Education), Michael Apicella (Microbiology/Internal Medicine), Mark Arnold (Chemistry), Nikolai Artemyev (Ophthalmology and Visual Science/Molecular Physiology and Biophysics), Mario Ascoli (Pharmacology/Obstetrics and Gynecology), Jose Assouline (Biomedical Engineering), Vladimir Badovinac (Pathology), Sheila Baker (Ophthalmology and Visual Science/Biochemistry), Zuhair Ballas (Internal Medicine), Botond Banfi (Internal Medicine/Anatomy and Cell Biology), Heather Bartlett (Stead Family Department of Pediatrics/Biochemistry), Alex Bassuk (Stead Family Department of Pediatrics/Neurology), Christopher Benson (Pharmacology/Internal Medicine), Ruth Bentler (Communication Sciences and Disorders), Gail Bishop (Microbiology), Mark Blumberg (Psychology/Biology), Daniel Bonthius (Stead Family Department of Pediatrics/Neurology), Terry Braun (Ophthalmology and Visual Science/Electrical and Computer Engineering/Biomedical Engineering), Timothy Brennan (Pharmacology/Anesthesia), Charles Brenner (Biochemistry), James Brown (Biomedical Engineering/Urology), Thomas Brown (Orthopaedics and Rehabilitation/Mechanical and Industrial Engineering/Biomedical Engineering), Garry Buettner (Radiation Oncology), John Butler (Microbiology), John Callaghan (Orthopaedics and Rehabilitation/Biomedical Engineering), Kevin Campbell (Internal Medicine/Neurology/Molecular Physiology and Biophysics), Brent Carter (Internal Medicine/Radiation Oncology), Thomas Casavant (Ophthalmology and Visual Science/Electrical and Computer Engineering/Biomedical Engineering), Martin Cassell (Anatomy and Cell Biology), Krishnan Chandran (Biomedical Engineering/Mechanical and Industrial Engineering), Mark Chapleau (Internal Medicine/Molecular Physiology and Biophysics), Anil Chauhan (Internal Medicine), Joseph Chen (Orthopaedics and Rehabilitation/Physical Therapy and Rehabilitation Science), Songhai Chen (Pharmacology/Internal Medicine), Chi-Lien Cheng (Biology), Amit Choudhury (Orthopaedics and Rehabilitation/Anatomy and Cell Biology), Charles Clark (Orthopaedics and Rehabilitation/Biomedical Engineering), Steven Clegg (Microbiology), Kelly James Cole (Health and Human Physiology/Physical Therapy and Rehabilitation Science), John Colgan (Internal Medicine/Anatomy and Cell Biology), Josep Comeron (Biology), Thomas Cook (International Programs/Physical Therapy and Rehabilitation Science/Occupational and Environmental Health), Robert Cornell (Anatomy and Cell Biology), Joseph Cullen (Radiation Oncology/Surgery), John Dagle (Stead Family Department of Pediatrics), Michael Dailey (Biology), Warren Darling (Health and Human Physiology/Physical Therapy and Rehabilitation Science), Beverly Davidson (Internal Medicine/Neurology/Molecular Physiology and Biophysics), Brandon Davies (Biochemistry), Deborah Dawson (Preventive and Community Dentistry), Kris DeMali (Biochemistry/Dermatology), Jeffrey Denburg (Biology), Natalie Denburg (Neurology), Mishtu Dey (Chemistry), Frederick Domann (Pathology/Radiation Oncology/Surgery), Jonathan Doorn (Pharmacy), Edwin Dove (Biomedical Engineering), Arlene Drack (Ophthalmology and Visual Sciences/Pediatrics), Melissa Duff (Communication Sciences and Disorders/Neurology), Michael Duffel (Pharmacy), Adam Dupuy (Pathology/Anatomy and Cell Biology), Daniel Eberl (Biology), Adrian Elcock (Biochemistry), Craig Ellermeier (Microbiology), John Engelhardt (Internal Medicine/Anatomy and Cell Biology), Albert Erives (Biology), Frank Faraci (Pharmacology/Internal Medicine), Jan Fassler (Biology), R. William Field (Epidemiology/Occupational and Environmental Health), Carrie Figdor (Philosophy), John Fingert (Ophthalmology and Visual Sciences/Anatomy and Cell Biology), Rory Fisher (Pharmacology/Internal Medicine), Andrew Forbes (Biology), C. Andrew Frank (Anatomy and Cell Biology), John Freeman (Psychology), Gregory Friestad (Chemistry), Bernd Fritzsich (Biology), Ernesto Fuentes (Biochemistry), Laurence Fuortes (International Programs/Epidemiology/Occupational and Environmental Health), Lei Geng (Chemistry), Frederic Gerr (Epidemiology/Internal Medicine/Occupational and Environmental Health), Pamela Geyer (Biochemistry/Obstetrics and Gynecology), Paloma Giangrande (Internal Medicine/Radiation Oncology), George Giudice (Biochemistry/Dermatology), James Gloer (Chemistry), Apollina Goel (Pathology/Radiation Oncology), Pedro Gonzalez-Alegre (Neurology), Jean Gordon (Communication Sciences and Disorders), John Goree (Mechanical and Industrial Engineering/Physics and Astronomy), Prabhat Goswami (Radiation Oncology), Vicki Grassian (Chemistry/Chemical and Biochemical Engineering/Occupational and Environmental Health/Education), Steven Green (Otolaryngology—Head and Neck Surgery/Biology), Jeremy Greenlee (Otolaryngology—Head and Neck Surgery/Neurosurgery), Justin Grobe (Pharmacology), Nicole Grosland (Orthopaedics and Rehabilitation/Biomedical Engineering), Hasem Habelhah (Pathology), Amanda Haes (Chemistry), Hillel Haim (Microbiology), Donna Hammond (Anesthesia/Pharmacology), N. Charles Harata (Molecular Physiology and Biophysics), John Harty (Microbiology/Pathology), Eliot "Richard" Hazeltine (Psychology), William Hedgcock (Marketing), Donald Heistad (Pharmacology/Internal Medicine), Stephen Hendrix (Biology), Michael Henry (Pathology/

Molecular Physiology and Biophysics), Patrick Hitchon (Neurosurgery/Biomedical Engineering), Eric Hoffman (Radiology/Internal Medicine/Biomedical Engineering), Raymond Hohl (Pharmacology/Internal Medicine), Keri Hornbuckle (Civil and Environmental Engineering/Occupational and Environmental Health), Alexander Horswill (Microbiology), Douglas Houston (Biology), Jon Houtman (Microbiology/Internal Medicine), Matthew Howard (Otolaryngology—Head and Neck Surgery/Neurosurgery/Neurology), Stephen Hunter (Biomedical Engineering/Chemical and Biochemical Engineering/Obstetrics and Gynecology), Richard Hurtig (International Programs/Communication Sciences and Disorders), Fiorenza Ianzini (Pathology/Biomedical Engineering), Erin Irish (Biology), Siegfried Janz (Pathology), Alan Kim Johnson (Pharmacology/Health and Human Physiology/Psychology), Hans Johnson (Electrical and Computer Engineering/Biomedical Engineering/Psychiatry), Wayne Johnson (Molecular Physiology and Biophysics), Bradley Jones (Microbiology), Masataka Kawai (Internal Medicine/Anatomy and Cell Biology), Alan Kay (Biology), John Kirby (Microbiology), Toshihiro Kitamoto (Anesthesia/Pharmacology), Joel Kline (Internal Medicine/Occupational and Environmental Health), Al Klingelhutz (Microbiology/Radiation Oncology), Stacey Klutts (Pathology), C. Michael Knudson (Pathology/Radiation Oncology), Amnon Kohen (Chemistry), John Koland (Pharmacology/Internal Medicine), Markus Kuehn (Ophthalmology and Visual Sciences), Anne Kwitek (Pharmacology/Internal Medicine/Molecular Physiology and Biophysics), Ryan Lalumiere (Psychology), Kathryn Lamping (Pharmacology/Internal Medicine), Laura Frey Law (Physical Therapy and Rehabilitation Science), Bridget Lear (Biology), Amy Lee (Otolaryngology—Head and Neck Surgery/Biomedical Engineering/Neurology/Molecular Physiology and Biophysics), Gloria Lee (Internal Medicine), Kevin Legge (Microbiology/Pathology), Hans-Joachim Lehmler (Occupational and Environmental Health), Steven Lentz (Internal Medicine), Kimberly Leslie (Obstetrics and Gynecology), Dana Levasseur (Internal Medicine), Andrew Lidral (Orthodontics/Pediatrics), Tae-Hong Lim (Biomedical Engineering), Fang Lin (Anatomy and Cell Biology), Jim "Jung-Ching" Lin (Biology), Ana Llopart (Biology), John Logsdon (Biology), David Lubaroff (Microbiology/Urology), Gabriele Ludewig (Occupational and Environmental Health), William Lynch (Cardiothoracic Surgery), Michael Mackey (Radiology/Biomedical Engineering), Mark Madsen (Radiology/Physics and Astronomy), Vince Magnotta (Radiology/Biomedical Engineering/Psychiatry), Robert Malone (Biology), John Manak (Pediatrics/Biology), Claudio Margulis (Chemistry), Wendy Maury (Microbiology), Bryant McAllister (Biology), Linda McCarter (Microbiology), Laurie McCormick (Psychiatry), Paul McCray (Microbiology/Internal Medicine/Stead Family Department of Pediatrics), Stephen McGowan (International Programs/Internal Medicine), Bob McMurray (Linguistics/Communication Sciences and Disorders/Psychology), James McNamara (Internal Medicine), Jeffery Meier (Internal Medicine), Lou Messerle (Radiology/Chemistry), Durga P. "D.P." Mohapatra (Pharmacology/Anesthesia), Steven Moore (Pathology), Jessica Moreland (Stead Family Department of Pediatrics), Craig T. Morita (Internal Medicine), Susanne Morton (Physical Therapy and Rehabilitation Science),

David Moser (Psychiatry), David Motto (Internal Medicine/Stead Family Department of Pediatrics), Scott Moye-Rowley (Molecular Physiology and Biophysics), Robert Mullins (Ophthalmology and Visual Sciences/Molecular Physiology and Biophysics), David Murhammer (Chemical and Biochemical Engineering), Jeffrey Murray (Pediatric Dentistry/International Programs/Epidemiology/Stead Family Department of Pediatrics/Nursing/Public Policy Center/Biology/Anatomy and Cell Biology), Daryl J. Murry (Pharmacy), Nandakumar Narayanan (Neurology), William M. Nauseef (Microbiology/Internal Medicine), Maurine Neiman (Biology), Hien Nguyen (Chemistry), Jun Ni (Radiology/Biomedical Engineering/Mechanical and Industrial Engineering), Peggy Nopoulos (Stead Family Department of Pediatrics/Psychiatry), Lyse Norian (Urology), Andrew Norris (Stead Family Department of Pediatrics), Sue O'Dorisio (Stead Family Department of Pediatrics/Biochemistry), Chioma Okeoma (Microbiology), Daniel O'Leary (Psychiatry), Nicholas Pantazis (Anatomy and Cell Biology), Jane Paulsen (Psychology/Neurology/Psychiatry), Stanley Perlman (Microbiology/Stead Family Department of Pediatrics), Thomas M. Peters (Occupational and Environmental Health), Robert Philibert (Psychiatry), Bryan Phillips (Biology), Robert Piper (Internal Medicine/Molecular Physiology and Biophysics), Amy Poremba (Psychology), James Potash (Psychiatry), Matthew Potthoff (Pharmacology), Veena Prahlad (Biology), David Price (Biochemistry), Miles Pufall (Biochemistry), Hank Qi (Anatomy and Cell Biology), Dawn Quelle (Pharmacology/Pathology), Frederick Quelle (Pharmacology/Internal Medicine), Daniel Quinn (Chemistry), Jason Radley (Psychology), Madhavan Raghavan (Biomedical Engineering), Salam Rahmatalla (Civil and Environmental Engineering/Biomedical Engineering), Kamal Rahmouni (Pharmacology/Internal Medicine), Barbara Rakel (Nursing/Physical Therapy and Rehabilitation Science), Joseph Reinhardt (Biomedical Engineering), George Richerson (Neurology/Molecular Physiology and Biophysics), Matthew Rizzo (Neurology/Mechanical and Industrial Engineering), Janice Robertson (Molecular Physiology and Biophysics), Larry Robertson (Radiation Oncology/Occupational and Environmental Health), Jan-Uwe Rohde (Chemistry), Richard Roller (Microbiology), Andrew Russo (Molecular Physiology and Biophysics/Neurology), Tom Rutkowski (Internal Medicine/Anatomy and Cell Biology), Aliasger Salem (Chemical and Biochemical Engineering/Pharmacy/Biomedical Engineering), Todd Scheetz (Ophthalmology and Visual Sciences/Biomedical Engineering), Patrick Schlievert (Microbiology/Internal Medicine), Annette Schlueter (Pathology), Thomas Schmidt (Molecular Physiology and Biophysics/Obstetrics and Gynecology), Michael Schnieders (Biochemistry/Biomedical Engineering), Jerald Schnoor (Civil and Environmental Engineering/Occupational and Environmental Health), Michael Schultz (Radiology/Internal Medicine/Radiation Oncology), Deborah Segaloff (Molecular Physiology and Biophysics/Obstetrics and Gynecology), Alberto Segre (Nursing/Computer Science), Madeline Shea (Biochemistry), Val Sheffield (Stead Family Department of Pediatrics), Erwin Shibata (Internal Medicine/Molecular Physiology and Biophysics), Richard Shields (Orthopaedics and Rehabilitation/Physical Therapy and Rehabilitation Science), Jessica Sieren (Radiology/Biomedical Engineering), Curt Sigmund (Pharmacology/

Internal Medicine/Molecular Physiology and Biophysics), Andean Simons-Burnett (Pathology), Ramon Alfredo Siochi (Electrical and Computer Engineering/Radiation Oncology/Physics and Astronomy), Kathleen Sluka (Nursing/Physical Therapy and Rehabilitation Science), Diane Slusarski (Biology), Megan M. Smith (Psychiatry), Richard Smith (Internal Medicine/Otolaryngology—Head and Neck Surgery/Pediatrics/Molecular Physiology and Biophysics), Sarit Smolikove (Biology), Peter Snyder (Internal Medicine/ Molecular Physiology and Biophysics), David Soll (Biology), Long-Sheng Song (Internal Medicine), Maria Spies (Biochemistry), Michael Spies (Pharmacy/Biochemistry), Douglas Spitz (Radiation Oncology), Mark Stamnes (Internal Medicine/Molecular Physiology and Biophysics), Clark Stanford (Prosthodontics/Orthopaedics and Rehabilitation/Biomedical Engineering), Jack Stapleton (Microbiology/Internal Medicine), Steven F. Stasheff (Ophthalmology and Visual Science/ Electrical and Computer Engineering/Stead Family Department of Pediatrics/Biomedical Engineering), George Stauffer (Microbiology), Christopher Stipp (Biology/Molecular Physiology and Biophysics), David Stoltz (Internal Medicine/Biomedical Engineering), Edwin Stone (Ophthalmology and Visual Sciences), Stefan Strack (Pharmacology/Pathology), John Sunderland (Radiology/Radiation Oncology/Physics and Astronomy), Fayyaz Sutterwala (Internal Medicine), William Talman (Neurology), Kai Tan (Internal Medicine), Eric Taylor (Biochemistry), Christie Thomas (Internal Medicine/Obstetrics and Gynecology), Peter Thorne (Civil and Environmental Engineering/ Occupational and Environmental Health), J. Bruce Tomblin (Otolaryngology—Head and Neck Surgery/ Communication Sciences and Disorders), Tina Tootle (Anatomy and Cell Biology), Daniel Tranel (Psychology/ Neurology), Budd A. Tucker (Ophthalmology and Visual Sciences), Robert Tucker (Pathology/Biomedical Engineering), Lubomir Turek (Pathology), Christopher Turner (Communication Sciences and Disorders/ Otolaryngology—Head and Neck Surgery), Aliye Uc (Stead Family Department of Pediatrics/Radiation Oncology), Ergun Uc (Neurology), Yuriy Usachev (Pharmacology), Steve Varga (Microbiology/Pathology), Shaun Vecera (Psychology), Sarah Vigmostad (Biomedical Engineering), Michelle Voss (Psychology), Thomas Waldschmidt (Pathology), Lori Wallrath (Biochemistry), M. Todd Washington (Radiation Oncology/Biochemistry), Edward Wasserman (Psychology), Thomas Wassink (Stead Family Department of Pediatrics/Psychiatry), Daniel Weeks (Stead Family Department of Pediatrics/Biochemistry), Ronald Weigel (Surgery/Biochemistry/Anatomy and Cell Biology), George Weiner (Internal Medicine), Joshua Weiner (Biology), David Weiss (Microbiology), Jerrold Weiss (Microbiology/Internal Medicine), Michael Welsh (Internal Medicine/Neurosurgery/Molecular Physiology and Biophysics), John Wemmie (Neurosurgery/ Molecular Physiology and Biophysics/Psychiatry), David Wiemer (Pharmacology/Chemistry), David Wilder (Biomedical Engineering/Occupational and Environmental Health), Glenn Williams (Orthopaedics and Rehabilitation/Physical Therapy and Rehabilitation Science), Virginia Willour (Psychiatry), Mary Wilson (International Programs/Microbiology/Internal Medicine/Epidemiology), Marc Wold (Radiation Oncology/Biochemistry), Brian Wolf (Orthopaedics and Rehabilitation/Physical Therapy and Rehabilitation

Science), Michael Wright (Molecular Physiology and Biophysics), Chun-Fang Wu (Biology), Qi Wu (Pharmacology), Dale Wurster (Pharmacy), Jinhu Xiong (Radiology/Biomedical Engineering), Hai-Hui "Howard" Xue (Microbiology), H. John Yack (Physical Therapy and Rehabilitation Science), Timothy Yahr (Microbiology), Charles Yeaman (Internal Medicine/Anatomy and Cell Biology), Joseph Zabner (Internal Medicine), Asgar Zaheer (Neurology), Nicholas Zavazava (Internal Medicine/Biomedical Engineering), Fenghuang Zhan (Internal Medicine), Denice Zingman (Internal Medicine)

Web site: <http://www.medicine.uiowa.edu/biosciences/>

Graduate Program of Study

Participation in the Biosciences Program leads to a Ph.D. degree in a biosciences discipline. The program provides graduate students the freedom to explore research in any of 17 University of Iowa biosciences research departments and programs: the Departments of Anatomy and Cell Biology (p. 1048), Biochemistry (p. 1055), Biology (p. 122), Biomedical Engineering (p. 871), Chemistry (p. 139), Communication Sciences and Disorders (p. 171), Microbiology (p. 1088), Molecular Physiology and Biophysics (p. 1094), Pharmacology (p. 1115), Physical Therapy and Rehabilitation Science (p. 1118), Physics and Astronomy (p. 520); and the Free Radical and Radiation Biology (p. 1076), Genetics (p. 965), Human Toxicology (p. 968), Immunology (p. 970), Molecular and Cellular Biology (p. 986), and Neuroscience (p. 989) Programs.

Biosciences students enjoy the flexibility of investigating several disciplines through research rotations in the laboratories of Biosciences Program faculty members. Following completion of their first year in the program, students select a research laboratory and program affiliation and decide on a thesis project that will lead to a Ph.D.

Semester hour requirements for the doctorate vary by program, but all Ph.D. degrees at Iowa require at least 72 s.h. of graduate credit. For detailed information on Graduate College policies, see the Manual of Rules and Regulations of the Graduate College.

Curriculum

Students spend their first two semesters in the Biosciences Program. The curriculum provides them with an integrated core foundation on modern molecular and cellular biology while giving them flexibility to accommodate their individual interests.

Instead of offering one semester-long core course, the program offers at least six content modules. In consultation with their advisors, students choose modules at five-week intervals, tailoring their individual study plans to meet their interests. Some modules are intended to be taken as a series; they cover fundamentals of cell structure, intracellular trafficking, signal transduction, and protein structure. Other modules are stand-alone units on more specialized topics, such as biostatistics.

Early in the second semester, Biosciences Program students talk with prospective mentors about thesis projects and laboratory openings for the following summer. In March they submit their choice of the graduate program they wish to join and the faculty member they wish to have as a mentor.

The Biosciences web site contains typical study plans for students interested in specific graduate programs. The student's choice of program determines his or her curriculum for subsequent years.

Students in the Biosciences Program are not required to teach, but most of the graduate programs they enter will require that they take on teaching responsibilities.

During their Biosciences Program year, students are advised on course selection, research rotations, and registration by a faculty member closely related to the student's research and academic interests. As research rotations are assigned, the faculty advisor works in consultation with the student's rotation advisors until the end of the first year.

Students provide a short oral presentation following each research rotation to an audience of their primary advisor, research advisor(s), and other biosciences students. Rotation advisors provide rotation reports, and rotations are evaluated by the student's primary advisor. The student's primary advisor also confers with the student on course grades, subsequent rotations, and the student's selection of a department or program and lab for thesis research.

All biosciences students take BISC:5265 (156:265) Biosciences Critical Thinking and Communication, which dovetails with research rotations and seminar series offered by the University's biosciences research departments and programs. The course involves weekly discussions of selected papers and oral and written presentations tied to the student's research rotations.

Each student's overall progress is monitored by his or her primary advisor, rotation advisor(s), and program director, who meet at the end of each semester to review the student's work. At the end of the second semester, the primary advisor, in cooperation with the rotation advisor(s), makes a recommendation to the Biosciences Program director as to whether or not the student should continue in the Ph.D. program. University guidelines, such as maintaining a cumulative g.p.a. of 3.00 or higher, are considered, along with performance in rotations.

The Biosciences Program's office coordinates students' transfers to their chosen graduate programs. Matriculation is conditional upon satisfactory progress and successful completion of the second semester.

Once a student enters his or her chosen graduate program, it is that program's responsibility to advise the student, evaluate his or her academic performance, and assign the student a thesis mentor and laboratory.

Most participating departments and programs require that students take a comprehensive exam at the end of the second year and no later than the third year. Following successful completion of the exam, students advance to Ph.D. candidacy.

REQUIRED COURSES

All Biosciences Program students must complete the following course work. Students earn at least 12 s.h. each semester.

Fall Semester

BISC:5265 (156:265) Biosciences Critical Thinking and Communication	2 s.h.
BISC:5302 (156:302) Biosciences Research (8-week research rotations)	arr.

GRAD:7270 (650:270) Principles of Scholarly Integrity	0-1 s.h.
Electives	

Spring Semester

BISC:5265 (156:265) Biosciences Critical Thinking and Communication	2 s.h.
BISC:5302 (156:302) Biosciences Research (8-week research rotations)	arr.
Electives	

Admission

The program accepts students with a variety of backgrounds in the biological and physical sciences. Entering students must hold a baccalaureate degree from an accredited college or university and should have completed courses in biology, chemistry, physics, and calculus consistent with requirements for a baccalaureate degree in the sciences. An undergraduate g.p.a. of at least 3.00 is required.

Applicants must submit their scores on the Graduate Record Examination. Applicants whose first language is not English must score at least 600 (paper-based) or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Other indicators of academic accomplishments, such as research experience and letters of recommendation, are considered.

Information about graduate training and application materials are available from the Biosciences Program office.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Graduate students receive stipend and tuition support from The University of Iowa and other sources. Students promoted to the second year in the program receive support from their graduate departments and programs. The Biosciences Program also helps some students apply for competitive national awards for outstanding academic and research achievement.

Facilities

The Carver College of Medicine provides state-of-the-art facilities for students, researchers, and instructors. The Medical Education and Research Facility, completed in 2002, provides 220,000 square feet of modern laboratories, lecture halls, clinical examination rooms, and study and meeting space for students. The Carver Biomedical Research building opened in 2005. The 135,000 square-foot building is devoted to research, with five floors of specialized laboratories and new technology. In addition to its new buildings, the college offers recently renovated laboratories and classrooms.

The health sciences campus provides parking, food service, and enjoyable outdoor common areas and pedestrian routes. Most of the University's health sciences colleges and clinical facilities are located there.

The basic science and clinical departments of the Carver College of Medicine are housed primarily in the Bowen Science Building, Carver Biomedical Research Building, Eckstein Medical Research Building, Medical Education and Research Facility, Medical Laboratories, and University of Iowa Hospitals and Clinics. Nearby are the Hardin Library for the Health Sciences and the Iowa City Veterans Affairs Medical Center.

The Departments of Anatomy and Cell Biology, Biochemistry, Microbiology, Molecular Physiology and Biophysics, and Pharmacology are housed in the Bowen Science Building. Laboratories of clinical departments are located primarily in the Medical Laboratories and the Medical Research Center.

The Eckstein Medical Research Building houses major core facilities for microscopy, image analysis, flow cytometry, protein structure, and monoclonal antibody production, as well as research laboratories for basic investigators with interdisciplinary approaches to cancer, molecular biology, genetics, and immunology. The geographic proximity of these facilities promotes interchange among clinical and basic science faculty members and students and maximizes use of the University's extensive core facilities for biomedical research.

Integral to the University's research environment are the Carver Nonprofit Genetic Testing Laboratory, Center for Auditory Regeneration and Deafness, Center for Bioinformatics and Computational Biology, Center for Emerging Infectious Diseases, Center for Functional Genomics of Hypertension, Center for Gene Therapy, Center for Research in the Implementation of Innovative Strategies in Practice, Center on Aging, Craniofacial Center Collaboratory, Cystic Fibrosis Research Center, Holden Comprehensive Cancer Center, Huntington's Disease Society of America Center of Excellence, Institute for Clinical and Translational Science, Iowa Cardiovascular Center, Iowa Comprehensive Lung Imaging Center, Helen C. Levitt Center for Viral Pathogenesis, George M. O'Brien Kidney Research Center, Specialized Center for Research in Osteoarthritis, and the Senator Paul D. Wellstone Muscular Dystrophy Cooperative Research Center.

In addition to the University's extensive facilities for research support, the Carver College of Medicine and the College of Liberal Arts and Sciences operate a variety of research support facilities. Tissue culture, autoclaving, purified water, darkrooms, counters, and a variety of general-use equipment and services are available on a shared basis.

Courses

BISC:5201 (156:201) Fundamentals of Gene Expression 1 s.h.

DNA and RNA structure, nuclear organization, DNA replication, RNA production and processing, small RNAs, RNAi, and genetic and epigenetic regulation; didactic and small group sessions, discussion of primary research publications.

BISC:5203 (156:203) Fundamentals of Dynamic Cell Processes 1 s.h.

Overview of actin, microtubules, motors, intermediate filaments, cell-cell junctions, G-coupled signaling, wnt-jak/stat signaling, ion channels, cell cycle, stem cells.

BISC:5204 (156:204) Biostatistics for Biomedical Research 1 s.h.

Application of statistical techniques to biological data analysis; normal distribution, sampling distribution of the mean, variance, nonparametric methods, linear regression, power, and sample size. Same as BIOS:5050 (171:151).

BISC:5205 (156:205) Practical Bioinformatics 1 s.h.

Formal instruction on the use and application of bioinformatics for bench scientists; bioinformatics, resources, genome annotations, sequence analysis, comparative genomics, expression analysis, and systems biology. Requirements: biostatistics.

BISC:5206 (156:206) Protein Structure, Function, and Regulation: Biophysical Chemistry Module 1 1 s.h.

Overview of principles of protein structure, stability, folding, and dynamics; brief treatment of structural biology approaches to help students become critical users of models derived from X-ray crystallography and NMR; taken alone or as part of BIOC:5241 (099:241). Requirements: introductory course in biochemistry. Same as BIOC:5243 (099:243).

BISC:5265 (156:265) Biosciences Critical Thinking and Communication 2 s.h.

Selected papers and oral and written presentations tied to students' research rotations; introductory seminar. Same as MPB:5342 (072:342), BIOL:5270 (002:270).

BISC:5302 (156:302) Biosciences Research arr.

Research experience in the lab of a biosciences program faculty member.

Center for the Book

Director

- Timothy Barrett (Interdisciplinary Programs/Library and Information Science)

Affiliated faculty

- Timothy Barrett (Interdisciplinary Programs/Library and Information Science), Matthew P. Brown (English), Karen Carcia (Interdisciplinary Programs), Corey Creekmur (English), Brad Dicharry (Art and Art History), Ed Folsom (English/Interdisciplinary Programs), Gary Frost (Interdisciplinary Programs), Loren Glass (English), Adam Hooks (English), Cheryl Jacobsen (Interdisciplinary Programs), Kathleen Kamerick (History), Craig Kelchen (Interdisciplinary Programs), Nancy E. Kraft (Interdisciplinary Programs/Library and Information Science), Sara Langworthy (Interdisciplinary Programs), Julia Leonard (Interdisciplinary Programs/Library and Information Science), Emily Martin (Interdisciplinary Programs), Melissa Moreton (Interdisciplinary Programs), Judith Pascoe (English), Jennifer Burek Pierce (Library and Information Science), Greg Prickman (Interdisciplinary Programs/Library and Information Science), Sara Sauers (Interdisciplinary Programs), Giselle Simon (Interdisciplinary Programs), Julie Smith (Interdisciplinary Programs), James Snitzer (Art and Art History/Interdisciplinary Programs), Katherine Tachau (History), Stephen Voyce (English), Jonathan Wilcox (English)

Graduate degree: M.F.A. in book arts

Graduate certificate: book studies/book arts and technologies

Web site: <http://book.grad.uiowa.edu>

The University of Iowa Center for the Book represents a community of faculty, staff, students, and local book specialists with interests in all facets of book production, distribution, and use. Some members of the center actively research the history and circulation of the book, examining the role of books in cultural and historical processes. They also look at how changes in book production affect the way books are viewed as artifacts. Specialists in book arts and technologies study the history and technique of book crafts, including letterpress printing, typography, calligraphy, papermaking, and bookbinding. Others engage in the conservation or production of books, including artists' books and literary fine press publications.

The center offers classes; sponsors lectures, seminars, and workshops; and encourages the exchange of ideas among individuals with interests in the book. A wide range of perspectives on the book as an aesthetic, cultural, and historical artifact is provided by associated faculty, staff, and graduate students in the Schools of Art and Art History and Library and Information Science; the Departments of History and English; the Comparative Literature Program; University of Iowa Libraries; the Creative Writing Program (Iowa Writers' Workshop); and other areas. This interdisciplinary membership and the center's facilities combine to provide an exceptional environment for studying the history of the book, its evolution, and its future.

Graduate students may earn a master's degree or a graduate certificate through the center. Undergraduate

students may add dimension to their majors in English, art, journalism, history, and other disciplines by taking Center for the Book courses in book crafts and book studies. They also may include an emphasis on book arts or on cultural and historical aspects of the book in the interdepartmental studies major.

Graduate Programs of Study

- Master of Fine Arts in book arts
- Certificate in Book Studies/Book Arts and Technologies

Graduate study of the book is interdisciplinary. It focuses on book arts as hands-on practice as well as a historical and cultural phenomenon. Its principal objectives are to provide scholarly and aesthetic contexts for the study of book history, arts, and technologies; and to offer a structured program in book-related disciplines for graduate students with a serious interest in book studies.

Master of Fine Arts

The Master of Fine Arts program in book arts requires a minimum of 60 s.h. of graduate credit, including a thesis. Students select one of several emphasis areas: artist book work, bookbinding, calligraphy, digital book work, papermaking, or printing. After completing core courses, they work with a faculty advisor to design an individualized curriculum in their specialty area. The degree culminates with the successful completion of a thesis.

The program requires the following course work.

Core courses, historical context courses, other topics, and workshops	33 s.h.
Electives in the student's emphasis area	18 s.h.
Additional electives	6 s.h.
Thesis (maximum of 6 s.h.)	3 s.h.

Certificate

The Certificate in Book Studies/Book Arts and Technologies requires 18 s.h. of graduate credit and is designed to be completed in one year. The program is open to students who are enrolled in a graduate degree program at The University of Iowa as well as to students enrolled in the Graduate College with nondegree status.

The program requires the following course work.

A studio course	3 s.h.
A scholarly course	3 s.h.
Electives	12 s.h.

Admission

Applicants must meet the admission requirements of the Graduate College; see Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. Visit Admissions on the Center for the Book web site for more information.

Courses

UICB:1111 (108:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, fieldtrips). Requirements: first- or second-semester standing.

- UICB:2100 (108:102) Creative Writing for Book Arts** 3 s.h.
Topics such as book design, printing, paper arts, letterforms, typography.
Creative writing in context of book arts; text and image, typography, visual sequence, graphic narrative; zines, chapbooks, broadsides, and artist's books.
- UICB:2110 (108:098) Introduction to Book Arts** 3 s.h.
Topics related to artist books, hand bookbinding, letterpress printing, papermaking, and lettering arts.
- UICB:3100 (108:110) Papermaking** 3 s.h.
History, fundamental techniques of Western and Eastern hand papermaking; projects in traditional sheet forming, basic paper chemistry, paper coloring. Offered spring semesters. Same as BKAT:3100 (01X:110).
- UICB:3140 (108:181) Literature and the Book** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: Early Literatures through 17th-Century, 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:3140 (008:130).
- UICB:3142 (108:186) Topics in Book History** 3 s.h.
Authorship, publishing, and so forth within specific historical and cultural contexts. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: Early Literatures Through 17th Century, 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:3142 (008:190).
- UICB:3280 (108:104) Elements of Book Art** 3 s.h.
Overview of book art process and techniques for nonmajors; introduction to traditional bookbinding skills, nontraditional book structures, and content development for artist books. Same as BKAT:3280 (01X:104).
- UICB:3310 (108:101) Typography** 4 s.h.
Introduction to letterform and typographic fundamentals; designing with type—attention to composition, hierarchy, historical practice. Prerequisites: DSGN:2110 (01D:090). Same as DSGN:3120 (01D:100).
- UICB:3380 (108:105) Elements of Letterpress** 3 s.h.
Introduction to letterpress printing for non-book art majors; metal type, relief printing, page layout, and basic typography; basic use of Vandercook Proof Press; experimentation with diverse letterpress techniques.
- UICB:3400 (108:143) Calligraphy: Foundational Hands** 3 s.h.
Fundamental calligraphic skills using Roman majuscule, Humanistic minuscule, Italic; basic layout and color theory incorporated into letter practice. Same as BKAT:3400 (01Z:143).
- UICB:3900 (108:100) Special Project for Undergraduates** arr.
Independent study.
- UICB:4010 (108:170) Studies in Book Technologies** arr.
- UICB:4100 (108:130) Paperworks** 3 s.h.
Conceptual and methodological approaches to 2-D and 3-D paper works; creation of works that couple unique properties of paper-pulp medium with personal visual ideas and clarity of intent; contemporary issues in paper pulp, medium's relationship to larger art and craft contexts. Same as BKAT:4100 (01X:130).
- UICB:4150 (108:185) Introduction to Book Studies** 3 s.h.
Theory and practice of book studies; meanings of word and image in the book format; comparative study of other media, applied study of the codex as physical artifact. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: Early Literatures Through 17th Century, or 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:4150 (008:134), SLIS:4150 (021:185).
- UICB:4205 (108:150) Bookbinding I: Materials and Techniques** 3 s.h.
Hands-on introduction to materials and techniques commonly used in bookbinding. Same as BKAT:4205 (01Y:150).
- UICB:4210 (108:156) Boxes and Enclosures** 3 s.h.
Hands-on techniques for a variety of book enclosures; appropriateness, aesthetic issues concerning box design; Japanese wraparound case, drop-spine box, hinged and lidded boxes, slipcase; technical skill development. Prerequisites: UICB:4205 (108:150). Same as BKAT:4210 (01Y:156).
- UICB:4220 (108:157) Moveable/Sculptural Books** 3 s.h.
Varied formats for moveable and/or sculptural books; history; readings, hands-on model making. Same as BKAT:4220 (01Y:157).
- UICB:4230 (108:158) Pop-Up Book Structures** 3 s.h.
Hands-on exploration of varied aspects of paper engineering for bookmaking; historical and modern models studied and executed. Prerequisites: UICB:4205 (108:150). Same as BKAT:4230 (01Y:158).
- UICB:4270 (108:151) Bookbinding II** 3 s.h.
Builds on skills acquired in UICB:4205 (108:150); projects to complete six bindings based on historical and contemporary models; sewing styles, board attachments, endband types; nonadhesive and case-bound structures, varied materials and binding styles, their effects on structure, aesthetic considerations, further development of solid binding skills; historical development of particular binding practices. Prerequisites: UICB:4205 (108:150). Same as BKAT:4270 (01Y:151).

- UICB:4280 (108:154) Artists' Books** 3 s.h.
Exploration of the book as a form for artistic expression; emphasis on conceptual development; relationship between content, form, and structure; how a book's structure and design can enhance and integrate part of the work's meaning. Prerequisites: UICB:4205 (108:150) or BKAT:4205 (01Y:150). Same as BKAT:4280 (01Y:015).
- UICB:4290 (108:155) Historical Book Structures** 3 s.h.
Historical development of book structures examined through surviving examples, construction of historical models. Prerequisites: UICB:4205 (108:150) or BKAT:4205 (01Y:150).
- UICB:4300 (108:160) Letterpress I** 3 s.h.
Mechanics of letterpress printing, typography, and design as applied to hand set metal type and edition printing; printing on a Vandercook proof press; introduction to photopolymer plates and methods of illustration related to edition printing, historical aspects of printing technology, typesetting, type classification; role of letterpress in modern private press and contemporary artist books. Same as ARTS:4300 (01P:160).
- UICB:4305 (108:168) Computer Graphics for Book Arts** 3 s.h.
Introduction to Adobe Creative Suite graphic design software (InDesign, Illustrator, Photoshop); emphasis on using software for book arts applications; typesetting and pagination of multipage documents; methods for combining text and image; tools and techniques for digital illustration; creation and manipulation of digital images; preparations of digital files for desktop or letterpress printing and services bureau output.
- UICB:4340 (108:164) Digital Design for Artists' Books** 3 s.h.
Introduction to concepts, techniques, and technologies used to design and produce artists' books with personal computers and graphic design software. Same as ARTS:4340 (01P:164).
- UICB:4380 (108:169) Letterpress II** 3 s.h.
Builds on skills acquired in UICB:4300 (108:160); issues of book design and production related to letterpress printing; exploration of hand-set metal, digital typesetting, printing from photopolymer plates, and imagemaking; press mechanics and operation; students produce a letterpress printed chapbook or artist book; publication philosophies, manuscript acquisition, and topics specific to literary fine press and artist books; historical and contemporary context for literary fine press publications and artist book work. Prerequisites: UICB:4300 (108:160).
- UICB:4390 (108:162) Book and Publication Design** 3 s.h.
Students plan, design, and produce a book using Adobe Creative Suite; page layout software, typography, page layout and design, book formatting, handling of image files, preparation of materials for print and other contemporary book media; history of book design, book design in contemporary publishing; visit to University of Iowa Libraries Special Collections. Prerequisites: UICB:4300 (108:160) or DSGN:3120 (01D:100). Same as ARTS:4390 (01P:162).
- UICB:4400 (108:142) History of Western Letterforms** 3 s.h.
History of Western letterforms, with focus on tools, materials, techniques; the major hands, their place in history, their influence on modern times; creation of letterforms using appropriate tools; hands-on approach with emphasis on understanding rather than mastery. Same as BKAT:4400 (01Z:142).
- UICB:4415 (108:148) Calligraphy: Italic and Script Hands** 3 s.h.
Hands-on instruction in italic and pressure pen scripts; historical relationships, effects on modern letterforms.
- UICB:4420 (108:145) Calligraphy: Blackletter Hands** 3 s.h.
Development of proficiency in various hands, from vertical Textura to floridly gothic cursive; blackletter's historical connections with other disciplines.
- UICB:4490 (108:146) Studies in Letter Arts** 3 s.h.
Special topics and advanced projects in calligraphy and letter arts. Prerequisites: UICB:3400 (108:143) or UICB:4400 (108:142). Same as BKAT:4490 (01Z:146).
- UICB:4910 (108:182) The Book in the Middle Ages** 3 s.h.
Relation of text, decoration, function, creators, and audience in different genres of medieval manuscript books 400-1500 A.D. Same as HIST:4910 (16E:120), SLIS:4910 (021:182).
- UICB:4920 (108:183) The Transition from Manuscript to Print** 3 s.h.
Western manuscripts and books 1200-1600; changes in production and distribution methods and in how texts were used, in cultural context. Same as SLIS:4920 (021:258), HIST:4920 (16E:118).
- UICB:4930 (108:184) Material Book Studies** 3 s.h.
Analysis and description of physical book artifacts and their component parts (parchment, paper, bookbinding) and allied specialties (the lettering arts, printing and illustration techniques); reading, writing, presentations.
- UICB:5110 (108:132) Islamic/Asian Papermaking History and Technique** 3 s.h.
History, technique, and aesthetics of traditional Islamic and Asian hand papermaking. Same as BKAT:5110 (01X:120).
- UICB:5130 (108:133) Western Papermaking History and Technique** 3 s.h.
History and technique of traditional European hand papermaking and related aesthetics; students gain confidence in pursuing independent production of handmade papers or undertaking related research in their own particular areas of interest; fiber preparation, sheet forming, and drying/finishing methods; concurrent readings and discussions of related history and aesthetics; special projects selected by student with instructor approval. Same as BKAT:5120 (01Z:133).
- UICB:5160 (108:112) Studies in Papermaking** arr.
Topics in the history and technique of papermaking.

- UICB:5170 (108:136) Advanced Papermaking Production** 3 s.h.
Independent Western- or Japanese-style projects undertaken at UICB Research and Production Paper Facility at Oakdale Campus under faculty guidance; plan, implement, and evaluate professional scale production runs using full-scale equipment. Prerequisites: UICB:5110 (108:132) or UICB:5130 (108:133) or BKAT:5110 (01X:120) or BKAT:5120 (01Z:133). Same as BKAT:5170 (01X:136).
- UICB:5180 (108:131) Advanced Projects in Paper** 3 s.h.
Advanced independent projects undertaken in a classroom setting; collaborative group discussions to plan, implement, troubleshoot, and evaluate student projects. Prerequisites: UICB:5110 (108:132) or UICB:5130 (108:133) or BKAT:5110 (01X:120) or BKAT:5120 (01Z:133). Same as BKAT:5180 (01X:131).
- UICB:5210 (108:152) Bookbinding III** 3 s.h.
Bookbinding structures based on historical and contemporary models; differences in various binding practices, how these differences affect function, why the styles developed; experience choosing appropriate structures for particular uses; emphasis on fine tuning skills and techniques required for advanced binding practices; sewn endbands, rounding and backing, sewing on varied supports, board attachments, and covering methods. Requirements: for UICB:5210 (108:152) — UICB:4205 (108:150) and UICB:4270 (108:151); for BKAT:5210 (01Y:152) — BKAT:4205 (01Y:150) or BKAT:4270 (01Y:151) or UICB:4205 (108:150) or UICB:4270 (108:151). Same as BKAT:5210 (01Y:152).
- UICB:5220 (108:250) Book Conservation** 3 s.h.
Practical methods, materials assessment, conservation history and evolution. Prerequisites: UICB:4270 (108:151).
- UICB:5260 (108:153) Studies in Bookbinding** 3 s.h.
Topics related to hand bookbinding. Same as BKAT:5260 (01Y:153).
- UICB:5280 (108:171) Bookbinding IV** 3 s.h.
Advanced studies in bookbinding; fine binding styles, leather paring and tooling, advanced finishing techniques, refining skills; continued look at differences in regional binding practices, how these differences affect function, and why particular styles developed. Prerequisites: UICB:5210 (108:152).
- UICB:5330 (108:167) Letterpress III: Imagemaking** arr.
Builds on skills acquired in UICB:4300 (108:160) and UICB:4380 (108:169); advanced work in fine press book design and image-making processes for fine press printing. Prerequisites: UICB:4380 (108:169). Same as ARTS:5330 (01P:167).
- UICB:5340 (108:161) Letterpress III: The Handprinted Book** 3 s.h.
Exploration of problems in hand-printing books—choice of manuscript, editing, design, typesetting, proofreading, printing and binding; histories of printing and of the book, emphasis on 20th- and 21st-century book design and literature. Prerequisites: UICB:4380 (108:169). Same as ARTS:5340 (01P:161).
- UICB:5370 (108:166) Studies in Printing** 1-3 s.h.
Development of individual book projects and production of one substantial project or several smaller ones; focus on acquiring or creating a text and/or other content; project development; range of print techniques available in letterpress printing; issues involved in producing editioned artist books or fine press work; opportunity to expand on existing printing; classroom setting used to augment work sessions with in-progress critiques, readings, and visits to special collections.
- UICB:5380 (108:260) Letterpress IV: Advanced Projects** 3 s.h.
Development of individual book projects and production of one substantial project or several smaller ones; focus on acquiring or creating a text and/or other content; project development; range of print techniques available in letterpress printing; issues involved in producing editioned artist books or fine press work; opportunity to expand existing printing; classroom setting augments work sessions with in-progress critiques, readings, and visits to special collections. Prerequisites: UICB:5330 (108:167) or UICB:5340 (108:161).
- UICB:5510 (108:201) Book Studies Workshop** 1 s.h.
Discussion of issues central to book studies; workshop approach to current projects.
- UICB:5520 (108:202) Studies in Book History** 3 s.h.
Topics related to production, distribution, and consumption of books through history and into the future. Same as SLIS:5520 (021:221).
- UICB:5530 (108:204) Topics in Preservation/Conservation** 3 s.h.
Care, conservation, and preservation of cultural heritage artifacts; readings, discussion, hands-on sessions. Same as SLIS:5530 (021:204).
- UICB:5550 (108:200) Special Project for Graduate Students** arr.
Independent study.
- UICB:5600 (108:220) History of Readers and Reading** 3 s.h.
Cultural nature of reading practices in historic and contemporary contexts of reading; reading communities; dimensions of gender, age, class, religion, race, ethnicity; examples of recent scholarship; use of primary resources; seminar. Same as SLIS:5600 (021:256).
- UICB:6100 (108:299) Book Studies Proseminar** 1-3 s.h.
- UICB:6120 (108:222) Topics: Policy/Planning** 1-3 s.h.

Current topics in national and international policies, their impact on planning. Same as SLIS:6500 (021:279).

UICB:6270 (108:224) Electronic Publishing 3 s.h.

Modes and methods for building electronic journals, books, thematic collections; new genres for publishing, including blogs, wikis, comics, short stories on the web; social, political, and economic forces that shape electronic publishing; XML-based project. Prerequisites: SLIS:5020 (021:120). Same as SLIS:6270 (021:224).

UICB:6370 (108:230) Topics in Book Studies 3 s.h.

Topics relevant to book studies and special collections. Same as SLIS:6370 (021:249).

UICB:6500 (108:205) Final Project arr.

Project for graduate certificate.

UICB:6510 (108:279) Book Art Seminar: History, Practice, and Criticism 3 s.h.

Introduction to history and artistic practices of book arts; influences and origins from 20th century and earlier; contemporary theory and practice; history, critical considerations, and attempts to define and locate the field through fine art, craft, and book history lenses; weekly readings or analyses of book art pieces, hands-on exercises, research in University of Iowa Library Special Collections with primary sources, and final project, presentation, or research paper.

UICB:6520 (108:280) Graduate Book Arts Workshop 3 s.h.

Development of art work and studio practice; readings and research in contemporary theory and practice; analysis of visual language; integration of creative activities and critical thinking in student's own art practice and analysis of contemporary work in book arts; group and individual critiques, studio assignments, presentations, discussions.

UICB:6540 (108:298) M.F.A. Thesis Hours arr.

Cognitive Science of Language

Coordinator

- Robert M. McMurray (Psychology)

Affiliated faculty

- Jill Beckman, (Linguistics), Susan Cook (Psychology), William Davies (Linguistics), Alice Davison (Linguistics), Melissa Duff (Communication Sciences and Disorders), Thomas Farmer (Psychology), Elena Gavrusova (Linguistics), Jean Gordon (Communication Sciences and Disorders), Julie Gros-Louis (Psychology), Prahlad Gupta (Psychology), Matthew Howard (Neurosurgery), Karla McGregor (Communication Sciences and Disorders), Catherine Ringen (Linguistics), Jerzy Rubach (Linguistics), Larissa Samuelson (Psychology), Christine Shea (Spanish and Portuguese), Bruce Tomblin (Communication Sciences and Disorders), Daniel Tranel (Neurology), Amanda Van Horne (Communication Sciences and Disorders), Patricia Zebrowski (Communication Sciences and Disorders)

Graduate certificate: cognitive science of language

Web site: <http://cogscilang.grad.uiowa.edu/>

The scientific study of language is larger than any one field, due in part to the broad diversity in forms and uses of language. Iowa's Cognitive Science of Language Program uses an interdisciplinary approach to the study of language, helping to prepare language scientists who are conversant in multiple domains.

Graduate Program of Study

- Certificate in Cognitive Science of Language

The Department of Psychology (College of Liberal Arts and Sciences) is the administrative home of the Cognitive Science of Language Program; the certificate is conferred by the Graduate College.

Certificate

The Certificate in Cognitive Science of Language requires a minimum of 12-15 s.h. of graduate credit. Designed to complement doctoral study, the certificate program is open to University of Iowa Ph.D. students in linguistics, neuroscience, psychology, and speech and hearing science. Ph.D. students in other disciplines may petition to be permitted to earn the certificate. Students must complete a formal application to enter the certificate program; they should contact the program's coordinator before they apply. Completion of the certificate is noted on the student's transcript.

The certificate program ensures that students have training in interdisciplinary approaches to the study of language along with a strong theoretical grounding in their Ph.D. discipline. Each certificate student works with his or her Ph.D. advisor and the certificate program's coordinator to develop an individual plan of study that complements the student's degree program and career interests. In order to be granted the Certificate in Cognitive Science of Language, students must complete all of the requirements

of their Ph.D. program as well as all of the certificate requirements.

All certificate students must participate in the cognitive science of language proseminar, a two-semester (6 s.h.) survey course on the five major disciplines within the language sciences—psychology, formal linguistics, neuroscience, communication disorders, and computational approaches. They also must complete three approved courses chosen from the lists below, and they must include a faculty member in the cognitive sciences of language on their Ph.D. comprehensive and dissertation exam committees. Students may enroll in the proseminar and three additional courses before or concurrently with other courses in their programs.

The Certificate in Cognitive Science of Language requires the following course work.

PROSEMINAR

All certificate students complete the following two survey courses.

PSY:6101 (031:273) Cognitive Science of Language Proseminar I	3 s.h.
PSY:6102 (031:274) Cognitive Science of Language Proseminar II	3 s.h.

DISCIPLINARY COURSES

Students take a total of three courses chosen from the following lists.

Communication Sciences and Disorders

CSD:3116 (003:116) Basic Neuroscience for Speech and Hearing	3 s.h.
CSD:3118 (003:118) Language Acquisition	1-3 s.h.
CSD:3122 (003:122) Speech Production: Anatomy and Physiology	4 s.h.
CSD:4145 (003:145) Developmental Speech and Language Disorders	3 s.h.
CSD:4146 (003:146) Neurogenic Disorders of Language	3 s.h.
CSD:5206 (003:206) Language Disorders: Birth to Five Years	3 s.h.
CSD:5222 (003:222) Speech and Hearing Anatomy	2 s.h.
CSD:5224 (003:224) System and Signal Theory for Speech and Hearing Science	3 s.h.
CSD:5233 (003:233) Aphasia	2 s.h.
CSD:5256 (003:256) Anatomy and Physiology of Hearing	3-4 s.h.
CSD:5282 (003:282) Phonological Development and Disorders	2 s.h.
CSD:6520 (003:520) Seminar: M.A. Language	2 s.h.
CSD:6522 (003:522) Clinical Speech Physiology	2 s.h.
CSD:6538 (003:538) Seminar: Hearing Science	2 s.h.

Computer Science

CS:4460 (22C:146) Introduction to Computational Linguistics	3 s.h.
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Linguistics

LING:3030 (103:156) Child Language-Linguistic Perspectives	3 s.h.
LING:4090 (103:161) Practical Phonetics	3 s.h.

LING:5010 (103:201) Introduction to Syntax	3 s.h.
LING:5020 (103:203) Introduction to Phonology	3 s.h.
LING:6050 (103:217) Language Universals Linguistic Typology	3 s.h.
LING:6080 (103:211) Generative Second Language Acquisition	3 s.h.
LING:7090 (103:312) Seminar: Problems in Linguistics	2-3 s.h.

The course LING:5010 (103:201) has a corequisite, UICB:5550 (108:200) Special Project for Graduate Students, which does not count toward the certificate.

Neuroscience

NSCI:6240 (132:240) Topics in Cognitive Neuroscience	3 s.h.
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Psychology

PSY:3085 (031:122) Language Development	3 s.h.
PSY:3670 (031:137) Language Processes	3 s.h.
PSY:6450 (031:214) Processes of Language Acquisition	3 s.h.
PSY:6490 (031:216) Dynamic Systems and Development	3 s.h.
PSY:7020 (031:335) Seminar: Cognitive Neuroscience	0-2 s.h.
PSY:7430 (031:318) Seminar: Cognitive Development	0-3 s.h.
PSY:7610 (031:330) Seminar: Cognitive Psychology	2 s.h.

Second Language Acquisition

SLA:6901 (164:201) Second Language Acquisition Research and Theory I	3 s.h.
SLA:6902 (164:202) Second Language Acquisition Research and Theory II	3 s.h.

World Languages, Literatures, and Cultures

SPAN:4100 (035:189) Introduction to Spanish Phonology	3 s.h.
SPAN:4150 (035:186) Introduction to Spanish Syntax	3 s.h.
SPAN:6110 (035:209) Spanish Phonology	3 s.h.
SPAN:6120 (035:210) Spanish Syntax	3 s.h.
SPAN:6150 (035:206) Topics in Spanish Language Acquisition	3 s.h.

College Teaching

Director

- Mitchell J. Kelly (Psychological and Quantitative Foundations)

Graduate certificate: college teaching

Web site: <http://www.education.uiowa.edu/services/ogte/certificate/default.aspx>

The certificate program in college teaching provides course work and supervised experiences that prepare graduate students for careers in postsecondary education.

Graduate Program of Study

- Certificate in College Teaching

The Certificate in College Teaching is administered by the College of Education and granted by the Graduate College.

Certificate

The Certificate in College Teaching requires a minimum of 12 s.h. of graduate credit. The certificate program is open to all University of Iowa Graduate College students enrolled in a Ph.D. or other terminal degree program. Completion of the certificate is noted on the student's transcript.

Previous teaching experience does not count toward certificate requirements.

Students apply to the certificate program on the Office of Graduate Teaching Excellence (OGTE) web site, under Graduate Certificate in College Teaching.

The Certificate in College Teaching requires the following course work.

CATEGORY 1

Category 1 course work provides an overview of basic instructional issues and methods in college teaching. The work requires students to engage in discipline-specific thinking as they consider their own teaching situations.

At least 6 s.h. chosen from these.

EALL:7387 (07X:387) Introduction to Online Post-Secondary Course Design and Facilitation	3 s.h.
GRAD:6217 (650:217)/PSQF:6217 (07P:217) Seminar in College Teaching	1-3 s.h.
GRAD:7385 (650:385)/EDTL:7385 (07S:384)/EPLS:7385 (07B:385)/PSQF:7385 (07P:385)/RCE:7385 (07C:385) Teaching and Learning in Higher Education	3 s.h.
PSQF:6205 (07P:205) Design of Instruction	3 s.h.
SOC:7010 (034:382) Teaching Sociology	2-3 s.h.

CATEGORY 2

Category 2 requires students to teach for at least two semesters under the guidance of two different professors. Previous experience as a teaching assistant does not count toward this requirement.

Students enroll in one of the following courses twice, with each enrollment supervised by a different faculty member. Students earn a total of 3 s.h. for the two enrollments.

EDTL:7380 (07S:385) Practicum in College Teaching	3 s.h.
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EPLS:7380 (07B:380) Practicum in College Teaching	3 s.h.
GRAD:7400 (650:380) Practicum in College Teaching (faculty member must be outside the College of Education)	3 s.h.
PSQF:7380 (07P:380) Practicum in College Teaching	3 s.h.
RCE:7380 (07C:380) Practicum in College Teaching	3 s.h.

CATEGORY 3

For Category 3, students develop a full portfolio that demonstrates their skills and competencies in teaching, research, and service. The portfolio requires sample syllabi, a statement of teaching philosophy, samples of assignments and student work, and reflective essays on critical issues in teaching in higher education.

A committee of three faculty members, including the student's faculty advisor, reviews the portfolio and provides advice to the student about its content and quality. The student's faculty advisor is responsible for evaluating the portfolio and recommending that the certificate be awarded.

Category 3 requires the following course.

EALL:7475 (07X:475) Ph.D. ePortfolio in College Teaching	3 s.h.
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Digital Public Humanities

Director

- James Elmborg (Library and Information Science)

Graduate certificate: digital public humanities

The certificate program in digital public humanities brings students with varied academic backgrounds together to learn how to communicate, to sort out the roles required for fully functioning teams, and to understand the unique contributions made by individuals across disciplines. Students learn to appreciate the diversity of humanities research methods while identifying core digital activities that underlie research projects.

Graduate Program of Study

- Certificate in Digital Public Humanities

The Certificate in Digital Public Humanities is administered by the School of Library and Information Science (p. 978) and is granted by the Graduate College.

Certificate

The Certificate in Digital Public Humanities requires 15 s.h. of graduate credit. The program is open to all University of Iowa graduate students in good academic standing. Students must maintain a g.p.a. of at least 3.00 in work for the certificate. They may count a maximum of 6 s.h. earned for their major degree program toward the certificate. Completion of the certificate is noted on the student's transcript.

The Certificate in Digital Public Humanities requires the following course work.

SLIS:6330 (021:240) Archives and Media	3 s.h.
SLIS:6590 (021:298) Digital Humanities Capstone	3 s.h.
A course on theory and practice in digital public humanities	3 s.h.
A course on design, visualization, and mapping of 3-D environments	3 s.h.
An elective course on digital pedagogy, database systems, GIS, digital reconstruction, multimedia writing, or technologies, approved by the advisor	3 s.h.

The elective course may be transferred from another academic institution at the discretion of the student's certificate advisor. A g.p.a. of at least 3.00 is required for transfer course work.

Applicants to the certificate program must submit a one-page statement of interest to the director of the certificate program. They must include a signed letter from their academic advisor stating that they have their home department's support in pursuing the certificate.

Genetics

Chair

- Daniel Eberl (Biology)

Affiliated faculty

- Christopher Adams (Internal Medicine/Molecular Physiology and Biophysics), Michael Anderson (Ophthalmology and Visual Sciences/Molecular Physiology and Biophysics), Alexander Bassuk (Stead Family Department of Pediatrics/Neurology), Terry Braun (Ophthalmology and Visual Sciences/Electrical and Computer Engineering/Biomedical Engineering), Charles M. Brenner (Biochemistry), Thomas Casavant (Ophthalmology and Visual Sciences/Electrical and Computer Engineering/Biomedical Engineering), Chi-Lien Cheng (Biology), Josep Comeron (Biology), Robert Cornell (Anatomy and Cell Biology), Beverly Davidson (Internal Medicine/Neurology/Molecular Physiology and Biophysics), Deborah Dawson (Preventive and Community Dentistry), Arlene Drack (Ophthalmology and Visual Sciences/Pediatrics), Adam Dupuy (Pathology/Anatomy and Cell Biology), Daniel Eberl (Biology), Craig D. Ellermeier (Microbiology), Albert Erives (Biology), Jan Fassler (Biology), John Fingert (Ophthalmology and Visual Sciences/Anatomy and Cell Biology), C. Andrew Frank (Anatomy and Cell Biology), Pamela Geyer (Biochemistry/Obstetrics and Gynecology), Pedro Gonzalez-Alegre (Neurology), Doug Houston (Biology), Erin Irish (Biology), Wayne Johnson (Molecular Physiology and Biophysics), Bradley Jones (Microbiology), John Kirby (Microbiology), Toshihiro Kitamoto (Anesthesia/Pharmacology), Al Klingelutz (Microbiology/Radiation Oncology), Markus H. Kuehn (Ophthalmology and Visual Sciences), Anne Kwitek (Pharmacology/Internal Medicine/Molecular Physiology and Biophysics), Bridget Lear (Biology), Dana Levasseur (Internal Medicine), Andrew Lidral (Orthodontics/Pediatrics), Fang Lin (Anatomy and Cell Biology), Jim J. Lin (Biology), Ana Llopert (Biology), John Logsdon (Biology), Robert Malone (Biology), John Manak (Pediatrics/Biology), Bryant McAllister (Biology), Paul McCray (Microbiology/Internal Medicine/Stead Family Department of Pediatrics), W. Scott Moyer-Rowley (Internal Medicine/Molecular Physiology and Biophysics), Robert Mullins (Ophthalmology and Visual Sciences/Molecular Physiology and Biophysics), Jeff Murray (Pediatric Dentistry/International Programs/Epidemiology/Stead Family Department of Pediatrics/Nursing/Public Policy Center/Biology/Anatomy and Cell Biology), Robert Philibert (Psychiatry), Bryan T. Phillips (Biology), Robert Piper (Internal Medicine/Molecular Physiology and Biophysics), James Potash (Psychiatry), Veena Prahlad (Biology), Andrew Russo (Molecular Physiology and Biophysics/Neurology), Todd Scheetz (Ophthalmology and Visual Sciences/Biomedical Engineering), Alberto Segre (Nursing/Computer Science), Val Sheffield (Stead Family Department of Pediatrics), Curt Sigmund (Pharmacology/Internal Medicine/Molecular Physiology and Biophysics), Diane Slusarski (Biology), Richard Smith (Internal Medicine/Otolaryngology—Head and Neck Surgery/Pediatrics/Molecular Physiology and Biophysics), Sarit Smolikove (Biology), Edwin Stone (Ophthalmology and Visual Sciences), Kai Tan (Internal Medicine), Tina L. Tootle (Anatomy and Cell Biology), Lori Wallrath

(Biochemistry), Thomas Wassink (Pediatrics/Psychiatry), Joshua Weiner (Biology), David Weiss (Microbiology), Michael Welsh (Internal Medicine/Neurosurgery/Molecular Physiology and Biophysics), Virginia Willour (Psychiatry), Mary Wilson (International Programs/Microbiology/Internal Medicine/Epidemiology), Chun-Fang Wu (Biology)

Graduate degree: Ph.D. in genetics

Web site: <http://genetics.grad.uiowa.edu>

Graduate Program of Study

- Doctor of Philosophy in genetics

Doctor of Philosophy

The Doctor of Philosophy program in genetics requires a minimum of 72 s.h. of graduate credit. The Ph.D. program is designed to promote collaborative investigation and intellectual interaction among students and faculty participants affiliated with several different departments.

Students who enroll in the program are encouraged to obtain a broad background in genetics, including molecular, population, and human genetics. Within this context, course requirements are flexible enough to permit students to tailor their formal course work to their individual needs.

Students have the option to declare a Ph.D. emphasis in computational genetics.

All students enrolled in the program are required to take the following courses.

All of these:

GENE:6150 (127:150) Genetic Analysis of Biological Systems	3 s.h.
GENE:6200 (127:200) Special Topics in Genetics (seminar)	1 s.h.
BIOC:5243 (099:243) Protein Structure, Function, and Regulation: Biophysical Chemistry Module 1	1 s.h.
BISC:5201 (156:201) Fundamentals of Gene Expression	1 s.h.
BISC:5203 (156:203) Fundamentals of Dynamic Cell Processes	1 s.h.

One of these:

GENE:7191 (127:191) Human Molecular Genetics	3 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.
BIOL:4333 (002:168) Genes and Development	3 s.h.

All of these:

GRAD:7270 (650:270) Principles of Scholarly Integrity	1 s.h.
Elective course work in molecular and microbial genetics, cell and development genetics, human genetics, or computational genetics	8 s.h.
Seminar courses approved by the program	5 s.h.

Even more important than formal course work is the opportunity to do significant research in genetics. Research interests of the participating faculty include virtually all areas of genetics, ranging from bacteriophage genetics to human medical genetics. In each area of

genetics, there is a group of faculty members who have closely related interests.

The University is also strong in several related disciplines, including microbial physiology, enzymology, virology, protein biochemistry, computational genetics, and developmental and cell biology, all of which contribute significantly to the overall training program.

In addition to completing research and course work, students must pass a comprehensive examination, usually at the end of their second year in the program.

Joint M.D./Ph.D.

Students may work toward the Doctor of Medicine degree and a Ph.D. in genetics in a joint degree program offered by the Carver College of Medicine and the Graduate College. See Medical Scientist Training (p. 1086) Program (Carver College of Medicine) in the Catalog.

Ph.D. and Dental Scientist Training Program

Ph.D. students in genetics who have earned a D.D.S. degree may be candidates for advanced training programs in dentistry. For information, contact the College of Dentistry.

Admission

Prospective doctoral students in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, biochemistry, introductory physics, and mathematics, as well as a strong commitment to genetic research and teaching. Students can make up deficiencies in a particular area during their first year of graduate study.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Admission to the program is based on assessment of applicants' undergraduate academic records, performance on the Graduate Record Examination (GRE) General Test, and letters of recommendation. Admission requirements are not rigid. Most students working toward a Ph.D. in genetics at the University have an undergraduate g.p.a. above 3.50, and a combined verbal and quantitative score above 1250 on the GRE General Test. Students with lower grade-point averages or GRE scores may be admitted, depending on prior research experience and other indications of academic potential.

Students generally begin graduate work in the fall semester.

Financial Support

All genetics graduate students receive a financial stipend of \$26,000 plus tuition for academic year 2014-15.

Financial support comes from training grants, research assistantships, teaching assistantships, scholarships, individual research grants, or other departmental or college funds. All students are required to do some teaching as part of their development as future scientists and faculty members.

Associated Courses

Credit earned in the following courses may be counted toward the Ph.D. in genetics. Not all courses are offered every year.

GENE:5173 (127:173) Computational Genomics	3 s.h.
GENE:6170 (127:170) Bioinformatics	4 s.h.
BIOL:3172 (002:131) Evolution	4 s.h.
BIOL:3713 (002:171) Molecular Genetics	4 s.h.
BIOL:4333 (002:168) Genes and Development	3 s.h.
BME:5320 (051:123) Bioinformatics Techniques	3 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	1 s.h.
MCB:6215 (142:215) Transcription and Multi-Functional Regulation by RNA	1 s.h.
MCB:6220 (142:220) Mechanisms of Cellular Organization	3 s.h.
MCB:6225 (142:225) Growth Factor Receptor Signaling	1 s.h.
MICR:6268 (061:268) Biology and Pathogenesis of Viruses	2 s.h.
NSCI:4753 (132:184) Developmental Neurobiology	3 s.h.
PEDS:8104 (070:110) Medical Genetics	2 s.h.

Courses

GENE:5173 (127:173) Computational Genomics 3 s.h.

Introduction to computational methods used in genome analysis and functional genomics; biological sequence analysis, sequence database search, microarray data analysis, biological network analysis; in-depth coverage of principal genome science challenges and recent solutions. Prerequisites: BME:5320 (051:123), CS:3110 (22C:104), and BIOS:5110 (171:161) or STAT:3510 (22S:101). Same as BIOL:5320 (002:174), BME:5330 (051:122), ECE:5220 (055:122).

GENE:6150 (127:150) Genetic Analysis of Biological Systems 3 s.h.

Genetic techniques and approaches for analysis of biological processes; comparison of strengths, weaknesses of a variety of experimental systems.

GENE:6170 (127:170) Bioinformatics 4 s.h.

Overview of bioinformatics topics, including access to sequence data, pairwise and multiple sequence alignment algorithms, molecular phylogeny, microarray data analysis, protein analysis, proteomics and protein structure analysis; emphasis on each topic includes biological motivation, computational approach (practical and theoretical), and interpretation of output. Prerequisites: BIOL:2512 (002:128) or BIOC:3120 (099:120). Recommendations: grade of B+ or higher in BIOL:2512 (002:128) or BIOC:3120 (099:120), or graduate standing. Same as BIOL:4213 (002:170).

GENE:6200 (127:200) Special Topics in Genetics 1 s.h.

Current research in a selected field of genetics; different topic each year. Companion to a genetics seminar series. Same as ACB:6200 (060:200).

GENE:6234 (127:234) Basic Biostatistical Methods with Genetics Applications 1 s.h.

Introduction to terminology, fundamental concepts, and methods of biostatistics as applied to genetic research; genetic investigation examples used to illustrate statistical approaches.

GENE:6280 (127:280) Directed Study in Genetics arr.

GENE:7191 (127:191) Human Molecular Genetics 3 s.h.

Molecular genetic approaches to human disease; the human genome project, linkage analysis, candidate gene screening, special features of inbred populations, triplet repeat expansions, mitochondrial genetics, genetics of complex traits. Requirements: fundamental genetics and molecular biology.

GENE:7301 (127:301) Graduate Research in Genetics arr.

Human Toxicology

Director

- Larry W. Robertson (Occupational and Environmental Health)

Associate director

- Peter Thorne (Occupational and Environmental Health/Civil and Environmental Engineering)

Director of graduate studies

- Gabriele Ludewig (Occupational and Environmental Health)

Affiliated faculty

- Garry Buettner (Radiation Oncology), A. Brent Carter (Internal Medicine/Radiation Oncology), Frederick Domann (Pathology/Radiation Oncology/Surgery), Jonathan Doorn (Pharmacy), Michael Duffel (Pharmacy), R. William Field (Epidemiology/Occupational and Environmental Health), Laurence Fuortes (International Programs/Epidemiology/Occupational and Environmental Health), Frederic Gerr (Epidemiology/Internal Medicine/Occupational and Environmental Health), Prabhat Goswami (Radiation Oncology), Vicki Grassian (Chemistry/Chemical and Biochemical Engineering/Occupational and Environmental Health/Education), Keri Hornbuckle (Civil and Environmental Engineering/Occupational and Environmental Health), Bahri Karacay (Stead Family Department of Pediatrics), Joel Kline (Internal Medicine/Occupational and Environmental Health), Hans-Joachim Lehmler (Occupational and Environmental Health), Gabriele Ludewig (Occupational and Environmental Health), Paul McCray (Microbiology/Internal Medicine/Stead Family Department of Pediatrics), David Murhammer (Chemical and Biochemical Engineering), Daryl Murry (Pharmacy), Thomas Peters (Occupational and Environmental Health), Paul Romitti (Epidemiology), Aliasger Salem (Chemical and Biochemical Engineering/Pharmacy/Biomedical Engineering), Jerald Schnoor (Civil and Environmental Engineering/Occupational and Environmental Health), Andrian Simons-Burnett (Pathology), Douglas Spitz (Radiation Oncology), Jerrold Weiss (Microbiology/Internal Medicine), Dale Wurster (Pharmacy)

Graduate degrees: M.S. in human toxicology; Ph.D. in human toxicology

Web site: <http://toxicology.grad.uiowa.edu/>

Toxicology is the study of how biological, chemical, physical, and radiological agents affect living organisms and the ecosystem, and how to prevent or lessen the adverse effects of those agents. The Human Toxicology Program prepares toxicologists to identify and assess environmental exposures, identify mechanisms by which toxicants affect homeostasis or induce disease, identify interventions to prevent adverse effects, and estimate acceptable levels of exposure to protect public health.

The program is interdisciplinary, involving the Graduate College, the Carver College of Medicine, and the Colleges of Engineering, Liberal Arts and Sciences, Pharmacy, and Public Health.

The Human Toxicology Program is supported by the Iowa Superfund Research Program. Human toxicology

faculty members are supported by the Environmental Health Sciences Research Center, a National Institute of Environmental Health Center of Excellence.

Graduate Programs of Study

- Master of Science in human toxicology
- Doctor of Philosophy in human toxicology

Master of Science

The Master of Science program in human toxicology requires a minimum of 39 s.h. of graduate credit; a thesis is required. The program is designed for students who wish to pursue a master's degree as a second degree or through part-time study, particularly those who perform toxicologists' functions in their jobs and who need additional training.

Entering students should have backgrounds in the biological, engineering, and physical sciences and should have completed courses in introductory chemistry and biology, and organic chemistry.

After entering the program, each student works with his or her assigned mentor to choose an advisory committee, which meets at least once a semester to help the student explore his or her research interests. The committee also provides consultation on course work and research activities and serves as the committee for the final examination (thesis defense).

The Human Toxicology Program is flexible. Students work with their advisory committees to plan a course of study tailored to their individual interests and goals within the field of toxicology.

All M.S. students must successfully complete the following course work as part of their course of study.

A first course in toxicology—one of these:

OEH:5710 (175:260) Environmental Toxicology	3 s.h.
PHAR:5544 (046:214) Pharmaceutical and Chemical Toxicology	3 s.h.

Advanced toxicology:

OEH:6720 (175:265) Advanced Toxicology	4 s.h.
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Scholarly integrity:

GRAD:7270 (650:270) Principles of Scholarly Integrity	0-1 s.h.
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Research seminar—students must take the course each semester they are enrolled in the human toxicology graduate program:

TOX:7180 (198:180) Toxicology Research Seminar	0-1 s.h.
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Upon successful completion of all requirements, including the thesis and its oral defense, students are awarded a Master of Science.

Doctor of Philosophy

The Doctor of Philosophy program in human toxicology requires a minimum of 72 s.h. of graduate credit. The program is designed for students with backgrounds in the biological, engineering, and physical sciences. Entering students should have solid training in science, including courses in introductory chemistry and biology, and organic

chemistry; knowledge of biochemistry and molecular biology is also useful. Students may remedy deficiencies by taking appropriate courses during their first year of graduate study.

Students begin the program with three two-month rotations in the laboratories of participating faculty members, in order to identify a mentor. After the first year, the mentor assumes financial responsibility for the student. With advice from his or her mentor, each student chooses an advisory committee, which meets at least once a semester to help the student explore his or her research interests. The committee also provides consultation on course work and research activities and serves as the committee for the comprehensive examination and the final examination (dissertation defense).

The Human Toxicology Program is flexible. Students work with their advisory committees to plan a course of study tailored to their individual interests and goals within the field of toxicology.

All Ph.D. students must successfully complete the following course work as part of their course of study.

A first course in toxicology—one of these:

OEH:5710 (175:260) Environmental Toxicology	3 s.h.
PHAR:5544 (046:214) Pharmaceutical and Chemical Toxicology	3 s.h.

Advanced toxicology:

OEH:6720 (175:265) Advanced Toxicology	4 s.h.
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Scholarly integrity—students must complete the course within their first two years of graduate study:

GRAD:7270 (650:270) Principles of Scholarly Integrity	0-1 s.h.
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Research seminar—students must take the course each semester they are enrolled in the human toxicology graduate program:

TOX:7180 (198:180) Toxicology Research Seminar	0-1 s.h.
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After successfully completing the comprehensive examination, usually at the end of the second year of graduate study, the student advances to Ph.D. candidacy. The student devotes all of his or her time to dissertation research and writing. Upon successful completion of all requirements, including the dissertation and its oral defense, the student is awarded a Doctor of Philosophy.

Admission

Prospective students may apply to the program via a centralized application system; see Admission on the Human Toxicology Program web site.

Completed applications should be submitted by January 15; applications submitted after that date are reviewed as they are received and are considered for any remaining openings.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

Doctoral students in human toxicology receive stipends and tuition support from University of Iowa sources, including the Presidential Graduate Research Fellowship and graduate research assistantships, and from non-University sources, such as training grants from the National Institutes of Health.

Facilities

Training is conducted primarily in laboratories and teaching facilities of the departments and colleges of Human Toxicology Program faculty members. These are among the best-equipped laboratories on campus. Together with the University's central research facilities, they provide access to the most up-to-date research equipment and expertise.

Associated Courses

For course descriptions and prerequisite information, see the course listings in the College of Pharmacy (p. 1175) and Department of Occupational and Environmental Health (p. 1233) sections of the Catalog.

OEH:5710 (175:260) Environmental Toxicology	3 s.h.
OEH:6720 (175:265) Advanced Toxicology	4 s.h.
PHAR:5544 (046:214) Pharmaceutical and Chemical Toxicology	3 s.h.

Courses

TOX:7171 (198:171) Special Problems in Toxicology arr.

Didactic material that may include tutorial, seminar, or faculty-directed research work; or a special topic.

TOX:7173 (198:173) Toxicology Journal Club arr.

Current topics in toxicology literature.

TOX:7180 (198:180) Toxicology Research Seminar 0-1 s.h.

Contemporary research topics.

TOX:7201 (198:201) Toxicology Research arr.

Research that constitutes part of the thesis.

TOX:7300 (198:300) Thesis/Dissertation arr.

Thesis or dissertation research; seminar preparation.

Immunology

Director

- Steven Varga (Microbiology/Pathology)

Affiliated faculty

- Lee-Ann Allen (Internal Medicine), Vladimir Badovinac (Pathology), Zuhair Ballas (Internal Medicine), Gail Bishop (Microbiology), Suzanne Cassel (Internal Medicine), John Colgan (Internal Medicine/Anatomy and Cell Biology), Elizabeth Field (Internal Medicine), George Giudice (Biochemistry/Dermatology), John Harty (Microbiology/Pathology), Raphael Hirsch (Stead Family Department of Pediatrics), Jon Houtman (Microbiology/Internal Medicine), Siegfried Janz (Pathology), Nitin Karandikar (Pathology), Kevin Legge (Microbiology/Pathology), David Lubaroff (Microbiology/Urology), Craig Morita (Internal Medicine), William Nauseef (Microbiology/Internal Medicine), Lyse Norian (Urology), Stanley Perlman (Microbiology/Stead Family Department of Pediatrics), Christine Petersen (Epidemiology), Frederick Quelle (Pharmacology/Internal Medicine), Patrick Schlievert (Microbiology/Internal Medicine), Annette Schlueter (Pathology), Richard Smith (Internal Medicine/Otolaryngology—Head and Neck Surgery/Pediatrics/Molecular Physiology and Biophysics), Fayyaz Sutterwala (Internal Medicine), Steven Varga (Microbiology/Pathology), Yatin Vyas (Stead Family Department of Pediatrics), Thomas Waldschmidt (Pathology), George Weiner (Internal Medicine), Jerrold Weiss (Microbiology/Internal Medicine), Mary Wilson (International Programs/Microbiology/Internal Medicine/Epidemiology), Hai-Hui Xue (Microbiology), Nicholas Zavazava (Internal Medicine/Biomedical Engineering), Weizhou Zhang (Pathology)

Graduate degree: Ph.D. in immunology

Web site: <http://immuno.grad.uiowa.edu>

The Immunology Program provides interdisciplinary training in the concepts and methodologies of basic and applied immunology. Faculty members are involved in a variety of research projects dealing with the immune system at all levels—structural, functional, cellular, biochemical, and molecular. Students take course work in immunology and related disciplines and are involved directly in laboratory research throughout their study.

Graduate Program of Study

- Doctor of Philosophy in immunology

Doctor of Philosophy

The Doctor of Philosophy program in immunology requires a minimum of 72 s.h. of graduate credit. The program is flexible, accommodating students with a wide range of backgrounds in course work as well as practical experience in the biological and physical sciences. Entering students generally are expected to have strong backgrounds in biology, chemistry, biochemistry, microbiology, genetics, and mathematics. An introductory course in immunology is desirable. Deficiencies in specific areas often can be remedied through appropriate course work taken during the first year of graduate studies.

The curriculum consists of a sequence of required and elective courses that provide training in the conceptual and methodological aspects of immunology. The program offers ample opportunity for study in a variety of fields that interface with immunology.

The Ph.D. in immunology requires the following course work.

IMMU:6201 (148:201) Graduate Immunology	3 s.h.
IMMU:6211 (148:211) Immunology Seminar	1 s.h.
IMMU:6241 (148:241) Writing a Scientific Proposal	1 s.h.
IMMU:7221 (148:221) Advanced Topics in Immunology	3 s.h.
BISC:5204 (156:204) Biostatistics for Biomedical Research	1 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	0-1 s.h.
MICR:6247 (061:247) Graduate Survey of Immunology	3 s.h.

Students complete 3 s.h. of the following.

Fundamentals:

BIOC:7251 (099:251) Introduction to Protein Structures	1 s.h.
BISC:5201 (156:201) Fundamentals of Gene Expression (recommended)	1 s.h.
BISC:5203 (156:203) Fundamentals of Dynamic Cell Processes (recommended)	1 s.h.

Molecular biology:

MCB:6215 (142:215) Transcription and Multi-Functional Regulation by RNA	1 s.h.
MCB:6217 (142:217) Epigenetics, Cancer, and Mouse Models of Disease	1 s.h.
MCB:6240 (142:240) Inflammatory Cell Signaling and Targeted Cancer Therapy	1 s.h.

Cell biology:

MCB:6220 (142:220) Mechanisms of Cellular Organization	3 s.h.
MCB:6225 (142:225) Growth Factor Receptor Signaling	1 s.h.
MCB:6226 (142:226) Cell Cycle Control	1 s.h.
MCB:6227 (142:227) Cell Fate Decisions	1 s.h.

After successfully completing the comprehensive examination, usually by the end of the second year of graduate study, students advance to candidacy for the Ph.D. They devote their time to research and writing their dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense, students are awarded a Ph.D. in immunology.

Admission

For information regarding admission and application procedures, contact the Immunology Program or visit its web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

All students in the Immunology Program receive stipends and tuition support, which comes from a variety of sources, including training grants from the National Institutes of Health, University of Iowa fellowships and graduate research assistantships, and individual faculty research grants.

Facilities

Training is conducted in laboratories and teaching facilities of the Carver College of Medicine Stead Family Department of Pediatrics and the Departments of Dermatology, Internal Medicine, Otolaryngology—Head and Neck Surgery, Pathology, Microbiology, Pharmacology, and Urology; and the College of Public Health Department of Epidemiology. Faculty laboratories and central research core facilities provide students with access to state-of-the-art research equipment.

Courses

IMMU:2040 (148:040) Summer Undergraduate IDGP Research 0 s.h.

IMMU:6201 (148:201) Graduate Immunology 3 s.h.

Ontogeny, activation, and function of T lymphocytes and B lymphocytes; innate immune effector mechanisms; major histocompatibility complex; antigen presentation; thymocyte positive and negative selection; signaling of T lymphocytes, B lymphocytes; emphasis on experimental methods for analysis of these processes. Requirements: for IMMU:6201 (148:201) — college biology, general chemistry, and introductory immunology courses; for MICR:6201 (061:201) — courses in college biology, genetics, general chemistry, and introductory immunology. Recommendations: for IMMU:6201 (148:201) — courses in biochemistry and genetics; for MICR:6201 (061:201) — biochemistry course. Same as MICR:6201 (061:201).

IMMU:6211 (148:211) Immunology Seminar 1 s.h.

Requirements: immunology graduate standing.

IMMU:6231 (148:231) Research in Immunology arr.

Laboratory research. Requirements: immunology graduate standing.

IMMU:6241 (148:241) Writing a Scientific Proposal 1 s.h.

How to write a scientific proposal. Prerequisites: IMMU:6201 (148:201). Requirements: enrollment in immunology graduate program.

IMMU:6247 (148:247) Graduate Survey of Immunology 3 s.h.

Important principles and key concepts in immunology; overview of innate and adaptive immune systems and their functions at cellular and molecular levels. Same as MICR:6247 (061:247).

IMMU:6301 (148:301) Directed Study in Immunology arr.

IMMU:7217 (148:217) Integrated Topics in Infectious Diseases 1 s.h.

Clinical cases used to raise questions in host-parasite interactions; case/scientific exposés followed by related journal club discussions at next class session. Same as MICR:7217 (061:217).

IMMU:7221 (148:221) Advanced Topics in Immunology 3 s.h.

In-depth analysis of selected areas. Prerequisites: for IMMU:7221 (148:221) — IMMU:6201 (148:201); for MICR:7207 (061:207) — MICR:6201 (061:201) or IMMU:6201 (148:201). Same as MICR:7207 (061:207).

IMMU:8113 (148:251) Principles of Medical Immunology 2 s.h.

Basic molecules, cells; organs of immune system; mechanics and regulations of immune response; clinical principles of normal and abnormal immunity. Requirements: M.D. enrollment.

Informatics

Director

- John C. Keller (Graduate College)

Affiliated faculty

- Michael Apicella (Microbiology/Internal Medicine), Marc Armstrong (Geographical and Sustainability Sciences), Gary Baumbach (Pathology), David Bennett (Geographical and Sustainability Sciences), Alison Bianchi (Sociology), Frederick Boehmke (Political Science/Public Policy Center), Bob Boynton (Political Science), Terry Braun (Ophthalmology and Visual Sciences/Electrical and Computer Engineering/Biomedical Engineering), Jane Brokel (Nursing), Pat Brophy (Stead Family Department of Pediatrics/Surgery), Lee Carmen (Health Management and Policy), Maggie Carrel (Geographical and Sustainability Sciences), Thomas Casavant (Ophthalmology and Visual Sciences/Electrical and Computer Engineering/Biomedical Engineering), Octav Chipara (Computer Science), Josep Comeron (Biology), Charles Connerly (Urban and Regional Planning), Thomas Cook (International Programs/Physical Therapy and Rehabilitation Science/Occupational and Environmental Health), Mary Kathryn Cowles (Statistics and Actuarial Science/Biostatistics), James Cremer (Computer Science), Donna D'Alessandro (Stead Family Department of Pediatrics), Michael D'Alessandro (Radiology), Peter Damiano (Public Policy Center/Preventive and Community Dentistry), Benjamin Darbro (Stead Family Department of Pediatrics), Beverly Davidson (Internal Medicine/Neurology/Molecular Physiology and Biophysics), Deborah Dawson (Pediatric Dentistry/Biostatistics), Franklin Dexter (Anesthesia/Health Management and Policy), John Donelson (Biochemistry), David Eichmann (Library and Information Science), John Engelhardt (Internal Medicine/Anatomy and Cell Biology), Albert Erives (Biology), Jan Fassler (Biology), Elizabeth Field (Internal Medicine), R. William Field (Epidemiology/Occupational and Environmental Health), Michael Finkelstein (Oral Pathology, Radiology, and Medicine/Anatomy and Cell Biology), Charles T. Foster Jr. (Earth and Environmental Sciences), Laurence Fuortes (Occupational and Environmental Health), Eric Hoffman (Radiology/Internal Medicine/Biomedical Engineering), Juan Pablo Hourcade (Computer Science), Deborah Kacmarynski (Otolaryngology—Head and Neck Surgery/Stead Family Department of Pediatrics), David Katz (Internal Medicine/Epidemiology), Joseph Kearney (Computer Science), John Kemp (Pathology), John Kirby (Microbiology), Andrew Kitchen (Anthropology), Al Klingelhutz (Microbiology/Radiation Oncology), Matt Krasowski (Pathology), Andrew Kusiak (Nursing/Industrial Engineering), Jim Jung-Ching Lin (Biology), Marc Linderman (Geographical and Sustainability Sciences), John Logsdon (Biology), Der-Fa Lu (Nursing), Freda Lynn (Sociology), Michael Mackey (Radiology/Biomedical Engineering), George Malanson (Geographical and Sustainability Sciences), John Manak (Stead Family Department of Pediatrics/Biology), Miwa Matsuo (Urban and Regional Planning), Bryant McAllister (Biology), Ann Marie McCarthy (Community and Behavioral Health/Stead Family Department of Pediatrics/Nursing), Paul McCray (Microbiology/

Internal Medicine/Stead Family Department of Pediatrics), Prakash Nadkarni (Internal Medicine), Jun Ni (Radiology/Biomedical Engineering/Mechanical and Industrial Engineering), Andrew Norris (Stead Family Department of Pediatrics/Biochemistry), Gautam Pant (Management Sciences), Priyadarchini Pennathur (Industrial Engineering), Thomas Peters (Occupational and Environmental Health), Kirk Phillips (Epidemiology), Linnea Polgreen (Pharmacy), Phil Polgreen (Epidemiology/Internal Medicine), Joseph Reinhardt (Biomedical Engineering), Jennifer Robinson (Internal Medicine/Epidemiology), John Robinson (Electrical and Computer Engineering), Heather Sander (Geographical and Sustainability Sciences), Yutaka Sato (Radiology), Todd Scheetz (Ophthalmology and Visual Sciences/Biomedical Engineering), Jerald L. Schnoor (Civil and Environmental Engineering/Occupational and Environmental Health), Alberto Segre (Nursing/Computer Science), Val Sheffield (Stead Family Department of Pediatrics), Curt Sigmund (Pharmacology/Internal Medicine/Molecular Physiology and Biophysics), Lisa Skemp (International Programs/Nursing), Richard Smith (Internal Medicine/Otolaryngology—Head and Neck Surgery/Stead Family Department of Pediatrics/Molecular Physiology and Biophysics), David Soll (Biology), Bernard Sorofman (Pharmacy), Christopher Squier (International Programs), Padmini Srinivasan (Nursing/Computer Science), Kathleen Stewart (Geographical and Sustainability Sciences), Edwin Stone (Ophthalmology and Visual Sciences), Nick Street (Nursing/Management Sciences/Computer Science), Kai Tan (Internal Medicine), Eric Tate (Geographical and Sustainability Sciences), James Torner (Epidemiology/Neurosurgery/Surgery/Education), Daniel Tranel (Psychology/Neurology), Kai Wang (Biostatistics), Marcia Ward (Health Management and Policy), George Weiner (Internal Medicine), Michael Welsh (Internal Medicine/Neurosurgery/Molecular Physiology and Biophysics), Ann Williamson (Nursing), John Winet (Art and Art History), Xiaodong Wu (Electrical and Computer Engineering/Radiation Oncology), Yi Xing (Internal Medicine/Biostatistics), Jihu Xiong (Radiology/Biomedical Engineering), Ying Zhang (Biostatistics), You-Kuan Zhang (Earth and Environmental Sciences/Civil and Environmental Engineering), Kang Zhao (Management Sciences), Dale Zimmerman (Statistics and Actuarial Science/Biostatistics)

Graduate degrees: M.S. in informatics; Ph.D. in informatics

Graduate certificate: informatics

Web site: <http://informatics.grad.uiowa.edu>

The field of informatics springs from the intersection of computational disciplines related to the humanities, the arts, and the biological, health, natural, and social sciences. As the rapid development of information technology transforms the world of human pursuits, informatics offers ways to solve new problems and to examine existing problems from new perspectives.

The Informatics Program provides graduate students the opportunity to study informatics in the broadest sense. The program is interdisciplinary, involving the Graduate College, the Carver College of Medicine, the Tippie College of Business, and the Colleges of Dentistry, Engineering, Liberal Arts and Sciences, Nursing, Pharmacy, and Public Health.

Graduate Programs of Study

- Master of Science in informatics
- Doctor of Philosophy in informatics
- Certificate in Informatics

The Master of Science and Doctor of Philosophy degrees in informatics are offered with three subprograms: bioinformatics and computational biology, health informatics, and information science. The Certificate in Informatics is offered with four subprograms: bioinformatics and computational biology, geoinformatics, health informatics, and information science.

Master of Science

The Master of Science program in informatics requires a minimum of 30-32 s.h. of graduate credit, depending on the student's choice of subprogram: the bioinformatics and computational science subprogram requires a minimum of 30 s.h. of credit; the health informatics subprogram and the information science subprogram require a minimum of 32 s.h. of credit. Students working toward a Doctor of Philosophy in informatics may be granted a Master of Science upon completion of the M.S. requirements.

Credit required for the M.S. includes 9-12 s.h. in foundations of informatics and at least 9 s.h. in disciplinary applications of informatics.

Students select an advisor from their subprogram's affiliated faculty members. In consultation with their advisors, students prepare a study plan, which is reviewed at least once a year. A final master's degree examination, either oral or written, is required.

For more information about the Master of Science requirements, see Academic Programs on the Informatics Program web site.

Doctor of Philosophy

The Doctor of Philosophy program in informatics requires a minimum of 72 s.h. of graduate credit. It is offered with three subprograms: bioinformatics and computational biology, health informatics, and information science.

The 72 s.h. required for the Ph.D. includes 9 s.h. in foundations of informatics and at least 9 s.h. in disciplinary applications of informatics.

Students select an advisor from their subprogram's affiliated faculty members. In consultation with their advisors, students prepare a study plan, which is reviewed by their mentors and curricular advisory committees at least once a year. Ph.D. students must pass a comprehensive examination at or near completion of their course work requirements. The exam may be written, oral, or both, depending on the structure of the student's subprogram or the decision of the student's committee.

A student who does not already hold an M.S. in informatics from The University of Iowa and who has passed the Ph.D. comprehensive examination may be granted an M.S. degree in informatics without taking the final master's degree exam, upon recommendation by the informatics program.

Upon successful completion of all requirements, including the dissertation and its oral defense, students are awarded a Doctor of Philosophy.

For more information about the Doctor of Philosophy requirements, see Academic Programs on the Informatics Program web site.

Certificate

The Certificate in Informatics requires a minimum of 18-21 s.h. of graduate credit, depending on the student's choice of subprogram: the subprograms in bioinformatics and computational biology, health informatics, and information science require a minimum of 18 s.h.; the geoinformatics subprogram requires a minimum of 21 s.h. The certificate program is designed for students enrolled in University of Iowa graduate degree programs who wish to study informatics as a complement to their degree program and for nondegree students who are interested in increasing their knowledge of informatics.

All subprograms require a minimum of 9-12 s.h. in the foundations of informatics. In addition, the subprograms in bioinformatics and computational biology, health informatics, and information science require at least 9 s.h. in disciplinary applications of informatics; and the geoinformatics subprogram requires at least 12 s.h. in disciplinary applications of informatics. Work toward the certificate may not be substituted completely for courses or examinations required by the student's graduate degree program.

For more information about certificate requirements, see Academic Programs on the Informatics Program web site.

Admission

Applicants to the M.S., Ph.D., or certificate program should apply to the degree subprogram of their choice; the subprograms make independent admission decisions. Certificate program applicants may be degree or nondegree graduate students. Applicants who are enrolled in a University of Iowa graduate degree program must be in good academic standing in their program.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. They also must meet the admission requirements of the informatics subprogram they want to enter; see Prospective Students/Admission Requirements and How To Apply on the program's web site.

Courses

IGPI:5010 (200:199) Research for Master's Thesis arr.

Requirements: admission to M.S. program.

IGPI:5015 (200:205) Independent Study arr.

IGPI:5200 (200:110) Health Informatics I 3 s.h.

Technological tools that support health care administration, management, and decision making. Requirements: graduate standing. Same as MED:5300 (050:283), SLIS:5900 (021:275), RSNM:3195 (074:191), HMP:5370 (174:226), BME:5250 (051:187), IE:5860 (056:186).

IGPI:5210 (200:120) Health Informatics II 3 s.h.

Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as BME:5252 (051:189), RSNM:5301 (074:192), IE:5870 (056:287), SLIS:5910 (021:280).

IGPI:6220 (200:220) Community Engagement 3 s.h.

Ways in which information professionals in libraries and other settings learn about, collaborate with, and provide services and outreach to community members; introduction and overview of community engagement theory and practice; service learning or community-based research projects. Prerequisites: SLIS:5010 (021:101). Same as SLIS:6130 (021:210).

IGPI:6510 (200:297) Readings in Informatics arr.

Topics not covered in other courses; individual study.

IGPI:6515 (200:298) Independent Study arr.**IGPI:6520 (200:299) Research for Dissertation** arr.

Requirements: Ph.D. candidacy.

International Programs

Director of Academic Programs

- Soon "Sonia" Ryang

Web site: <http://international.uiowa.edu/>

The Master of Arts program in international studies has closed.

Courses

Lower-Level Undergraduate

Students may not earn graduate credit for the following course.

IP:1029 (287:029) First-Year Seminar 1 s.h.

Small discussion class taught by a faculty member; international topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

Graduate

IP:7000 (287:205) International Graduate Research 1-6 s.h.

Independent study directed by a faculty member.

IP:7100 (287:299) International Studies M.A. Thesis 1-3 s.h.

Thesis for interdisciplinary M.A. with international studies emphasis.

International Writing Program

Director

- Christopher Merrill

Instructors

- Natasa Durovicova, Hugh Ferrer

Web site: <http://iwp.uiowa.edu/>

The International Writing Program (IWP) conducts a unique fall residency program for established writers from outside the United States and a summer writing program for American and international high school students. During spring semester, IWP offers courses related to the program's general mission, including collaborative distance learning courses for writing students overseas.

Residency Program

Each fall the International Writing Program assembles a community of poets, fiction writers, essayists, playwrights, and journalists for a one-semester residency on campus. Participants range from emerging talents to writers who are among their countries' leading literary figures and writers of world stature. For most of them, their time in the program is their first, or their first extended, stay in the United States.

At the University they live and interact with each other while working on writing and translation projects and participating in public events. Throughout their residency, they present their work in IWP:3191 (181:191) *International Literature Today* and IWP:5205 (181:205) *International Translation Workshop* and participate as guests in many other courses on campus, including a First-Year Seminar for new University of Iowa undergraduates. They also interact with the public through readings, panel discussions, a film series, and other presentations.

Since 1967 more than 1,400 writers from 130 countries have participated in the program.

International Writing Program participants are supported by the U.S. Department of State, through bilateral agreements with many countries, by grants from cultural institutions and governments abroad, and by private funds. The program does not provide grants for writers.

For more information, contact the International Writing Program or visit its web site.

Summer Program

Between the Lines is an IWP summer program that brings American high school students together with students from Russia and the Arabic-speaking world for two weeks during the first half of July. Between the Lines students explore creative writing and world literature in a multilingual, multicultural environment. They attend a language-specific writing workshop, in which they create and share stories and poetry with their peers. They also participate in a literature seminar conducted in English, where they discuss works written by American and international authors.

International students are nominated by embassies in their home countries. American students who have completed grade 10, 11, or 12 may apply to the program; they must complete an online application and submit samples of

their creative work, a statement of purpose, a letter of recommendation from a teacher familiar with their writing, and a current high school transcript. Application deadlines are March 1 for international students and April 1 for American Students. Contact Between the Lines for more information.

Between the Lines is funded by a grant from the U.S. Department of State's Bureau of Educational and Cultural Affairs.

Courses

IWP:1009 (181:109) Undergraduate Internship arr.

Professional experience for students interested in arts management and international literature. Requirements: undergraduate standing, minimum of 36 s.h. of course work, and consultation with IWP director.

IWP:1040 (181:040) Writing Across the Atlantic: Guided Creative Writing and Reading arr.

Reading contemporary British prose and poetry and students' own creative writing; instruction by a visiting writer from Great Britain who is participating in the International Writing Program.

IWP:1102 (181:102) On Campus Independent Study arr.

Independent study arranged in collaboration with instructor.

IWP:1120 (181:120) International Issues in Creative Nonfiction Writing arr.

Where does the subjective terminate, the objective commence? What are the boundaries between domestic and global, personal and political, fiction and nonfiction? Addressing these questions through academic and creative means; examination of pressing social, environmental, and creative issues; for students unafraid of technology, interested in Skyping, working on message boards, and exchanging multimedia responses with students worldwide; online course linking to institutions of higher learning abroad.

IWP:1181 (181:001) Readings for Writers 1 s.h.

Introduction to the Iowa City writing community; attendance at readings by professional, faculty, and student writers; students keep journals about readings.

IWP:3101 (181:101) Independent Studies arr.

Directed readings in contemporary world literature.

IWP:3152 (181:152) America in Other Words 1-3 s.h.

Current idea of America in its imaginary form: post-1989 world fiction, poetry, and film in original language, in translation, and via online translation resources. Same as CL:3152 (218:152).

IWP:3191 (181:191) International Literature Today 1,3 s.h.

English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th/21st-Century Literature. Same as ENGL:3595 (008:191), WLLC:3191 (218:191).

IWP:3201 (181:201) Writing and Publishing for the Literary Web arr.

Technical aspects of web publishing, including step-by-step instruction on using content management systems (Drupal and Wordpress); specific stylistic and editorial protocols associated with contributing to literary web sites; utilize and navigate a content management system; create a contributor portfolio of online work, including media items, reviews, interviews, and blog posts.

IWP:3210 (181:110) Comparative Arts 3 s.h.

Cultural and aesthetic issues arising from side-by-side investigation of several art forms, including literature, cinema, painting, music, opera, architecture; periods, schools, styles, and their theories. Same as CL:3210 (218:110).

IWP:5205 (181:205) International Translation Workshop 1-3 s.h.

International writers pair with University of Iowa translators to write new works of poetry and fiction in English; second-language fluency not required for international writers. Same as TRNS:5205 (218:205).

IWP:5230 (181:230) Writing Across Genres: A Workshop arr.

Writing across genres; exploration of modes and voices different from chosen genres (i.e., poets may test the waters of playwriting, nonfiction writers of translation, translators of fiction); rotations by guest faculty; workshop includes students from Writing University M.F.A. programs and International Writing Program residents.

IWP:6635 (181:247) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), PORO:6635 (160:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).

IWP:7460 (181:260) Translation Workshop 4 s.h.

Requirements: at least one foreign language. Same as TRNS:7460 (218:260).

Library and Information Science

Director

- David Eichmann

Associate professors

- Timothy Barrett, David Eichmann, James Elmborg, Julie Leonard, Jennifer Burek Pierce

Assistant professor

- Lindsay Mattock

Instructor

- Iulian Vamanu

Professor emeritus

- Velva Jeanne Osborn

Associate professor emeritus

- Carl Orgren

Graduate degree: M.A. in library and information science
Web site: <http://slis.grad.uiowa.edu/>

Today's age is defined by the intersection of information, technology, and human creativity. In this context, library and information science is dedicated to understanding the nature of information, the interaction between information and communication technologies, the relationship between information and knowledge, the cognitive and affective aspects of knowledge acquisition, and the interface between people and information. It offers new knowledge, technological benefits, and professional expertise for every dimension of human affairs.

Library and information professionals take on many challenges in serving the needs of their constituencies—children and teachers, members of academic communities, employees of profit and nonprofit organizations, and the public at large—constituencies that range from information poor to information rich. They work in the contexts of issues such as information and communication technology, public and private information policy, managerial policy, and regional, national, and international economics.

The School of Library and Information Science prepares professionals to meet these diverse challenges. It offers a graduate-level program of preparation for careers in all types of libraries and information centers, providing students with a strong, well-rounded education in an environment that supports individuals from all segments of a multicultural, multiethnic, and multilingual society. Its curriculum reflects the profession's immediate and long-range needs and prepares students to be leaders in a changing field.

By promoting excellence in research, the school contributes to the base of theoretical and practical knowledge in library and information science and helps develop an understanding of how to meet the varied and changing information needs of individuals and society. It also provides public service through continuing education programs, selective consulting services for library and information centers, and participation in professional organizations.

The school strongly encourages its students, faculty members, and alumni to shape the future of the profession by filling key roles in organizations involved in all aspects of the information cycle.

Graduate Programs of Study

- Master of Arts in library and information science

Graduate students working toward a degree in library and information science may elect to pursue a joint degree program offered by the school in collaboration with the College of Law. The school also offers a joint master's degree/certificate program with the Center for the Book. See "Joint Degrees" and "Joint M.A./Certificate" below.

Students interested in school librarianship may earn a teaching license through a joint program with the College of Education; see "Specializations"/"School Teacher Librarian" below. Library and information science students also may earn the Certificate in Informatics, described below.

The Master of Arts in library and information science has held continuous accreditation from the American Library Association since 1971.

Library science graduates have many options for employment. Alumni hold positions in public, school, special, and academic libraries as well as other information settings. They serve in varied roles, such as information consultant, database manager, library administrator, webmaster, network coordinator, cataloger, children's librarian, school library media specialist, and archivist.

Master of Arts

The Master of Arts in library and information science requires 36 s.h. of graduate credit. A thesis option is available for students who seek additional research experience.

Students pursuing the master's degree gain an understanding of the foundations of the library and information profession, including the history of the field, ethical and philosophical concerns, the information cycle, principles and procedures for dealing with a variety of information carriers, and the theory and practice of strategic management. They examine future trends, with emphasis on cutting-edge technological concerns. They study the discipline's research base, gaining heightened awareness of the synergism between library and information science and other disciplines, as well as the close relationship between research and practice. Finally, students become knowledgeable about the factors that underlie users' information needs and appropriate strategies to satisfy those needs.

The master's degree program is designed to be completed in two years. The School of Library and Information Science strongly recommends that students not register for more than 12 s.h. during fall and spring semesters and 8 s.h. during summer sessions. The program also may be completed through part-time study.

Students may apply a maximum of 6 s.h. of graduate transfer credit in library and information science or related areas toward the degree, subject to the approval of the transfer credit committee. Approval is given course-by-course and is determined by the course's content, currency, and applicability to the student's program.

The curriculum includes a proseminar and three tiers of course work. Tier I consists of four required courses that provide a solid grounding for all successive course work. For Tier II, students select three of the five courses listed, based on their areas of interest. In Tier III, students may earn up to 15 s.h. in electives chosen with guidance from their advisors. This three-tier arrangement allows each student to concentrate in an area that most closely matches his or her professional goals.

Proseminar

Students must enroll in the proseminar during their first semester, along with two tier I courses.

SLIS:5000 (021:100) Proseminar in Library and Information Science	0 s.h.
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TIER I

All of these:

SLIS:5010 (021:101) Cultural Foundations (taken in student's first semester)	3 s.h.
SLIS:5020 (021:120) Computing Foundations (taken in student's first semester)	3 s.h.
SLIS:5030 (021:122) Conceptual Foundations	3 s.h.
SLIS:6160 (021:242) Search and Discovery	3 s.h.

TIER II

Three of these:

SLIS:6020 (021:205) Literacy and Learning	3 s.h.
SLIS:6100 (021:124) Database Systems	3 s.h.
SLIS:6130 (021:210) Community Engagement	3 s.h.
SLIS:6330 (021:240) Archives and Media	3 s.h.
SLIS:6490 (021:278) Information Policy	3 s.h.

TIER III

With their advisor's guidance, students choose 15 s.h. in electives from the following courses.

SLIS:1090 (021:090) Information Handling	3 s.h.
SLIS:4150 (021:185) Introduction to Book Studies	3 s.h.
SLIS:4900 (021:150) Preservation and Conservation of Collection Materials	3 s.h.
SLIS:4910 (021:182) The Book in the Middle Ages	3 s.h.
SLIS:4920 (021:258) The Transition from Manuscript to Print	3 s.h.
SLIS:5200 (021:123) User Education: Multimedia	3 s.h.
SLIS:5210 (021:141) Reference and Information Services	3 s.h.
SLIS:5220 (021:143) Resources for Children	3 s.h.
SLIS:5230 (021:144) Resources for Young Adults	3 s.h.
SLIS:5240 (021:145) Resources for Adults	3 s.h.
SLIS:5520 (021:221) Studies in Book History	3 s.h.
SLIS:5530 (021:204) Topics in Preservation/Conservation	3 s.h.
SLIS:5600 (021:256) History of Readers and Reading	3 s.h.
SLIS:5900 (021:275) Health Informatics I	3 s.h.
SLIS:5910 (021:280) Health Informatics II	3 s.h.
SLIS:6020 (021:205) Literacy and Learning	3 s.h.

SLIS:6100 (021:124) Database Systems	3 s.h.
SLIS:6110 (021:202) Research Methods	3 s.h.
SLIS:6130 (021:210) Community Engagement	3 s.h.
SLIS:6140 (021:226) Digital Environments	3 s.h.
SLIS:6150 (021:236) Use and Users	3 s.h.
SLIS:6170 (021:260) Organizational Management	3 s.h.
SLIS:6180 (021:262) School Library Media Administration	3 s.h.
SLIS:6190 (021:234) Knowledge Management	3 s.h.
SLIS:6250 (021:222) Beginning Cataloging and Classification	3 s.h.
SLIS:6270 (021:224) Electronic Publishing	3 s.h.
SLIS:6280 (021:228) Hypertext Systems	3 s.h.
SLIS:6300 (021:232) Race, Gender, and Technology	3 s.h.
SLIS:6320 (021:239) Topics: Conceptual Structures/Systems	1-3 s.h.
SLIS:6330 (021:240) Archives and Media	3 s.h.
SLIS:6370 (021:249) Topics in Book Studies	3 s.h.
SLIS:6375 (021:252) Human Computer Interaction	3 s.h.
SLIS:6380 (021:254) Analysis of Scholarly Domains	3 s.h.
SLIS:6410 (021:259) Topics: Resources/Services	1-3 s.h.
SLIS:6430 (021:263) Nonprofit Organizational Effectiveness I	3 s.h.
SLIS:6435 (021:265) Nonprofit Organizational Effectiveness II	3 s.h.
SLIS:6460 (021:270) Public Libraries	3 s.h.
SLIS:6470 (021:271) College and University Libraries	3 s.h.
SLIS:6480 (021:272) Special Libraries	3 s.h.
SLIS:6490 (021:278) Information Policy	3 s.h.
SLIS:6500 (021:279) Topics: Policy/Planning	1-3 s.h.
SLIS:6520 (021:282) Practicum in Libraries and Information Centers	2-3 s.h.
SLIS:6530 (021:284) School Library Media Practicum	3 s.h.
SLIS:6550 (021:289) Seminar in Library and Information Science	3 s.h.
SLIS:6570 (021:292) Independent Study	1-3 s.h.
SLIS:6580 (021:299) Thesis	0-3 s.h.
SLIS:6590 (021:298) Digital Humanities Capstone	3 s.h.
SLIS:7290 (021:297) Obermann Center Theory and Practice in Digital Public Humanities	3 s.h.

Specializations

Students' programs often are designed around particular career goals. Following are examples of possible specializations.

PUBLIC LIBRARIES

Public libraries provide informational, educational, and recreational materials and a wide range of services for a diverse clientele. Although public libraries receive the bulk of their funding from local taxes, they also may be organized on a regional or statewide cooperative basis. The variety of uses, services, materials, and organizational

structures of public libraries makes this a challenging area of librarianship. Public librarians need to develop skills in analyzing the communities they serve, designing comprehensive marketing plans to meet their needs, implementing the plans in a cost-effective way, and evaluating the success of their efforts.

ACADEMIC LIBRARIES

The academic library, whether in a community college, a four-year college, or a university, provides information services in support of the parent institution's teaching, research, and public service missions. These services include instruction in the use of the library and its resources. Management skills and subject or language competence often are required. Since librarians in this setting usually are considered academic faculty members, a second master's or other advanced degree is desirable.

SPECIAL LIBRARIES AND INFORMATION CENTERS

Special libraries serve corporations, private companies, government agencies, technical and academic institutions, museums, medical facilities, and information management consulting firms. They are organized to anticipate and quickly respond to the specific information needs of their users. Special librarians are information resource experts who collect, analyze, evaluate, package, and disseminate information to facilitate accurate decision making. Knowledge of information technology and the ability to design services suitable to the parent organization are professional necessities. In addition, substantial subject expertise may be required.

SCHOOL TEACHER LIBRARIAN

School teacher librarians provide instruction to students in accessing, evaluating, and using information; collaborate with teachers on the use of resources in instruction; provide leadership in the use of instructional and information technologies; offer reading guidance; provide reference service; and manage the library media center.

The University of Iowa offers a state-approved program leading to endorsement as school teacher librarian K-12. In order to fulfill state requirements for this endorsement, students must hold or be eligible for a teaching license and must complete a designated sequence of courses that leads both to certification and to the M.A. degree.

Licensed teachers employed in Iowa schools may enroll in a distance education program that leads to an M.A. in library and information science and endorsement for school librarianship. Contact the School of Library and Information Science for details.

Students who are interested in school libraries but lack a valid Iowa teaching license may earn licensure as a school teacher librarian by completing 30 s.h. in the College of Education. The Master of Arts in library and information science with teacher licensure requires 66 s.h. of credit. Students must apply and be admitted to both programs.

INFORMATION SCIENCE

The multidisciplinary field of information science is influenced by the rapid growth in digital information collections and technologies. This specialization offers expertise in retrieval, dissemination, and use of information. In addition to libraries and information centers, many for-profit organizations are finding that information is a valuable commodity in today's competitive

world and are employing information management personnel. The curriculum offers opportunities to study information science aspects, such as digital libraries, electronic publishing, and web application design.

Joint Degrees

The School of Library and Information Science offers a joint Juris Doctor/Master of Arts with the College of Law. The primary goal of this joint program is integration of the two areas of study. Students in the joint program may apply a limited amount of credit toward both degrees. Up to 9 s.h. in law may be applied toward the M.A. in library and information science; up to 6 s.h. in library and information science may be applied to the J.D. Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the joint degree program. For more information, see College of Law (p. 1005) in the Catalog.

In addition to the joint J.D./M.A., joint programs may be arranged between departments on an ad hoc basis. A minimum of 60 s.h. of graduate work is required for a joint master's degree program.

Joint M.A./Certificate

Students interested in special collections, book arts, or museum librarianship may pursue an M.A. in library and information science in conjunction with a graduate Certificate in Book Studies/Book Arts and Technologies. The joint program also may be appropriate for students interested in book studies scholarship and those seeking careers in publishing, graphic arts, or book-related industries that require a similar blend of subject and technical knowledge.

The joint program requires a total of 51 s.h. At least 27 s.h. must be earned in the M.A. program, at least 15 s.h. must be earned in the certificate program, and the remaining 9 s.h. may be earned in either program. Separate application to each program is required. Applicants must be admitted to both programs before they may be admitted to the joint program. For more information, see Center for the Book (p. 956) in the Catalog.

Certificate in Digital Public Humanities

The School of Library and Information Science administers the graduate certificate program in digital public humanities; see Digital Public Humanities (p. 964) in the Catalog.

Related Certificate: Informatics

The Graduate College offers the Certificate in Informatics, with three subprograms open to students enrolled in the library and information science M.A. program: the geoinformatics subprogram, the health informatics subprogram, and the information science subprogram. All subprograms require a minimum of 18-21 s.h. of graduate credit. The certificate program enables students to complement their studies with foundational and applied knowledge in informatics. Certificate course work includes core courses and approved electives. To learn more, see "Certificate" in the Informatics (p. 972) section of the Catalog.

Honor Society

The Beta Beta Theta Chapter of Beta Phi Mu, the international honor society for library and information science, is located at The University of Iowa. Each year new members are chosen from the top 25 percent of the preceding year's graduating classes. To be eligible for membership, graduates must achieve a g.p.a. of at least 3.75, demonstrate professional promise, and be recommended by the faculty.

Student Organizations and Activities

All M.A. students in the school are automatically members of LISSO, the Library and Information Science Student Organization, which also serves as the student chapter of the American Library Association. LISSO sponsors various activities, such as speaker series, workshops, brown bag lunches, and social events. Participation in LISSO events provides students with significant opportunities for professional and extracurricular growth. Students also are encouraged to join other state and national professional organizations.

The electronic journal *BSides* was created and is edited entirely by library and information science students. The journal publishes work by current students and recent alumni in a wide variety of formats, such as research papers, PowerPoint presentations, and web sites.

Admission

Applicants for admission to the M.A. program are required to have a g.p.a. of at least 3.00 on a 4.00 scale. The admission committee also considers each applicant's letters of recommendation, statement of purpose, and other appropriate criteria. Graduate Record Examination (GRE) scores are not required. Admission is competitive.

Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). In place of TOEFL, the school also accepts International English Testing System (IELTS) scores of 7.0 or higher, with no subscore below 6.0. Applicants who submit IELTS scores are required to take an on-campus English proficiency evaluation.

Applicants begin the admission process by contacting the School of Library and Information Science. The process requires a completed application form, transcripts of all academic work, a written statement of purpose and goals, and three letters of recommendation.

Completed applications should be received by the school by February 1 for consideration for fall admission. Decisions of the admissions committee are announced approximately six weeks after the application deadline. Late applications are considered if places are still available. Financial aid often is not available for late applicants. Admitted students are assigned a faculty advisor for program planning at the end of their first semester.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

The School of Library and Information Science offers partial-tuition scholarships and one-quarter-time graduate assistantships. To be considered for scholarships or assistantships, applicants must meet the M.A. program's grade-point average requirement for admission (see "Admission" above). Prospective students must submit letters of application for scholarships before February 1. Graduate assistantships are advertised as they become available; students should apply for specific assistantships.

For information on departmental scholarships, contact the School of Library and Information Science or visit its web site. Part-time employment usually is available in the University Libraries and other campus units.

Applications for student loans, work-study eligibility, or other financial assistance should be submitted directly to the University's Office of Student Financial Aid.

Job Placement

The school shares announcements of national and international job opportunities through an electronic mailing list. In addition, LISSO sponsors talks by speakers versed in areas of librarianship as well as workshops on résumé writing and interviewing. Internships and the school's practicum courses provide students with hands-on experience that may enhance their job prospects.

Facilities, Resources

The School of Library and Information Science is housed in the south wing of the University's Main Library, in a setting that promotes community among students, faculty, and staff and provides easy access to resources of the University of Iowa Libraries. Facilities are provided for the varied instructional and research activities of the school.

Gunther Commons

Gunther Commons, a state-of-the-art collaboratory, is the school's combined student center and technology lab. Individuals and teams of students gather in the collaboratory to work on course assignments and to gain experience with specialized software that supports the latest teaching technologies. Students have access to both Windows and Macintosh computers in the collaboratory, with gigabit access to the campus network and wireless service throughout the Main Library.

University of Iowa Libraries

All of the resources of the University of Iowa Libraries are available to the school's students and faculty. The system contains more than 4 million volumes in the Main Library and six departmental libraries.

The web-based catalog provides access to books and periodicals, electronic indexes, and full-text databases held by University Libraries. In addition, the InfoHawk Catalog to online resources provides access to selected Internet and CD-ROM resources arranged by subject and academic discipline. Wireless Internet access is available in many areas of the Main Library.

The third floor of the Main Library houses the map collection and Special Collections & University Archives, including the Iowa Women's Archives.

Other Libraries

Students have access to a variety of libraries through field trips, practicum experience, and personal use: the State Historical Society of Iowa library in Iowa City; the Iowa City, Coralville, and Cedar Rapids public and school libraries; the Augustana, Coe, Cornell, Mount Mercy, and Grinnell College libraries; and the Herbert Hoover Presidential Library and Museum in West Branch.

Other Resources

Lindquist Center houses the instructional services and campus services departments of the University's Information Technology Services. It provides instructional and research computing facilities and services for the University community. All University students, staff, and faculty may use the center's computers for University-related research, thesis preparation, and class work. Instructional Technology Centers provide campuswide access to the University's academic computing resources and the Internet.

Courses

SLIS:1090 (021:090) Information Handling 3 s.h.

Gathering, evaluating, and employing information from library and nonlibrary sources, including multimedia and electronic systems. Requirements: undergraduate standing.

SLIS:4150 (021:185) Introduction to Book Studies 3 s.h.

Theory and practice of book studies; meanings of word and image in the book format; comparative study of other media, applied study of the codex as physical artifact. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: Early Literatures Through 17th Century, or 18th/19th-Century Literature, or 20th/21st-Century Literature. Same as ENGL:4150 (008:134), UICB:4150 (108:185).

SLIS:4900 (021:150) Preservation and Conservation of Collection Materials 3 s.h.

Overview of responsible stewardship of library and archival collections; principles and practice of book conservation with focus on prototypes for conservation rebinding; appropriate care of books, papers, photographs (traditional and digital), film, and other non-print items; fundamental instruction in methods of page repair, investigation of eight historical prototypes, construction of related conservation binding models; lecture, discussion, student presentation, and hands-on activities. Prerequisites: SLIS:5010 (021:101).

SLIS:4910 (021:182) The Book in the Middle Ages 3 s.h.

Relation of text, decoration, function, creators, and audience in different genres of medieval manuscript books 400-1500 A.D. Same as HIST:4910 (16E:120), UICB:4910 (108:182).

SLIS:4920 (021:258) The Transition from Manuscript to Print 3 s.h.

Western manuscripts and books 1200-1600; changes in production and distribution methods and in how texts were used, in cultural context. Same as UICB:4920 (108:183), HIST:4920 (16E:118).

SLIS:5000 (021:100) Proseminar in Library and Information Science 0 s.h.

Integrated view of different areas of library and information science; early program exposure to faculty members and their research interests. Requirements: library and information science major.

SLIS:5010 (021:101) Cultural Foundations 1-3 s.h.

The role of libraries and information agencies in society; major issues, including information policy, professional ethics, literacy, diversity, technology, pedagogy. Requirements: admission to library and information science.

SLIS:5020 (021:120) Computing Foundations 3 s.h.

Introduction to analysis, specification, and design of automated systems; review of the software life cycle; testing, deployment, and evaluation of large, computer-based software. Requirements: admission to library and information science.

SLIS:5030 (021:122) Conceptual Foundations 3 s.h.

Theory, principles, and standards in organization of information; function of catalogs, indexes, bibliographic networks; introduction to metadata descriptions, name and title access, subject analysis, controlled vocabularies, classification systems. Requirements: admission to library and information science.

SLIS:5200 (021:123) User Education: Multimedia 3 s.h.

Learning theory as it relates to design of multimedia products for user education; presentation of information using multimedia technology in a Macintosh environment; development of user education products in linear and nonlinear forms.

SLIS:5210 (021:141) Reference and Information Services 3 s.h.

Resources and services; essential reference services and experience using a variety of print and electronic resources to answer specific reference questions. Prerequisites: SLIS:5010 (021:101).

SLIS:5220 (021:143) Resources for Children 3 s.h.

Evaluation and use of books, magazines, electronic media, and other sources of information and recreation in relation to youth development.

SLIS:5230 (021:144) Resources for Young Adults 3 s.h.

Topics related to populations served by youth services departments (e.g., societal issues, informational needs); seminar.

- SLIS:5240 (021:145) Resources for Adults** 3 s.h.
Role of libraries in meeting adults' informational and recreational needs; popular culture materials, Reader's Advisory services, lifelong learning.
- SLIS:5520 (021:221) Studies in Book History** 3 s.h.
Topics related to production, distribution, and consumption of books through history and into the future. Same as UICB:5520 (108:202).
- SLIS:5530 (021:204) Topics in Preservation/Conservation** 3 s.h.
Care, conservation, and preservation of cultural heritage artifacts; readings, discussion, hands-on sessions. Same as UICB:5530 (108:204).
- SLIS:5600 (021:256) History of Readers and Reading** 3 s.h.
Cultural nature of reading practices in historic and contemporary contexts of reading; reading communities; dimensions of gender, age, class, religion, race, ethnicity; examples of recent scholarship; use of primary resources; seminar. Same as UICB:5600 (108:220).
- SLIS:5900 (021:275) Health Informatics I** 3 s.h.
Technological tools that support health care administration, management, and decision making. Requirements: graduate standing. Same as MED:5300 (050:283), RSNM:3195 (074:191), HMP:5370 (174:226), BME:5250 (051:187), IE:5860 (056:186), IGPI:5200 (200:110).
- SLIS:5910 (021:280) Health Informatics II** 3 s.h.
Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as BME:5252 (051:189), RSNM:5301 (074:192), IE:5870 (056:287), IGPI:5210 (200:120).
- SLIS:6020 (021:205) Literacy and Learning** 3 s.h.
Learning and literacy theory relevant to work in information services; how librarians can help people process information and use it to form understanding and create new knowledge. Prerequisites: SLIS:5010 (021:101).
- SLIS:6100 (021:124) Database Systems** 3 s.h.
Design and development of a database-driven information system, including interfaces, database schema, and essential database operations; focus on widely used relational database model. Prerequisites: SLIS:5020 (021:120).
- SLIS:6110 (021:202) Research Methods** 3 s.h.
Concepts and methods for research in library and information science; emphasis on design of qualitative and quantitative research; data collection techniques appropriate to information professions; examination and evaluation of research in the professional literature.
- SLIS:6130 (021:210) Community Engagement** 3 s.h.
Ways in which information professionals in libraries and other settings learn about, collaborate with, and provide services and outreach to community members; introduction and overview of community engagement theory and practice; service learning or community-based research projects. Prerequisites: SLIS:5010 (021:101). Same as IGPI:6220 (200:220).
- SLIS:6140 (021:226) Digital Environments** 3 s.h.
Methods and models for building digital libraries; organization with metadata; standards such as those for object identifiers, open access, building cross-linkages between collections; automatic harvesting of content. Prerequisites: SLIS:5020 (021:120).
- SLIS:6150 (021:236) Use and Users** 3 s.h.
Information needs and uses; theories and models of information seeking and use, formal and informal information channels, barriers to information.
- SLIS:6160 (021:242) Search and Discovery** 3 s.h.
Search system architecture; information needs and queries; search models; concepts in relevance and repositories, archives, web-based systems; information quality measures.
- SLIS:6170 (021:260) Organizational Management** 3 s.h.
Survey of management issues common to all information environments—understanding organizations, decision making, hiring and personnel, grant writing, and marketing.
- SLIS:6180 (021:262) School Library Media Administration** 3 s.h.
Design of library media programs for the major functions of teaching and learning, information access, and program administration; focus on curricular and teaching responsibilities of school librarians and media specialists, development of philosophy, examination of roles and responsibilities, and program evaluation. Prerequisites: SLIS:5010 (021:101).
- SLIS:6190 (021:234) Knowledge Management** 3 s.h.
How organizations acquire, manage, and use information; knowledge management and competitive intelligence, information from inside and outside the organization; organization types, including library, corporate, and nonprofit. Same as MSCI:6190 (06K:234).
- SLIS:6250 (021:222) Beginning Cataloging and Classification** 3 s.h.
Systems for describing materials and information in catalogs and organizing them for effective retrieval in libraries, museums, and other information centers; AACR2 descriptive principles, Dewey and Library of Congress classifications, Sears and LC subject headings, cataloging networks and services. Prerequisites: SLIS:5030 (021:122).

- SLIS:6270 (021:224) Electronic Publishing** 3 s.h.
Modes and methods for building electronic journals, books, thematic collections; new genres for publishing, including blogs, wikis, comics, short stories on the web; social, political, and economic forces that shape electronic publishing; XML-based project. Prerequisites: SLIS:5020 (021:120). Same as UICB:6270 (108:224).
- SLIS:6280 (021:228) Hypertext Systems** 3 s.h.
Theory, design, and implementation of hypertext-based information systems; access mechanisms, including navigation, browsing, search; issues in representation of information, user interfaces; case studies of representative systems, including the World Wide Web. Prerequisites: SLIS:5020 (021:120).
- SLIS:6300 (021:232) Race, Gender, and Technology** 3 s.h.
Brief, critical look at the ways race and gender shape the uses and design of information and communication technologies (ICTs); ICTs as a part of our social infrastructure; how the integration of ICTs into Western culture has affected, transformed, or been transformed by interactions with racial groups, men, and women; interrogate assumptions behind technology's promises of efficiency and progress—what are the norms and values embodied within the artifacts we use every day?
- SLIS:6320 (021:239) Topics: Conceptual Structures/Systems** 1-3 s.h.
Special topics relevant to conceptual structures (e.g., knowledge, representation, manipulation schemes) and systems (e.g., intelligent OPACS, user interface technologies).
- SLIS:6330 (021:240) Archives and Media** 3 s.h.
Collecting as a core library activity; various types of media collected, from traditional print media to new digital media; how archives are structured and managed to provide for selection, organization, access, and perpetual storage; work on sample collections, presentation of techniques and concepts. Prerequisites: SLIS:5010 (021:101) and SLIS:5030 (021:122).
- SLIS:6370 (021:249) Topics in Book Studies** 3 s.h.
Topics relevant to book studies and special collections. Same as UICB:6370 (108:230).
- SLIS:6375 (021:252) Human Computer Interaction** 3 s.h.
Design user interfaces for interacting with information, emphasis on system design and evaluation (as opposed to system implementation); construct interface prototypes, conduct evaluations of design. Prerequisites: SLIS:5020 (021:120).
- SLIS:6380 (021:254) Analysis of Scholarly Domains** 3 s.h.
Information transfer in academic disciplines; scientific method, other means of knowledge construction, resulting literatures; reference tools used to control literature for a variety of audiences; emphasis on humanities, social sciences, or sciences.
- SLIS:6410 (021:259) Topics: Resources/ Services** 1-3 s.h.
- Current topics in types of information resources and services.
- SLIS:6430 (021:263) Nonprofit Organizational Effectiveness I** 3 s.h.
Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as MGMT:9150 (06J:247), LAW:8751 (091:320), HMP:6360 (174:247), SSW:6247 (042:247), URP:6278 (102:278), MUSM:6010 (024:247), SPST:6010 (028:257), RELS:6070 (032:227).
- SLIS:6435 (021:265) Nonprofit Organizational Effectiveness II** 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Requirements: for LAW:8752 (091:322) — LAW:8751 (091:320); for HMP:6365 (174:248) — HMP:6360 (174:247) or MGMT:9150 (06J:247) or MUSM:6010 (024:247). Same as MGMT:9160 (06J:248), LAW:8752 (091:322), SSW:6248 (042:248), HMP:6365 (174:248), URP:6279 (102:279), MUSM:6020 (024:248), SPST:6020 (028:258), RELS:6075 (032:228).
- SLIS:6460 (021:270) Public Libraries** 3 s.h.
Historical development of public libraries; current issues in public library management and policy making, including intellectual freedom; readers advisory service and genres of popular materials for adults.
- SLIS:6470 (021:271) College and University Libraries** 3 s.h.
Objectives, organization, unique functions and services of academic libraries; educational environment in which academic libraries function; examination of issues and problems affecting academic libraries. Prerequisites: SLIS:5010 (021:101).
- SLIS:6480 (021:272) Special Libraries** 3 s.h.
Management, organizational structures, collections, client services in special libraries; site visits to a variety of special libraries, information centers; projects that apply theoretical principles.
- SLIS:6490 (021:278) Information Policy** 3 s.h.
Development of policy based on ethical and legal issues in library and information professions; intellectual freedom, intellectual property, privacy, equity.
- SLIS:6500 (021:279) Topics: Policy/ Planning** 1-3 s.h.
Current topics in national and international policies, their impact on planning. Same as UICB:6120 (108:222).
- SLIS:6520 (021:282) Practicum in Libraries and Information Centers** 2-3 s.h.
Supervised field experience in selected libraries and information centers; emphasis on application of theory to practice; at least 80 hours of fieldwork.
- SLIS:6530 (021:284) School Library Media Practicum** 3 s.h.

Supervised field experience in library media centers at elementary and secondary school levels; emphasis on application of theory to practice; at least 80 hours of fieldwork. Prerequisites: SLIS:6180 (021:262).

SLIS:6550 (021:289) Seminar in Library and Information Science 3 s.h.

Contemporary issues in library and information science; student presentations, guest speakers.

SLIS:6570 (021:292) Independent Study 1-3 s.h.

Formal contract between student and faculty member. Requirements: formal proposal.

SLIS:6580 (021:299) Thesis 0-6 s.h.

Prerequisites: SLIS:5010 (021:101), SLIS:5020 (021:120), SLIS:5030 (021:122), SLIS:6110 (021:202), and SLIS:6170 (021:260).

SLIS:6590 (021:298) Digital Humanities Capstone 3 s.h.

Application and practice of classroom experience to a specific project under guidance from a faculty member and project team leader. Requirements: completion of 12 s.h. and good standing in digital humanities certificate program.

SLIS:7290 (021:297) Obermann Center Theory and Practice in Digital Public Humanities 3 s.h.

Overview of theories and use of technology to preserve, deploy, visualize, map, and analyze concepts; discussions with practicing digital public scholars; assignments tailored to student research; final group project; introductory course in digital public humanities certificate. Same as GRAD:7290 (650:290).

Molecular and Cellular Biology

Director

- Frederick Domann (Pathology/Radiation Oncology/Surgery)

Affiliated faculty

- Dale E. Abel (Internal Medicine), Christopher Adams (Internal Medicine/Molecular Physiology and Biophysics), Christopher Ahern (Internal Medicine), Lee-Ann Allen (Microbiology/Internal Medicine), Sheila Baker (Ophthalmology and Visual Sciences/Biochemistry), Alexander Bassuk (Stead Family Department of Pediatrics/Neurology), Gail Bishop (Microbiology), Daniel Bonthius (Stead Family Department of Pediatrics/Neurology), Anil Chauhan (Internal Medicine), Songhai Chen (Pharmacology), John Colgan (Internal Medicine/Anatomy and Cell Biology), Robert Cornell (Anatomy and Cell Biology), Brandon Davies (Biochemistry), Kris DeMali (Biochemistry/Dermatology), Mishtu Dey (Chemistry), Frederick Domann (Pathology/Radiation Oncology/Surgery), Martine Dunnwald (Stead Family Department of Pediatrics), Adam Dupuy (Pathology/Anatomy and Cell Biology), John Engelhardt (Internal Medicine/Anatomy and Cell Biology), John Fingert (Ophthalmology and Visual Sciences), Rory Fisher (Pharmacology/Internal Medicine), C. Andrew Frank (Anatomy and Cell Biology), Ernesto Fuentes (Biochemistry), Pamela Geyer (Biochemistry/Obstetrics and Gynecology), Paloma Giangrande (Internal Medicine/Radiation Oncology), Apollina Goel (Pathology/Radiation Oncology), Pedro Gonzalez-Alegre (Neurology), Prabhat Goswami (Radiation Oncology), Steven Green (Otolaryngology—Head and Neck Surgery/Biology), Justin Grobe (Pharmacology), Isabella Grumbach (Internal Medicine), Hasem Habelhah (Pathology), Hillel Haim (Microbiology), Raymond Hohl (Pharmacology/Internal Medicine), Douglas Houston (Biology), Jon Houtman (Microbiology/Internal Medicine), Kaikobad Irani (Internal Medicine), Nitin Karandikar (Pathology), Aloysius Klingelhut (Microbiology/Radiation Oncology), Amnon Kohen (Chemistry), John Koland (Pharmacology/Internal Medicine), Markus Kuehn (Ophthalmology and Visual Sciences), Gloria Lee (Internal Medicine), Steven Lentz (Internal Medicine), Kimberly Leslie (Obstetrics and Gynecology), Fang Lin (Anatomy and Cell Biology), Vinit Mahajan (Ophthalmology and Visual Sciences), John Manak (Stead Family Department of Pediatrics/Biology), Wendy Maury (Microbiology), Paul McCray (Microbiology/Internal Medicine/Stead Family Department of Pediatrics), James McNamara (Internal Medicine), Jeffery Meier (Internal Medicine), Scott Moye-Rowley (Internal Medicine/Molecular Physiology and Biophysics), Chioma Okeoma (Microbiology), Bryan Phillips (Biology), Andrew Pieper (Psychiatry), Matthew Potthoff (Pharmacology), David Price (Biochemistry), Miles Pufall (Biochemistry), Hank Qi (Anatomy and Cell Biology), Dawn Quelle (Pharmacology/Pathology), Kamal Rahmouni (Pharmacology/Internal Medicine), George Richerson (Neurology/Molecular Physiology and Biophysics), Andrew Russo (Molecular Physiology and Biophysics/Neurology), Thomas Rutkowski (Internal

Medicine/Anatomy and Cell Biology), Seongjin Seo (Ophthalmology and Visual Sciences), Val Sheffield (Stead Family Department of Pediatrics), Curt Sigmund (Pharmacology/Internal Medicine/Molecular Physiology and Biophysics), Kathleen Sluka (Nursing/Physical Therapy and Rehabilitation Science), Richard Smith (Otolaryngology—Head and Neck Surgery), Sarit Smolikove (Biology), Peter Snyder (Internal Medicine/Molecular Physiology and Biophysics), Mark Stamnes (Internal Medicine/Molecular Physiology and Biophysics), Jack Stapleton (Microbiology/Internal Medicine), Stefen Strack (Pharmacology/Pathology), Fayyaz Sutterwala (Internal Medicine), Eric Taylor (Biochemistry), Christie Thomas (Internal Medicine/Obstetrics and Gynecology), Tina Tootle (Anatomy and Cell Biology), Budd Tucker (Ophthalmology and Visual Sciences), Yatin Vyas (Stead Family Department of Pediatrics), Lori Wallrath (Biochemistry), Todd Washington (Radiation Oncology/Biochemistry), Daniel Weeks (Pediatrics/Biochemistry), Michael Welsh (Internal Medicine/Neurosurgery/Molecular Physiology and Biophysics), Mary Wilson (International Programs/Microbiology/Internal Medicine/Epidemiology), Marc Wold (Radiation Oncology/Biochemistry), Charles Yeaman (Internal Medicine/Anatomy and Cell Biology), Joseph Zabner (Internal Medicine), Fenghuang Zhan (Internal Medicine), Weizhou Zhang (Pathology)

Graduate degree: Ph.D. in molecular and cellular biology
Web site: <http://molcellbio.grad.uiowa.edu>

The Molecular and Cellular Biology Program provides interdisciplinary training in the concepts and methodologies fundamental to the investigation of biological mechanisms at the molecular level. Faculty members are involved in a variety of research projects related to gene expression and regulation.

Graduate Program of Study

- Doctor of Philosophy in molecular and cellular biology

Doctor of Philosophy

The Doctor of Philosophy program in molecular and cellular biology requires a minimum of 72 s.h. of graduate credit. The program is sufficiently flexible to accommodate students with a wide range of backgrounds in the biological and physical sciences. Entering students are expected to have a solid background in science, including introductory biology and chemistry, organic chemistry, physical chemistry, calculus, genetics, and biochemistry. Students can remedy deficiencies in particular areas by taking appropriate courses during the first year of graduate study.

The curriculum consists of a sequence of required, core, and elective courses that provide didactic training in molecular and cellular biology and that ensure comprehensive exposure to concepts and experimental methodologies in the field. Students engage in laboratory research immediately upon enrollment and progress rapidly to original thesis projects that lead to a Ph.D.

Because of the diversity of biological research problems that can be pursued by employing molecular and cellular approaches, the program provides options for specialization in particular areas of interest.

The Ph.D. in molecular and cellular biology requires the following course work.

DIDACTIC COURSE WORK

All of these:

MCB:6215 (142:215) Transcription and Multi-Functional Regulation by RNA	1 s.h.
MCB:6217 (142:217) Epigenetics, Cancer, and Mouse Models of Disease	1 s.h.
MCB:6220 (142:220) Mechanisms of Cellular Organization	3 s.h.
BISC:5204 (156:204) Biostatistics for Biomedical Research	1 s.h.

These, if recommended by the advisor:

BIOC:7251 (099:251) Introduction to Protein Structures	1 s.h.
BISC:5201 (156:201) Fundamentals of Gene Expression	1 s.h.
BISC:5203 (156:203) Fundamentals of Dynamic Cell Processes	1 s.h.

Students take electives in addition to the courses listed above to total 18 s.h. of credit in didactic course work.

SEMINARS AND PROFESSIONAL DEVELOPMENT

All students take both of these:

MCB:7290 (142:290) Seminars in Molecular and Cellular Biology	1 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	1 s.h.

Precomprehensive students take this each semester:

MCB:6280 (142:280) Topics in Molecular and Cellular Biology	1 s.h.
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Postcomprehensive students take this each semester:

Journal club of the student's choice	1 s.h.
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THESIS RESEARCH AND DISSERTATION

After successfully completing the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree. They devote their time to completing thesis research and writing their Ph.D. dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense, students are awarded a Ph.D. in molecular and cellular biology.

Admission

For application materials and information about graduate training in molecular and cellular biology, contact the Molecular and Cellular Biology Program or visit its web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

Graduate students in the Molecular and Cellular Biology Program receive stipends and tuition support from institutional and extramural sources, including University of Iowa fellowships and graduate research assistantships, and training grants from the National Institutes of Health.

Facilities

Training is conducted primarily in laboratories and teaching facilities of the Carver College of Medicine Stead Family Department of Pediatrics and the Departments of Anatomy and Cell Biology, Biochemistry, Internal Medicine, Microbiology, Molecular Physiology and Biophysics, Neurology, Obstetrics and Gynecology, Ophthalmology and Visual Sciences, Otolaryngology—Head and Neck Surgery, Pathology, Pharmacology, Physical Therapy and Rehabilitation Science, Psychiatry, and Radiation Oncology; and the College of Liberal Arts and Sciences Departments of Biology and Chemistry. Faculty laboratories and central research facilities available to students provide access to the most up-to-date research equipment.

Courses

MCB:6215 (142:215) Transcription and Multi-Functional Regulation by RNA 1 s.h.

Principles and techniques for investigating mechanisms of controlling eukaryotic gene expression; basic genome organization, chromatin structure, transcription, RNA processing, translation; cloning methods, use of electronic sequence databases, footprinting, chromatin immunoprecipitation, in vivo and in vitro transcription assays, DNA microarray analysis, information retrieval. Prerequisites: BISC:5201 (156:201).

MCB:6217 (142:217) Epigenetics, Cancer, and Mouse Models of Disease 1 s.h.

Epigenetic mechanisms of transcriptional control; regulation of chromatin structure and its relation to disease; fundamental concepts in cancer; mouse models for understanding the molecular basis for human disease; based on research publications. Prerequisites: BISC:5201 (156:201).

MCB:6220 (142:220) Mechanisms of Cellular Organization 3 s.h.

Current understanding of basic cell biological processes; key experiments that led to guiding insights; mechanisms that cells use for compartmentalization and how those mechanisms are regulated; biogenesis of major organelles (e.g., mitochondria, peroxisomes, nucleus, secretory/endocytic membrane system); functions of cytoskeleton in cell motility, organelle motility, and cell division. Prerequisites: BIOC:3130 (099:130). Same as MPB:6220 (072:220), ACB:6220 (060:216).

MCB:6225 (142:225) Growth Factor Receptor Signaling 1 s.h.

Mechanisms of signaling by growth factors; cytokines and related molecules that regulate cell proliferation, development, differentiation, and survival; emphasis on molecular mechanisms of signaling, relevance of these signaling processes to various human diseases. Recommendations: BISC:5201 (156:201) and BISC:5203 (156:203). Same as MPB:6225 (072:225), ACB:6225 (060:225).

MCB:6226 (142:226) Cell Cycle Control 1 s.h.

Cell cycle regulation, DNA damage-dependent cell cycle regulation, redox-dependent cell cycle regulation, cellular senescence. Recommendations: BISC:5201 (156:201) and BISC:5203 (156:203). Same as ACB:6226 (060:226), MPB:6226 (072:226).

MCB:6227 (142:227) Cell Fate Decisions 1 s.h.

Cellular fate decisions, including signal integration, terminal differentiation in development, mechanisms of embryonic stem cell gene regulation/cellular reprogramming, cell death paradigms, and cell death in development and cancer. Recommendations: BISC:5201 (156:201) and BISC:5203 (156:203). Same as ACB:6227 (060:223), MPB:6227 (072:227).

MCB:6240 (142:240) Inflammatory Cell Signaling and Targeted Cancer Therapy 1 s.h.

Introduction to topics in important cancer signaling pathways; promises and challenges of targeted cancer therapy; emphasis on current fundamental topics in cancer cell signalings; how altered protein ubiquitination/deubiquitination, constitutive activation of proteins kinases, and transcription factors underpin uncontrollable proliferation and survival of cancer cells in tumor microenvironment; translation of knowledge to targeted cancer therapy; promotion of critical thinking. Recommendations: MCB:6225 (142:225), MCB:6227 (142:227), and BIOC:5243 (099:243).

MCB:6250 (142:299) Mechanisms of Parasitism Journal Club 1 s.h.

Reviews of recent publications in molecular parasitology research and thesis research by training grant or journal club students. Same as MICR:6250 (061:299).

MCB:6280 (142:280) Topics in Molecular and Cellular Biology 1 s.h.

Opportunity to work closely with participating faculty to gain skill in critical reading of research literature and facility in presenting material to an audience. Requirements: advanced graduate standing.

MCB:7290 (142:290) Seminars in Molecular and Cellular Biology 1 s.h.

Research findings in molecular biology. Requirements: molecular and cellular biology graduate standing.

MCB:7300 (142:301) Directed Study in Molecular and Cellular Biology arr.**MCB:7305 (142:305) Molecular and Cellular Biology Research** arr.

Requirements: molecular and cellular biology graduate standing.

Neuroscience

Chair

- Daniel Tranel (Psychology/Neurology)

Affiliated faculty

- Paul J. Abbas (Otolaryngology—Head and Neck Surgery/Communication Sciences and Disorders), Francois Abboud (Internal Medicine/Molecular Physiology and Biophysics), Michael Anderson (Ophthalmology and Visual Sciences/Molecular Physiology and Biophysics), Steven Anderson (Neurology), Nancy C. Andreasen (Psychiatry/Education), Alexander Bassuk (Stead Family Department of Pediatrics/Neurology), Christopher Benson (Pharmacology/Internal Medicine), Mark Blumberg (Psychology/Biology), Daniel Bonthius (Stead Family Department of Pediatrics/Neurology), Timothy Brennan (Pharmacology/Anesthesia), Martin Cassell (Anatomy and Cell Biology), Mark Chapleau (Internal Medicine/Molecular Physiology and Biophysics), Kelly J. Cole (Health and Human Physiology/Physical Therapy and Rehabilitation Science), Robert A. Cornell (Anatomy and Cell Biology), Michael E. Dailey (Biology), Beverly Davidson (Internal Medicine/Neurology/Molecular Physiology and Biophysics), Natalie Denburg (Neurology), Melissa Duff (Communication Disorders and Sciences/Neurology), Daniel Eberl (Biology), Carrie Figdor (Philosophy), C. Andrew Frank (Anatomy and Cell Biology), John Freeman (Psychology), Bernd Fritzsche (Biology), Minnetta Gardinier (Pharmacology), Pedro Gonzalez-Alegre (Neurology), Jean Gordon (Communication Sciences and Disorders), Steven Green (Otolaryngology—Head and Neck Surgery/Biology), Jeremy Greenlee (Otolaryngology—Head and Neck Surgery / Neurosurgery), Justin Grobe (Pharmacology), Donna Hammond (Anesthesia/Pharmacology), N. Charles Harata (Molecular Physiology and Biophysics), Eliot Hazeltine (Psychology), William Hedgcock (Marketing), Matthew Howard III (Otolaryngology—Head and Neck Surgery/Neurosurgery/Neurology), Richard R. Hurtig (International Programs/Communication Sciences and Disorders), Alan Kim Johnson (Pharmacology/Health and Human Physiology/Psychology), Wayne Johnson (Molecular Physiology and Biophysics), Alan Kay (Biology), Toshihiro Kitamoto (Anesthesia/Pharmacology), Ryan LaLumiere (Psychology), Bridget Lear (Biology), Amy Lee (Otolaryngology—Head and Neck Surgery/Biomedical Engineering/Neurology/Molecular Physiology and Biophysics), Gloria Lee (Internal Medicine), Irwin P. Levin (Marketing/Psychology), Michael Lutter (Psychiatry), Vince Magnotta (Radiology/Biomedical Engineering/Psychiatry), Laurie M. McCormick (Psychiatry), Bob McMurray (Linguistics/Communication Sciences and Disorders/Psychology), James McNamara (Internal Medicine), Durga P. Mohapatra (Pharmacology/Anesthesia), Steven Moore (Pathology), David Moser (Psychiatry), Kumar Narayanan (Neurology), Peggy Nopoulos (Stead Family Department of Pediatrics/Psychiatry), M. Sue O'Dorisio (Stead Family Department of Pediatrics), Daniel O'Leary (Psychiatry), Jane Paulsen (Psychology/Neurology/Psychiatry), Stanley Perlman (Microbiology/Stead Family Department of Pediatrics), Robert Philibert (Psychiatry), Amy Poremba (Psychology), James Potash (Psychiatry),

Veena Prahlad (Biology), Jason J. Radley (Psychology), Kamal Rahmouni (Pharmacology/Internal Medicine), George Richerson (Neurology/Molecular Physiology and Biophysics), Matthew Rizzo (Neurology/Mechanical and Industrial Engineering), Andrew Russo (Molecular Physiology and Biophysics/Neurology), Curt D. Sigmund (Pharmacology/Internal Medicine/Molecular Physiology and Biophysics), Kathleen Sluka (Nursing/Physical Therapy and Rehabilitation Science), Megan Smith (Psychiatry), Long-Sheng Song (Internal Medicine), Steven Stasheff (Ophthalmology and Visual Sciences/Electrical and Computer Engineering/Stead Family Department of Pediatrics/Biomedical Engineering), Christopher Stipp (Biology/Molecular Physiology and Biophysics), Stefan Strack (Pharmacology/Pathology), William Talman (Neurology), Daniel Tranel (Psychology/Neurology), Budd Tucker (Ophthalmology and Visual Sciences), Christopher Turner (Communication Sciences and Disorders/Otolaryngology—Head and Neck Surgery), Ergun Uc (Neurology), Yuriy M. Usachev (Pharmacology), Shaun Vecera (Psychology), Michelle Voss (Psychology), Edward Wasserman (Psychology), Joshua Weiner (Biology), Michael Welsh (Internal Medicine/Neurosurgery/Molecular Physiology and Biophysics), John Wemmie (Neurosurgery/Molecular Physiology and Biophysics/Psychiatry), Virginia Willour (Psychiatry), Chun-Fang Wu (Biology), Qi Wu (Pharmacology), Asgar Zaheer (Neurology)

Graduate degree: Ph.D. in neuroscience

Web site: <http://neuroscience.grad.uiowa.edu>

The Neuroscience Program provides an interdisciplinary and interdepartmental approach to graduate education and research training in the structure, function, and development of the nervous system and its role in cognition and behavior. Students obtain training at all levels of the nervous system, from cellular/molecular to behavioral/cognitive.

Graduate Program of Study

- Doctor of Philosophy in neuroscience

Doctor of Philosophy

The Doctor of Philosophy program in neuroscience requires a minimum of 72 s.h. of graduate credit. The program's curriculum is designed around three tracks: molecular/cellular, developmental/systems, and cognitive/behavioral. Following broad-based instruction in a core curriculum, students specialize in one of the tracks.

Within a framework of core, track-specific, and elective courses, each student pursues a program of study individually designed according to his or her undergraduate training and graduate research goals. After enrolling in the Neuroscience Program, entering students consult with the advisory committee regarding their level of preparation for the program's required courses.

The Student Advisory Committee meets with all first- and second-year graduate students once each semester, helping each student explore his or her research interests and select faculty mentors for the required laboratory rotations. Each student is expected to complete three rotations in faculty laboratories before selecting a thesis advisor. Rotations ordinarily last 12 weeks but may last from 8 to 16 weeks. Under special circumstances, two rotations may be in the same laboratory, an arrangement that permits the student to learn a variety of techniques

and approaches before settling down to work on the dissertation project. Students usually choose a dissertation lab at the end of their first year.

BACKGROUND REQUIREMENTS

Students are expected to demonstrate competency, through prerequisites or course work, in each of four fields: biochemistry, general physiology, cell biology, and statistics. These requirements ordinarily should be fulfilled by the end of the first year of graduate study. Waivers of background course requirements may be requested by students who have taken equivalent courses before entering the Neuroscience Program.

NEUROSCIENCE CORE

The following courses form the core of the neuroscience graduate curriculum.

NSCI:4353 (132:181) Neurophysiology	3-4 s.h.
NSCI:4753 (132:184) Developmental Neurobiology	3 s.h.
NSCI:7180 (132:180) Neurobiology	4 s.h.
NSCI:7235 (132:235) Neurobiology of Disease	3 s.h.
ACB:8114 (060:234) Medical Neuroscience	4 s.h.
BIOC:5243 (099:243) Protein Structure, Function, and Regulation: Biophysical Chemistry Module 1	1 s.h.
BISC:5201 (156:201) Fundamentals of Gene Expression (molecular track)	1 s.h.
BISC:5203 (156:203) Fundamentals of Dynamic Cell Processes	1 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	1 s.h.
PSY:6370 (031:278) Principles of Neuropsychology	3 s.h.
One statistics course	3-4 s.h.

In addition, students register for the following two courses each semester.

NSCI:6265 (132:265) Neuroscience Seminar	0-1 s.h.
NSCI:7305 (132:305) Neuroscience Research	arr.

ELECTIVES

Elective requirements may be met with three or more courses from a list of courses offered by the Departments of Anatomy and Cell Biology, Biology, Molecular Physiology and Biophysics, Pharmacology, Psychology, and other departments as appropriate. Students must take electives in at least two of the program's three tracks, ensuring that they receive advanced training both in their area of specialization and in related areas of neuroscience. With permission of the Student Advisory Committee, students may satisfy the elective requirement wholly or in part by registration in NSCI:7301 (132:301) Directed Study in Neuroscience.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

For information about predoctoral training opportunities in neuroscience, contact the Neuroscience Program or visit its web site.

Financial Support

Full-time Neuroscience Program students receive stipends and full tuition scholarships through fellowships and research assistantships. Awards are renewed annually, based on continued satisfactory progress and availability of funds. The standard graduate student stipend for 2014-15 is \$26,000.

The Neuroscience Program is committed to supporting its graduate students for their entire training period. Students normally are supported in the first year by the program. After that, support is expected to come from the student's primary research mentor. Occasionally, advanced students are supported through teaching assistantships. Tuition is paid for all students.

NIH TRAINING GRANT

The Neuroscience Program is supported by a training grant from the National Institutes of Health. The grant provides stipend and tuition support for a select group of first- and second-year graduate students.

Facilities

Training is conducted primarily in the laboratories and teaching facilities of the Carver College of Medicine graduate Departments of Anatomy and Cell Biology, Biochemistry, Internal Medicine, Molecular Physiology and Biophysics, Neurology, Pharmacology, and Psychiatry; and the College of Liberal Arts and Sciences Departments of Biology, Communication Sciences and Disorders, Health and Human Physiology, and Psychology. Students use faculty laboratories and central research facilities for ultrastructural analysis; histochemistry and immunocytochemistry; electrophysiology; fluorescence-activated cell sorting; cellular and subcellular biochemistry; cell, tissue, and organ culture; operant and classical conditioning; molecular biology; behavioral genetics; neural substrates of complex behavior; brain-behavior relationships in humans; neuropsychology; and functional neuroimaging (PET, fMRI).

Courses

NSCI:4353 (132:181) Neurophysiology 3-4 s.h.

Physiological properties of nerve cells, nervous systems; axonal conduction, synaptic transmission, sensory transduction, integrative processes, higher functions. Prerequisites: BIOL:2753 (002:145) or BIOL:3253 (002:180), MATH:1460 (22M:016) or MATH:1850 (22M:025), and PHYS:1512 (029:012) or PHYS:1612 (029:082). Same as BIOL:4353 (002:181).

NSCI:4753 (132:184) Developmental Neurobiology 3 s.h.

Neural induction and nervous system patterning; neurogenesis, axon and dendrite outgrowth and targeting; synapse formation, specificity, refinement; mechanisms of neuronal cell death; myelination; neural stem cells; introduction to cellular, molecular, and genetic techniques in studies of neural development. Prerequisites: BIOL:2753 (002:145). Corequisites: BIOL:3253 (002:180). Requirements: grade of B- or higher in BIOL:2753 (002:145) or graduate standing. Same as BIOL:4753 (002:184), MPB:4753 (072:184).

- NSCI:5161 (132:161) Undergraduate Research in Neuroscience** arr. Experimental research under faculty supervision.
- NSCI:5365 (132:365) Seminar: Neuropsychology and Neuroscience** arr. Clinical neuropsychology and cognitive neuroscience: cutting-edge research from scientific journals, case presentations in clinical neuropsychology, and current research. Same as PSY:5365 (031:365), NEUR:5365 (064:365).
- NSCI:5653 (132:247) Fundamental Neurobiology** 4 s.h. Neurobiology from molecular/cellular to systems levels, including cell biology of neuron; membrane electrophysiology, synaptic transmission and plasticity, functional neuroanatomy, sensory systems from periphery to CNS, peripheral and central motor systems, autonomic systems emotion, memory, sleep, language, attention and cognition, development of nervous system; discussion of classic and recent journal articles. Same as BIOL:5653 (002:244), PSY:5203 (031:255).
- NSCI:6209 (132:209) Steroid Receptor Signaling** 1 s.h. Structure-function relationship and genomic and nongenomic actions of the steroid hormone receptor family; basis for actions of novel new ligands on these receptors. Offered spring semesters. Same as PCOL:6209 (071:209), MPB:6209 (072:209).
- NSCI:6240 (132:240) Topics in Cognitive Neuroscience** 3 s.h. Key topics in the neural basis of human cognition; research literature. Recommendations: graduate courses in basic neuroscience, cognitive psychology. Same as NEUR:6240 (064:240).
- NSCI:6241 (132:241) Fundamentals of Behavioral Neuroscience** 4 s.h. Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of neuroscience, sensation, motivation, emotion. Same as PSY:5210 (031:241).
- NSCI:6242 (132:242) Foundations in Behavioral and Cognitive Neuroscience** 4 s.h. Concepts, methods, and findings in behavioral and cognitive neurosciences. Prerequisites: BIOL:3253 (002:180) or PSY:5210 (031:241) or NSCI:6241 (132:241) or NSCI:7180 (132:180). Same as PSY:5212 (031:242).
- NSCI:6250 (132:250) Functional Magnetic Resonance Imaging** 2-3 s.h. Basic physics principles of functional magnetic resonance imaging and approaches to data acquisition, including BOLD imaging, arterial spin labeling, and magnetic source imaging; data analysis strategies; paradigm design and development. Same as NSCI:6280 (051:280).
- NSCI:6265 (132:265) Neuroscience Seminar** 0-1 s.h. Research presentations. Offered fall and spring semesters. Same as PSY:6265 (031:265), ACB:6265 (060:265), MPB:6265 (072:265), BIOL:6265 (002:265).
- NSCI:6280 (051:280) Functional Magnetic Resonance Imaging** 2-3 s.h. Basic physics principles of functional magnetic resonance imaging and approaches to data acquisition, including BOLD imaging, arterial spin labeling, and magnetic source imaging; data analysis strategies; paradigm design and development. Same as NSCI:6250 (132:250).
- NSCI:7180 (132:180) Neurobiology** 4 s.h. Cellular neurobiology (cytoskeleton and transport, membrane physiology, synaptic transmission and plasticity, sensory transduction); systems neurobiology (peripheral and central sensory processing, autonomic and somatic motor systems); cognitive neurobiology (emotion, biological rhythms and sleep, memory, attention, language); developmental neurobiology. Prerequisites: BIOL:2753 (002:145). Recommendations: BIOL:2723 (002:114) and BIOC:3110 (099:110). Same as BIOL:3253 (002:180).
- NSCI:7235 (132:235) Neurobiology of Disease** 3 s.h. Broad, thematic understanding of disease mechanisms in neurobiological disorders.
- NSCI:7301 (132:301) Directed Study in Neuroscience** arr.
- NSCI:7305 (132:305) Neuroscience Research** arr. Requirements: neuroscience graduate standing.

Rhetorics of Inquiry (POROI)

The certificate program in rhetorics of inquiry has closed.

Courses

PORO:3480 (160:180) Literature and Translation 3 s.h.

Translation in the broadest sense; originality, authority, authorship, accuracy, ownership, audience; issues problematizing differences between medium and message. Same as SLAV:3480 (041:180), TRNS:3480 (218:180).

PORO:6635 (160:247) Crossing Borders Seminar 2-3 s.h.

Same as HIST:6635 (016:247), ENGL:6635 (008:231), POLI:6635 (030:242), GEOG:6635 (044:286), ANTH:6635 (113:247), AFAM:6635 (129:231), GRMN:6635 (013:262), SPAN:6904 (035:273), IWP:6635 (181:247), FREN:6142 (009:262), CINE:6635 (048:247), COMM:6635 (036:247).

Translational Biomedicine

Chair

- Gary Rosenthal (Epidemiology/Internal Medicine/Health Management and Policy)

Education directors

- Pamela Geyer (Biochemistry/Obstetrics and Gynecology), Peggy Nopoulos (Psychiatry/ Neurology/ Stead Family Department of Pediatrics)

Graduate degrees: M.S. in translational biomedicine; Ph.D. in translational biomedicine

Web site: <http://icts.uiowa.edu/>

Graduate Programs of Study

- Master of Science in translational biomedicine
- Doctor of Philosophy in translational biomedicine

Master of Science

The Master of Science program in translational biomedicine requires a minimum of 30 s.h. of graduate credit. Each student's plan of study for the two-year program is based on his or her chosen discipline.

The goals of the M.S. program in translational biomedicine are to:

- promote interaction and collaboration among researchers across the spectrum of biomedicine;
- enrich translational vocabulary and an understanding of T1 research (laboratory), T2 research (application to evidence-based practice), T3 research (implementation and dissemination), and T4 research (population studies and policy development) among basic, clinical, and human studies scientists; and
- develop skills in ethical decision making, scientific leadership, team building, networking, and research program management.

The M.S. program is designed to teach members of scientific teams how to move biomedical discoveries into clinical applications and beyond. It is tailored for individuals who have completed training in one area of biomedicine and wish to apply their expertise to the T1-T4 research spectrum. The program admits individuals who hold medical or graduate degrees and are employed by The University of Iowa at the faculty ranks of assistant professor, associate, or instructor or as fellow physicians or postdoctoral scholars/fellows.

Work for the M.S. requires authorship of an original manuscript of publishable quality for a peer-reviewed journal or authorship of a grant proposal for an NIH career award (e.g., K23, K08, K01, R01, R03, R21) or a Veterans Administration Career Award; R03 proposals completed for EPID:6110 (173:211) Grant Writing for Clinical Investigators do not count toward this requirement. Original research manuscripts must be a minimum of 2,500 words. They must include a structured abstract; an introduction that frames the research question; description of methodology for study design, sampling, data collection strategies and sources, and description of data elements and data analysis; description of study results; and a discussion section that describes the relationship of current findings to prior relevant research, the clinical and

policy implications of the findings, and methodological limitations.

The M.S. program in translational biomedicine requires the following course work:

TBM:5000 (163:225) Translational Biomedical Research	9 s.h.
TBM:5001 (163:226) Introduction to Translational Biomedicine	3 s.h.
TBM:5002 (163:227) Critical Thinking and Communication: Study Design and Commercialization	1 s.h.
TBM:5003 (163:228) Critical Thinking and Communication: Scientific Writing and Presentation Strategies	1 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
EPID:6950 (173:295) Clinical Research Ethics	2 s.h.
A course in translational biomedicine critical thinking and communication: career development and the funding process	1 s.h.
A course in translational biomedicine critical thinking and communication: leadership, teamwork, and mentoring	1 s.h.
Electives	6 s.h.

SAMPLE SCHEDULE FOR THE M.S.

First year fall semester—all of these:

TBM:5000 (163:225) Translational Biomedical Research	3 s.h.
TBM:5001 (163:226) Introduction to Translational Biomedicine	3 s.h.
TBM:5002 (163:227) Critical Thinking and Communication: Study Design and Commercialization	1 s.h.

First year spring semester—all of these:

TBM:5000 (163:225) Translational Biomedical Research	3 s.h.
TBM:5003 (163:228) Critical Thinking and Communication: Scientific Writing and Presentation Strategies	1 s.h.
EPID:6950 (173:295) Clinical Research Ethics	2 s.h.

And one of these:

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
EPID:5610 (173:161) Intermediate Epidemiology Data Analysis with SAS and R	3 s.h.

Second year fall semester—all of these:

EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
A course in translational biomedicine critical thinking and communication: career development and the funding process	1 s.h.
Elective	3 s.h.

Second year spring semester—all of these:

TBM:5000 (163:225) Translational Biomedical Research	3 s.h.
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A course in translational biomedicine critical thinking and communication: leadership, teamwork, and mentoring	1 s.h.
Elective	3 s.h.

Doctor of Philosophy

The Doctor of Philosophy program in translational biomedicine requires a minimum of 72 s.h. of graduate credit. Ph.D. students build on their M.S. in translational biomedicine study plan with more advanced work. For information about the Ph.D. program, contact the Translational Biomedicine Program.

Related Certificate: Translational and Clinical Investigation

The Department of Epidemiology and the Institute for Clinical and Translational Science offer the graduate certificate program in translational and clinical investigation; see Translational and Clinical Investigation (p. 1241) (College of Public Health) in the Catalog.

Admission

The Translational Biomedicine Program welcomes M.S. and Ph.D. applicants who have diverse educational and scientific backgrounds and varied research interests. Applicants must have a strong interest and background in a health science profession and knowledge of basic sciences and medicine.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Translational biomedicine applicants must:

- have a doctoral-level degree in a biomedical discipline (e.g., M.D., D.O., D.D.S., D.N.P., Ph.D., PharmD., D.V.M., or equivalent);
- be employed by The University of Iowa as an assistant professor, an associate, an instructor, a fellow physician, or a postdoctoral scholar/fellow;
- be engaged in scientific research with a University of Iowa mentor who has funding from a peer-reviewed source (e.g. NIH, NSF, a foundation, and so forth);
- hold a bachelor's degree from a regionally accredited American college or university or an equivalent degree from a foreign institution, as determined by the University of Iowa Office of Admissions;
- have a g.p.a. of at least 3.00 or the foreign equivalent, as determined by the University of Iowa Office of Admissions; and
- have a Graduate Record Exam (GRE) General Test combined verbal and quantitative score of 300 on the revised test (or 1050 on the old test) and an analytical writing score of 4.0 or above; applicants who already hold a graduate or professional degree may seek a waiver of the GRE requirement.

Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL), or they must have a score of at least 7.0, with no subscore lower than 6.0, on the International English Language Testing System (IELTS).

Applicants must submit a CV, a statement of research interest and career goals, and three letters of

recommendation. One letter must be from the applicant's UI research mentor; the program recommends that the second be a letter of support from the applicant's department chair.

All prospective Ph.D. students, and their mentors, must guarantee that once they are accepted as students in the program, they will be able to devote essentially all of their time over a three-year period to training. For instance, a fellow in the Carver College of Medicine could spend no more than two months each year working on clinical assignments (e.g., two months of inpatient assignments or one month of inpatient assignments and one-half day per week in a clinic).

Facilities

Training is conducted mainly in the laboratories and teaching facilities of the Carver College of Medicine and the College of Public Health. The University of Iowa Institute for Clinical and Translational Science is available for research training. The program also is linked with the Carver College of Medicine's graduate training program in clinical research.

Courses

TBM:3001 (163:001) Introduction to Translational Research 2 s.h.

Array of scientific studies translated into clinical solutions; creative ideas balanced with practical strategies for implementation at bedside; expansive number of career opportunities becoming available in translational sciences. Prerequisites: BIOL:1411 (002:031) and MATH:1460 (22M:016). Requirements: admission to clinical and translational science certificate program.

TBM:3002 (163:002) Practicum in Clinical and Translational Science 2 s.h.

How research experience translates into clinical practice; translational impact of independent research; summary of research accomplishments; outline of a translational paper that is mutually acceptable to student, preceptor, and faculty; submission of paper and completion of poster presentation describing research project and translational application of research. Prerequisites: BIOL:1411 (002:031) and MATH:1460 (22M:016). Requirements: admission to clinical and translational science certificate program.

TBM:5000 (163:225) Translational Biomedical Research arr.

Student research guided by mentor.

TBM:5001 (163:226) Introduction to Translational Biomedicine 3 s.h.

Basis for clinical and translational research; introduction to principles of experimental design for patient- and population-oriented research; approaches available to clinical and translational investigators (e.g., statistics, questionnaires, ethics, imaging, information technology); infrastructure that supports clinical and translational investigators at The University of Iowa and nationally; for early-career clinicians/scientists and established investigators. Requirements: enrollment in translational biomedicine M.S. program.

TBM:5002 (163:227) Critical Thinking and Communication: Study Design and Commercialization 1 s.h.

Various study design methodologies and process of commercialization; presentations of current projects. Requirements: candidacy for M.S. in translational biomedicine.

TBM:5003 (163:228) Critical Thinking and Communication: Scientific Writing and Presentation Strategies 1 s.h.

Grant development and journal writing process; development of effective scientific presentations.

TBM:5100 (163:295) Preceptorship in Translational and Clinical Investigation arr.

Structured experience in conducting translational and clinical research, data analysis, and producing a publication-quality report.

Transportation Studies

Director

- Paul F. Hanley

Affiliated faculty

- Marc P. Armstrong (Geographical and Sustainability Sciences), M. Asghar Bhatti (Civil and Environmental Engineering), John W. Fuller (Urban and Regional Planning/Economics/Public Policy Center), Paul F. Hanley (Urban and Regional Planning/Civil and Environmental Engineering/Public Policy Center), Jon G. Kuhl (Electrical and Computer Engineering/Public Policy Center), Hosin David Lee (Civil and Environmental Engineering/Public Policy Center), Miwa Matsuo (Urban and Regional Planning), Wilfrid A. Nixon (Civil and Environmental Engineering), Gerard Rushton (Geographical and Sustainability Sciences/Health Management and Policy), Thomas Schnell (Electrical and Computer Engineering/Neurology/Mechanical and Industrial Engineering/Occupational and Environmental Health)

Graduate certificate: transportation studies

Web site: <http://ppc.uiowa.edu/>

Transportation is vital to modern society. The United States, like other nations, faces many critical transportation problems and issues. The highway system is reaching an advanced stage of its life cycle, public transit operating deficits are growing, the quality of transportation available to many citizens is unacceptably low, serious inequities exist between transportation modes, and extensive changes are called for in traditional transportation institutions. New approaches to financing the nation's road system are badly needed.

Transportation engineers and planners draw on a number of skills to respond to the challenges they face. They must analyze and forecast the movement of people and goods within and between cities; identify effective and efficient means for providing desired transportation services; price these services properly; and evaluate the impact that transportation changes have on land use, environmental quality, the local or regional economy, and various subgroups within society.

No single academic discipline can supply all of the theories, principles, or methods needed to address the varied and complex problems in transportation. Recognizing this, the Department of Civil and Environmental Engineering (p. 892) and the School of Urban and Regional Planning (p. 998) participate in the interdisciplinary Transportation Studies Program, through which students in the participating units can earn the Certificate in Transportation along with their graduate degrees.

The Department of Mechanical and Industrial Engineering (p. 917) also participates in the transportation certificate program, offering courses in human factors and safety issues in transportation, and the Department of Geographical and Sustainability Sciences (p. 334) offers courses in geographic information systems (GIS), location theory, and other related areas.

Graduate Program of Study

- Certificate in Transportation Studies

Certificate

The Certificate in Transportation Studies requires 18 s.h. of graduate credit. Students may earn the certificate in conjunction with an M.S. or Ph.D. in civil and environmental engineering or with an M.A. or M.S. in urban and regional planning.

Individuals working toward degrees in other transportation-related disciplines are encouraged to apply to the Transportation Studies Program. Depending on a student's background, additional course work in statistics, computer programming, simulation, mathematics, and operations research may be required for the certificate. Credit earned in these courses may not be applicable to the student's degree program.

Completion of the certificate is noted on the student's transcript.

Students enrolled in the certificate program may wish to participate in faculty-led transportation research, which may explore topics such as system planning, traffic operations and engineering, spatial data systems and analysis, simulation applications, and policy issues.

The Certificate in Transportation Studies is coordinated by the Public Policy Center in conjunction with the Graduate College.

Certificate with M.S. or Ph.D. in Civil and Environmental Engineering

Students working toward a Master of Science or a Doctor of Philosophy in civil and environmental engineering may earn the Certificate in Transportation Studies by completing the courses listed below (18 s.h.). Not all courses are offered every semester; consult ISIS to determine when specific courses are offered.

Fall Semester

CEE:4763 (053:163) Traffic Engineering	3 s.h.
CEE:4764 (053:164) Winter Highway Maintenance	3 s.h.
URP:6266 (102:266) Transportation and Land Use Planning	3 s.h.

Spring Semester

Three of these:

CEE:4160 (053:160) Introduction to Bridge Engineering	3 s.h.
CEE:4167 (053:167) Public Transit Operations and Planning	3 s.h.
CEE:4176 (053:176) Transportation Demand Analysis	3 s.h.
CEE:4568 (053:168) Civil Infrastructure	3 s.h.
CEE:4762 (053:162) Design of Transportation Systems	3 s.h.
CEE:4763 (053:163) Traffic Engineering	3 s.h.

Engineering students may apply to the certificate program through the Graduate College and the Department of Civil and Environmental Engineering. See Civil and Environmental Engineering (p. 892) (College of

Engineering) for information about graduate study and degree requirements in that department.

Certificate with M.A. or M.S. in Urban and Regional Planning

Students working toward a Master of Arts or Master of Science in urban and regional planning may earn the Certificate in Transportation Studies by completing a total of 18 s.h. from the courses listed below. Not all courses are offered every semester; consult ISIS to determine when specific courses are offered.

Fall Semester

URP:6265 (102:265) Planning Sustainable Transportation	3 s.h.
URP:6266 (102:266) Transportation and Land Use Planning	3 s.h.
URP:6268 (102:268) Freight Transportation Planning	3 s.h.
URP:6269 (102:269) Transportation Program Seminar	1 s.h.

Spring Semester

URP:4195 (102:195) Public Transit Operations and Planning	3 s.h.
URP:4262 (102:162) Transportation Demand Analysis	3 s.h.
URP:6260 (102:260) Transportation Policy and Planning	3 s.h.
URP:6264 (102:264) Transportation Planning Process	2-3 s.h.

Urban and regional planning students may apply to the certificate program through the Graduate College and the School of Urban and Regional Planning. See Urban and Regional Planning (p. 998) (Graduate College) for information about graduate study and degree requirements in the school.

Urban and Regional Planning

Director

- Charles E. Connerly

Professors

- Charles E. Connerly, John W. Fuller

Associate professors

- Jerry A. Anthony, Paul Hanley, Lucie Laurian

Assistant professors

- Phuong Nguyen, Haifeng Qian, Scott Spak, Steven Spears, Aaron Strong

Adjunct lecturers

- Leslie Beck, Bart Cramer, David Dunn, Robert Gassman, Rick Havel, Ron Mirr, Jeffrey Schott, Dan Swartzendruber, David Swenson

Professors emeriti

- Peter S. Fisher, James A. Throgmorton

Graduate degrees: M.A. in urban and regional planning; M.S. in urban and regional planning

Web site: <http://urban.uiowa.edu/>

Urban and regional planning encompasses the development and implementation of public policies that improve the quality of life in cities and regions. Today's planners find themselves in demand for such diverse jobs as transport planner, zoning administrator, environmental analyst with a natural resources agency, economic development planner, regional solid waste management coordinator, state public health planner, neighborhood planner, state legislative analyst, and transportation consultant.

Graduate Programs of Study

- Master of Arts in urban and regional planning
- Master of Science in urban and regional planning

The Master of Arts and Master of Science are two-year degree programs fully accredited by the Planning Accreditation Board. Each is built on the premise that planners must be educated in methods of policy analysis and that there is a common body of knowledge, represented in the core curriculum, that provides a solid foundation for all specializations in the field.

A wide range of educational backgrounds provide good preparation for graduate study in urban and regional planning. Students with undergraduate majors such as geography, economics, English, political science, engineering, architecture, sociology, urban studies, and history currently study in the school. More than 60 full-time students and a few part-time students are enrolled. About half of them are women, and about 10 percent are international students.

The common core of courses and the design of the facilities allow students to get to know each other quickly. Students interact closely with faculty members in the classroom, in informal conversation, and while working on research projects.

Recent graduates of the school have taken positions with city, metropolitan, and regional planning agencies,

state and federal government, nonprofit organizations, and private consulting firms. They work in all geographic regions of the United States and in several countries around the world.

Graduate students working toward a master's degree in urban and regional planning may elect to pursue one of the joint degree programs offered by the school in collaboration with the College of Engineering, the College of Law, the College of Public Health, and the School of Social Work. The school also participates in the Transportation Studies Program, which offers a graduate certificate. See "Joint Degrees" and "Related Certificate: Transportation Studies" below.

Master of Arts, Master of Science

The Master of Arts and Master of Science programs in urban and regional planning require 50 s.h. of graduate credit. The graduate curriculum is based on the philosophy that planners must develop the theoretical and analytic skills that will permit them to analyze social problems and evaluate public policies. Planners also must cultivate professional skills such as report writing, oral presentation, computer use, and team management in order to work effectively in various organizational and political environments.

Work for the master's degree includes core courses, an area of concentration, electives, and capstone courses. A final examination is required for both degrees. A thesis is not required, although students may petition to write one. Students are encouraged to complete an approved internship or practicum.

All students, including those in joint degree programs, must complete a minimum of 35 s.h. of planning courses (prefix URP). Students must earn a grade of B-minus or higher in all core and concentration area courses and must maintain an overall graduate g.p.a. of at least 3.00.

The M.A. and M.S. in urban and regional planning require the following work.

CORE CURRICULUM

The core curriculum helps students develop an understanding of the institutions—social, economic, political, administrative, and legal systems—that provide the context for policy analysis and that constrain public choices. It also promotes development of the ability to identify social goals and normative criteria for evaluating public policies, as well as the analytic skills to perform such investigations.

The core requires a total of 23 s.h., including at least 3 s.h. in an advanced economic methods course. Early core courses are drawn primarily from traditional disciplines, particularly economics and statistics, and include an introduction to land use planning and to theories and practice of planning. As students proceed through the curriculum, increasing emphasis is placed on the development of critical judgment and insight, achieved through the application of theory and methods to realistic planning problems and case studies. The advanced economics methods course usually is taken during the first three semesters.

The core curriculum includes the following courses; students may request a waiver of selected core courses on the basis of previous course work.

URP:6200 (102:200) Analytic Methods in Planning I	3 s.h.
URP:6201 (102:201) Analytic Methods in Planning II	3 s.h.
URP:6202 (102:202) Land Use Planning: Law and Practice	4 s.h.
URP:6203 (102:203) History and Theories of Planning	3 s.h.
URP:6205 (102:205) Economics for Urban Planners	3 s.h.
URP:6208 (102:208) Program Seminar in Planning Practice	1 s.h.
URP:6258 (102:248) Modeling Dynamic Systems	3 s.h.

Advanced economic methods—at least one of these:

URP:6233 (102:223) Financing Local Government	3 s.h.
URP:6290 (102:290) Economic Impact Assessment	3 s.h.

CONCENTRATION AREA

Beginning in the second semester, students choose a concentration area and develop it by applying the concepts and skills developed in the core. Currently, the school's faculty and course offerings support five concentration areas: transportation planning, housing and community development, economic development, land use and environmental planning, and geographic information systems.

Students complete at least 9 s.h. of courses in their concentration area. Courses offered by other University departments and programs may supplement those offered by the School of Urban and Regional Planning.

Students may combine two concentration areas. Examples of combined areas are environmental and economic development planning, and transportation and community development planning. Students also may design other concentration areas, subject to faculty approval. For example, they may specialize in health services planning with appropriate course work in the Department of Health Management and Policy or Occupational and Environmental Health, or in human services planning with courses in the School of Social Work.

CAPSTONE COURSES

Students complete the following two capstone courses, usually during the third and fourth semesters. Students who complete a practicum are exempt from this requirement.

URP:6209 (102:209) Field Problems in Planning I	3 s.h.
URP:6210 (102:210) Field Problems in Planning II	3 s.h.

INTERNSHIP

Students are encouraged to complete an internship in a planning agency or related organization. To earn 2 s.h. of credit for the internship, students must submit a brief paper summarizing and evaluating their experience. Internships usually are paid staff positions and are completed during the summer between the first and second years or during the academic year.

PRACTICUM

An extended internship, consisting of at least five months of full-time employment in a planning-related organization, may qualify as a practicum. A practicum generally takes place during summer after the first year and into the fall semester of the second year. It carries 5 s.h. of credit and substitutes for the internship and the capstone courses.

THESIS

A thesis is not required, although students may petition to write one. Students may register for up to 6 s.h. of thesis credit. In addition, they may take up to 8 s.h. of readings to develop a thesis topic and prepare a literature review.

FINAL EXAM

A final examination is required for all M.A. and M.S. students. An oral exam constitutes the final exam for students who do not write a thesis.

TYPICAL MASTER'S DEGREE SCHEDULE

First semester:

URP:6200 (102:200) Analytic Methods in Planning I	3 s.h.
URP:6202 (102:202) Land Use Planning: Law and Practice	4 s.h.
URP:6203 (102:203) History and Theories of Planning	3 s.h.
URP:6205 (102:205) Economics for Urban Planners	3 s.h.
URP:6208 (102:208) Program Seminar in Planning Practice	1 s.h.

Second semester:

URP:6201 (102:201) Analytic Methods in Planning II	3 s.h.
Economic methods core course	3 s.h.
Electives and area of concentration courses	6-9 s.h.

Third semester:

URP:6209 (102:209) Field Problems in Planning I	3 s.h.
URP:6258 (102:248) Modeling Dynamic Systems	3 s.h.
Economic methods core course (if not already taken)	3 s.h.
Electives and area of concentration courses	3-6 s.h.

Fourth semester:

URP:6210 (102:210) Field Problems in Planning II	3 s.h.
Electives and area of concentration courses	9 s.h.

Joint Degrees

The School of Urban and Regional Planning participates in several joint degree programs, in which students work toward an M.A. or M.S. in urban and regional planning at the same time they work toward another degree. Joint degree programs enable students to earn both degrees in less time than it would take to earn the two degrees separately. The following joint degree programs are available.

Joint B.S.E. in civil engineering/M.A. or M.S. in urban and regional planning; see Bachelor of Science in

Engineering (p. 861) and Civil and Environmental Engineering (p. 892) (College of Engineering) for information about the Bachelor of Science in Engineering.

Joint J.D./M.A. or M.S. in urban and regional planning; see College of Law (p. 1005) for information about the Juris Doctor.

Joint M.H.A./M.A. or M.S. in urban and regional planning; see Health Management and Policy (p. 1218) (College of Public Health) for information about the Master of Health Administration.

Joint M.S. in occupational and environmental health/ M.A. or M.S. in urban and regional planning; see Occupational and Environmental Health (p. 1233) (College of Public Health) for information about the Master of Science in occupational and environmental health.

Joint M.S.W./M.A. or M.S. in urban and regional planning; see Social Work (p. 586) (College of Liberal Arts and Sciences) for information about the Master of Social Work.

Requirements for each joint degree program vary, but urban and regional planning requirements in each program include completion of at least 35 s.h. in School of Urban and Regional Planning courses (prefix URP), completion of the concentration area requirement, and the master's degree final examination.

Students who wish to enter a joint degree program must apply to each of the two degree programs separately; they must be admitted to both programs before they may be admitted to the joint program. Contact the admissions coordinator at the School of Urban and Regional Planning for more information about joint degree programs.

Related Certificate: Transportation Studies

The Transportation Studies Program offers the Certificate in Transportation Studies, which requires 18 s.h. of graduate credit. The program focuses on the varied and complex problems of transportation and on interdisciplinary approaches to addressing them. The Departments of Civil and Environmental Engineering, Mechanical and Industrial Engineering, and Geographical and Sustainability Sciences and the School of Urban and Regional Planning participate in the program, which is administered by the Graduate College and the University's Public Policy Center. See Transportation Studies (p. 996) (Graduate College) in the Catalog for more information about the certificate.

Admission

Admission to the School of Urban and Regional Planning is open to students from any undergraduate major or concentration area.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Admission is based on Graduate Record Examination (GRE) General Test scores (verbal, quantitative, and analytical writing), letters of recommendation, previous academic performance, and a written statement of

purpose. International applicants whose first language is not English are required to submit official TOEFL scores.

Applicants should submit an application form, GRE General Test scores, TOEFL score (for students whose first language is not English), recommendation letters, statement of purpose, and transcripts. For fall admission, applications should be submitted to arrive early in the year (preferably by January 15), although applications are accepted until July 15 (April 15 for international students). Applications for spring admission should be received by October 1 and no later than December 1. Fall admission is strongly preferred. Students applying for financial aid should submit their materials by January 15.

Financial Support

Students in the School of Urban and Regional Planning receive financial support from the program primarily from teaching or research assistantships and from contract or grant-funded assistantships. Assistantships typically require 10 hours of work per week under the direction of a faculty member. A few full or partial tuition scholarships also are available.

Students initiate applications for financial support, and awards are made on the basis of merit, experience, and interests. Assistantships may be renewed for a total of up to four semesters.

Students applying for financial support are encouraged to submit application materials and requests for support by January 15. Students who apply after that date are considered only as remaining funds permit. Financial support usually is not available for students beginning the program in the spring semester.

Courses

URP:3001 (102:101) Planning Livable Cities 3 s.h.

Development of livable cities in the United States; economic, physical, environmental, and political forces that shape their growth; impact of planning, how it shapes the future of cities. Same as GEOG:3920 (044:136).

URP:3134 (102:134) Regional and Urban Economics 3 s.h.

Theory of location and regional development; central place theory; why cities exist and trade with one another; models of land use patterns, rents; empirical tests of models; policy applications. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002). Same as ECON:3640 (06E:135).

URP:3135 (102:135) Environmental and Natural Resource Economics 3 s.h.

Environmental and resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002). Same as ECON:3625 (06E:133).

URP:3136 (102:136) Development of Local and Regional Economies 3 s.h.

Theories, methods, and public policy in regional economic development; business and industrial locations, theories of regional growth and development, tools for regional economic analysis, technology and knowledge economy, globalization and trade, economic development finance and policy. Recommendations: introductory microeconomics. Same as ECON:3610 (06E:130).

URP:3140 (102:140) Planning for Sustainability 2-3 s.h.

How planners are pursuing sustainable futures for cities and regions; green building, alternative forms of transportation, sustainable management of natural resources, renewable energy opportunities, urban form, natural hazard mitigation, waste management, smart growth; U.S. and international practice.

URP:3350 (102:133) Transportation Economics 3 s.h.

Overview of transportation markets—intercity, rural, urban; transportation modes—rail, highway, air, water, pipeline, transit; issues in finance, policy, planning, management, physical distribution, and environmental, economic, and safety regulation. Recommendations: ECON:1100 (06E:001) and ECON:1200 (06E:002). Same as GEOG:3940 (044:133), ECON:3750 (06E:145).

URP:4150 (102:150) Water Resource Economics 3 s.h.

Common world water scarcity and water quality issues; economics that provide valuable insights and tools and help contribute solutions to problems; surface water allocation, ground water allocation, surface water quality issues derived from point and nonpoint source pollutants, and water demand; linear and nonlinear programming, cost-benefit analysis, regression analysis (emphasis on maximum likelihood estimation), and cost avoidance techniques.

URP:4170 (102:170) Megacities Seminar 1-3 s.h.

Global historical, political, economic, urban, and cultural aspects of megacity development; planning methods to address contemporary and emerging issues; critical analysis of peer-reviewed literature and computational simulations; topics include urban sprawl, poverty and inequality, economies, food scarcity, population growth, governance models, environmental and health concerns, sustainability.

URP:4195 (102:195) Public Transit Operations and Planning 3 s.h.

Bus, light and heavy rail, and paratransit modes; transit operations, planning, modeling and optimization, transit agency economics, transit finance, and evolving transportation policy; skills essential to planners and engineers who intend to work for a either planning agency, transportation provider, or a transportation or planning consulting firm; individual and group projects involving transit operations. Requirements: undergraduate or graduate standing in engineering, or graduate standing in urban and regional planning. Same as CEE:4167 (053:167).

URP:4262 (102:162) Transportation Demand Analysis 3 s.h.

City planning procedures and traffic engineering techniques applied to transportation problems; trip generation, distribution, assignment, mode choice models; travel surveys, data collection techniques; arterial flow, intersection performance, parking; transit system analysis. Same as CEE:4176 (053:176).

URP:4750 (102:125) Environmental Impact Analysis 4 s.h.

Environmental impact assessment methodologies; emphasis on cost-benefit-risk, cost-effectiveness and incremental analysis, and overlay and graphic techniques; optimal resource use, system simulation; field trips to local environmental control facilities. Prerequisites: GEOG:1070 (044:019). Same as GEOG:4750 (044:125).

URP:6063 (102:263) Application Simulation to Transportation 3 s.h.

Transportation system management and traffic engineering; application of real-time simulation and visualization. Prerequisites: CEE:3763 (053:063) or CEE:4763 (053:163). Same as CEE:6763 (053:263).

URP:6200 (102:200) Analytic Methods in Planning I 1-3 s.h.

Methods used in planning and policy analysis; emphasis on application of statistical techniques and quantitative reasoning to planning problems; use of computers and data systems in planning analysis.

URP:6201 (102:201) Analytic Methods in Planning II 2-3 s.h.

Integration of methods with the planning process; application of multiple regression, population estimation and projection, survey methods, time series analysis, industrial growth and change; presentation of results to decision makers and the public. Prerequisites: URP:6200 (102:200).

URP:6202 (102:202) Land Use Planning: Law and Practice 4 s.h.

Legal, social foundations of land use planning; comprehensive planning, zoning and subdivision review; legal aspects of land use, environmental planning; ordinance drafting; staff report writing; citizen participation.

URP:6203 (102:203) History and Theories of Planning 3 s.h.

History of urban planning in America as a reflection of social and economic forces; alternative planning philosophies, roles, and ethical choices open to planners.

URP:6205 (102:205) Economics for Urban Planners 3 s.h.

Principles of economics for planners; concepts and techniques of microeconomic analysis; income inequality; the role of government in the economy; tax and pricing policy; project evaluation; externalities.

URP:6208 (102:208) Program Seminar in Planning Practice 1 s.h.

Planning process, roles of planners, professional ethics and standards.

URP:6209 (102:209) Field Problems in Planning I 3 s.h.

Experience working on a two-semester project involving a current planning issue, usually for a client. Requirements: urban and regional planning graduate standing.

URP:6210 (102:210) Field Problems in Planning II 3 s.h.

Continuation of URP:6209 (102:209). Prerequisites: URP:6209 (102:209). Requirements: urban and regional planning graduate standing.

URP:6211 (102:211) Community Outreach Practicum 1-3 s.h.

Application of planning skills to community work by non-profit organizations in local area; urban planners contributing to their communities; community outreach.

URP:6216 (102:216) Conflict, Negotiation, and Planning 3 s.h.

Conflict within communities, and planners' responses; networking, negotiating, mediating, coalition building, consensus building; case studies, role playing.

URP:6222 (102:222) Urban Design for Non-Designers 3 s.h.

Principles of urban design and the importance of good, well thought out urban design; background in urban design for policy planners and non-designers; past, present, and future of urban design.

URP:6225 (102:215) Applied GIS for Planners 3 s.h.

Analysis of Census of Population data using GIS software; data and analytical needs of urban planners; coverage of GIS topics to plan functions of GIS and spatial analysis, varied GIS software in a planning organization; structure of the Census.

URP:6227 (102:217) Spatial Analysis in Planning 3 s.h.

Data bases, GIS, planning support systems; spatial model building and use of spatial statistics; applications to substantive problems in transportation, environment, housing, economic development. Prerequisites: URP:6225 (102:215).

URP:6228 (102:218) GIS for Local Government 1 s.h.

Development, maintenance, and operation of an enterprise-wide Geographic Information System (GIS); implementation of a parcel-based data system model common to government entities; practical experience using data for land-use planning analysis.

URP:6229 (102:219) Practicum 5 s.h.

Full-time internship of at least five months with a planning-related organization. Requirements: urban and regional planning graduate standing.

URP:6230 (102:220) Virtual Reality and Urban Development 3 s.h.

Creation of terrain models from DEMs and CAD-based site plans, panoramas, incorporation of existing and proposed buildings into virtual reality models; use of VRML and presentation strategies, including digital movies.

URP:6233 (102:223) Financing Local Government 3 s.h.

Financing of local government infrastructure through property taxes, bonding, impact fees, pricing, tax increment financing; institutional alternatives—downtown improvement districts, special districts, homeowners' associations; fiscal disparities and regional finance; case studies. Prerequisites: URP:6205 (102:205).

URP:6235 (102:225) Geodatabases and GIS 1 s.h.

Geodatabase implementation in the management of large GIS data sets. Prerequisites: URP:6225 (102:215).

URP:6242 (102:232) Planning and City Administration 1 s.h.

Relationship of planners and other local government personnel; how planning fits into city management; city management view of local political process, provision of city services, finance and budgeting, human resources, intergovernmental relations, how meetings are run, dealing with the public.

URP:6243 (102:233) The Land Development Process 3 s.h.

How land is developed; analysis of site suitability, preparation of subdivision plan, site plan review, development approval process, infrastructure and site preparation, negotiating local development politics; field trips. Prerequisites: URP:6202 (102:202).

URP:6245 (102:235) Growth Management 3 s.h.

Causes and consequences of urban sprawl, shortfalls in conventional land use planning; local and state growth management policies, techniques of policy implementation, positive and negative impacts of such policies; Smart Growth; emerging challenges. Prerequisites: URP:6202 (102:202).

URP:6249 (102:249) Sustainability Seminar 1 s.h.

Focus of increasing interest for planning students and practicing planners; involves environmental effects, economy, social justice; discussion and investigation of sustainability practice applied to local and regional efforts of public and private entities; greater awareness and understanding of the effectiveness and resource requirements of local activities addressing sustainability; presentations by the instructor, local tours, guest lectures.

URP:6253 (102:243) Healthy Cities and the Environment 3 s.h.

Foundations of environmental planning for healthy cities and communities; how urban form, air and water quality, and natural hazards affect environmental planning and health.

URP:6256 (102:246) Environmental Policy 3 s.h.

Environmental policy formation and politics; comparative international perspective on the United States' experience.

URP:6257 (102:247) Environmental Management 3 s.h.

Environmental best management practices for sustainable management of natural resources; open space and habitat protection, prairie and wetland restoration, water supplies management, natural hazard mitigation, farmland protection.

- URP:6258 (102:248) Modeling Dynamic Systems** 3 s.h.
 Nonlinear dynamics in human-environment relationships; quantitative modeling of global environment processes; environment modeling for policy and land use planning; introduction to fundamentals of linked global-scale environment processes from a systems perspective, focus on historical and contemporary role of human activities in altering flows of energy and mass within the Earth system; hands-on simulation and group games to understand feedback loops in complex systems, with applications to land use, water, climate, ecosystems, and nutrient cycles across time and spatial scales; emphasis on quantifying effects of policies and planning on environmental change.
- URP:6260 (102:260) Transportation Policy and Planning** 3 s.h.
 Institutional setting for transportation planning, evolution of domestic transportation policy, international influences, transportation modes and markets, current sources of transportation planning information, emerging policy issues.
- URP:6264 (102:264) Transportation Planning Process** 2-3 s.h.
 Technical issues, political interface, citizen involvement, intermodal questions, public versus private roles; review and critique of transportation plans.
- URP:6265 (102:265) Planning Sustainable Transportation** 2-4 s.h.
 Theories and methods of exerting public control over passenger and freight transportation; social and environmental regulation; effects of changing finance, regulation, and pricing policies, including privatization, tolls, impact fees. Same as GEOG:6264 (044:265).
- URP:6266 (102:266) Transportation and Land Use Planning** 3 s.h.
 Policies and interactions between transportation and land use; location theories and practices; transportation infrastructure, land use, travel behavior modeling; current policies that influence travel behavior and urban form.
- URP:6268 (102:268) Freight Transportation Planning** 3-4 s.h.
 Freight transportation planning in the United States; surface modes, primarily trucking and rail, as well as trade-offs in bulk movements by inland waterways and pipelines; comparison with recent developments in policy, planning, and practice for surface transportation in other developed economies (e.g., Europe).
- URP:6269 (102:269) Transportation Program Seminar** 1 s.h.
 Transportation finance, safety and economic regulation, planning processes, management, government policy issues at federal, state, and local levels.
- URP:6271 (102:271) Housing Policy** 3 s.h.
 Recent housing policy initiatives at federal, state, and local levels.
- URP:6273 (102:273) Community Development** 3 s.h.
 Community Development Corporation involvement in housing and neighborhood revitalization; infill housing development and preservation; comprehensive community development initiatives.
- URP:6277 (102:277) Affordable Housing Finance** 3 s.h.
 Financing development or rehabilitation of affordable housing; low-income housing tax credits, the housing finance system and current regulatory issues, mortgage discrimination, improving financing for rental housing.
- URP:6278 (102:278) Nonprofit Organizational Effectiveness I** 3 s.h.
 Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as SLIS:6430 (021:263), MGMT:9150 (06J:247), LAW:8751 (091:320), HMP:6360 (174:247), SSW:6247 (042:247), MUSM:6010 (024:247), SPST:6010 (028:257), RELS:6070 (032:227).
- URP:6279 (102:279) Nonprofit Organizational Effectiveness II** 3 s.h.
 Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Requirements: for LAW:8752 (091:322) — LAW:8751 (091:320); for HMP:6365 (174:248) — HMP:6360 (174:247) or MGMT:9150 (06J:247) or MUSM:6010 (024:247). Same as MGMT:9160 (06J:248), LAW:8752 (091:322), SLIS:6435 (021:265), SSW:6248 (042:248), HMP:6365 (174:248), MUSM:6020 (024:248), SPST:6020 (028:258), RELS:6075 (032:228).
- URP:6280 (102:280) Planning for Disaster Mitigation and Recovery** 2-3 s.h.
 Types of disasters that communities face; what role planners play, what role should they play; importance of hazard mitigation and planning for post-disaster recovery; where planners' unique skills play the most significant roles in aiding a community to redesign a safer future.
- URP:6282 (102:282) Grant Writing** 1-2 s.h.
 Same as SSW:6282 (042:282).
- URP:6284 (102:284) Green Building and LEED** 1-2 s.h.
 Preparation to earn LEED Green Associate professional credential; introduction to green building concepts and strategies as they relate to the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) rating system.
- URP:6290 (102:290) Economic Impact Assessment** 3 s.h.
 Economic impact and growth analysis, including economic base, income expenditure, input-output analysis; use of economic impact analysis in a cost-benefit context; industrial location and mobility theory with statistics applications. Prerequisites: URP:6205 (102:205).
- URP:6295 (102:295) Economic Development Policy** 3 s.h.

Analysis of policies and programs at national, regional, state, and local levels that address problems of economic growth, development, decline.

URP:6297 (102:297) Community Development Finance 3 s.h.

Financial statements and small business finance; local revolving loan funds for small businesses; evaluation of loan proposals; community development agency financing of commercial redevelopment; case studies of community development lending. Prerequisites: URP:6205 (102:205).

URP:6300 (102:300) Special Topics in Planning 1-3 s.h.

URP:6305 (102:305) Readings arr.

URP:6315 (102:315) Independent Study in Planning 1-6 s.h.

Research and analysis of a special planning problem; opportunity to apply knowledge in area of specialization.

URP:6320 (102:320) Introduction to Graphic Communications 2 s.h.

Visual communication techniques through use of print and digital media; how to graphically convey concepts and information to a variety of audiences; basic design principles to build a foundation in graphic communication; relationships between various software packages; advantages and shortcomings of various digital tools; development of professional graphic media that is beautiful and effective.

URP:6325 (102:325) Thesis: Urban and Regional Planning arr.

URP:6335 (102:335) Internship 2 s.h.

Work in a planning or related agency or nonprofit organization.

URP:6337 (102:237) Poverty, Planning, and Public Policy 3 s.h.

Interconnectedness of causes of poverty; operation and outcomes of federal and state antipoverty programs; impact of local planning policies and programs on low income population; ways in which planners in public agencies or advocacy organizations can work to alleviate poverty.

URP:6400 (102:400) Eco-Sensitive, Low-Cost Housing: The Kerala Experience 3 s.h.

Though quality housing is a basic human need, families worldwide don't have it; significant socioeconomic, physical, and financial problems; scale of housing shortage greater in developing countries where governments and nonprofits are forced to devise ingenious, eco-sensitive, lower-cost development techniques; opportunity to visit India and learn about many such innovations; challenges of economic development, environmental protection, culture, politics, and uneven geography of opportunity in a developing country.

College of Law

Dean

- Gail B. Agrawal

Associate deans

- Eric G. Andersen, Arthur E. Bonfield, Carin N. Crain, Marcella David, Linda A. McGuire, Todd E. Pettys

Assistant deans

- Collins B. Byrd, Gordon S. Tribbey

Executive librarian

- Katherine Hall

Professors

- Patricia Acton, Gail B. Agrawal (F. Wendell Miller Professor), John S. Allen (Bouma Clinical Fellow), Eric G. Andersen, Patrick B. Bauer, Christina Bohannon (Lauridsen Family Fellow), Arthur E. Bonfield (Allan D. Vestal Chair), Willard L. Boyd (Rawlings-Miller Professor), Steven J. Burton (John F. Murray Professor), Jonathan C. Carlson (Victor and Carol Alvarez Fellow), Enrique R. Carrasco (Ferguson-Carlson Fellow), Lois K. Cox, Marcella David, Ann Laquer Estin (Aliber Family Chair), Thomas Gallanis (N. William Hines Chair), Josephine Gittler (Wiley B. Rutledge Professor), N. William Hines (Joseph F. Rosenfield Professor), Herbert J. Hovenkamp (Ben and Dorothy Willie Chair), Emily Hughes (Bouma Fellow), Carolyn C. Jones (F. Wendell Miller Professor), Sheldon F. Kurtz (Percy Bordwell Professor), James A. Leach, Visiting Professor and University of Iowa Chair in Public Affairs), Marc Linder, Robert Miller (Arnold Daum Fellow in Corporate Law), Angela Onwuachi-Willig (Charles M. and Marion J. Kierscht Professor), Mark J. Osiel (Aliber Family Chair), Todd E. Pettys (H. Blair and Joan V. White Chair in Civil Litigation), John C. Reitz (Edward L. Carmody Professor), Leonard Sandler, Barbara A. Schwartz, Alexander Somek (Charles E. Floete Chair), John-Mark Stensvaag (Charlotte and Frederick Hubbell Professor), James J. Tomkovicz (Edward F. Howrey Professor), Lea S. VanderVelde (Josephine R. Witte Chair), John Whiston (Herschel G. Langdon Clinical Professor), Adrien Wing (Bessie Dutton Murray Professor)

Associate professors

- Stella Elias, Paul Gowder, Amandeep S. Grewal, Jason Rantanen, Maya Steinitz, Joseph W. Yockey

Lecturers

- Dawn Anderson, James Baker, Michael Bandstra, Sean Berry, Carin Crain, Mark D. Hansing, Randy J. Holland, Gary W. Howell, Patrick Ingram, John A. Jarvey, Nicholas Johnson, Eileen Kamerick, Richard Koontz, Barry Lindahl, Christopher Liebig, Linda A. McGuire, Nathan Miller, Matthew J. Nagle, Linda Neuman, Gay D. Pelzer, Michael Pitton, William Reisinger, Meredith Rich-Chappell, Ann M. Rhodes, Chris Rossi, Lorie Schweer, Caroline Sheerin, Leon F. Spies, Serena Stier, George L. Stigler, Pamela White, C.J. Williams

Professors emeriti

- William G. Buss (Otis K. Patton Professor), Patricia Cain (Aliber Family Professor), Jean Love (Martha Ellen Tye Professor), Barry D. Matsumoto, Paul Neuhauser, Reta

Noblett-Feld, Mark E. Schantz, Larry Ward (Orville L. and Ermina D. Dykstra Chair), Burns H. Weston (Bessie Dutton Murray Professor)

Professional degrees: J.D.; LL.M.; S.J.D.

Web site: <http://www.law.uiowa.edu/>

The University of Iowa College of Law is the oldest law school west of the Mississippi River. Founded in 1865 as the Iowa Law School, the college is a charter member of the American Association of Law Schools and an American Bar Association-approved law school.

One of 12 colleges at The University of Iowa, the College of Law is part of Iowa City's unique cultural community. Students, faculty, and staff work together in a friendly, relaxed, and productive environment that puts students' needs first.

Longstanding commitment to inclusion and diversity is a source of pride for the College of Law, which was one of the first schools in the nation to grant a law degree to a woman (1873) and to an African-American (1879). Diversity is central to the college's educational philosophy and to its core mission of preparing culturally proficient graduates who are capable of intellectual inquiry, critical and reflective thinking, and engagement.

Learn more about the College of Law's history and its commitment to diversity and inclusion by visiting About Us, Milestones, and Diversity at Iowa Law on the college's web site.

The college is at home in the Boyd Law Building, whose facilities were designed specifically for the school's essential activities and services: classes and meetings, study and research, student-faculty interactions, clinical law and cocurricular programs, student organizations, writing resources, career consultation, and more. The University of Iowa Law Library has one of the largest collections of legal materials in the country, with an exceptional research collection of print and electronic resources relating to U.S. domestic law as well as international, foreign, and comparative law. Ample study space and wireless Internet access are available throughout the library. See "Boyd Law Building" and "University of Iowa Law Library" under "Facilities and Resources" later in this Catalog section.

Iowa's challenging law school curriculum carefully balances substantive courses, perspective offerings, examination of ethical values and professionalism, and skills-training programs, including a highly active in-house legal clinic. The college's 9.45-to-1 student-faculty ratio and the faculty's open-door policy ensure that students have opportunities for interaction and collaboration with their law professors.

The college's writing program—one of the strongest among law schools nationwide—is integral to all students' academic experience. During both semesters of their first year, students take a small-section course in legal analysis, writing, and research. During the second and third years, they complete four additional writing units. Among opportunities for completing the writing requirement is work on one of the law school's four student-run scholarly journals: Iowa Law Review, Journal of Corporation Law, Journal of Gender, Race & Justice, and Transnational Law & Contemporary Problems.

The Writing Resource Center supports and builds upon classroom writing instruction and assists students with

a broad range of writing tasks. The center and the writing program as a whole exemplify the law school's personalized attention and dedication to individual learning.

The College of Law offers a strong program of study in the rapidly expanding fields of international and comparative law. In addition to promoting broad social awareness and technical professional competence, the study of international and comparative law provides a theoretical foundation essential for all lawyers by affording unique insight into the nature of law and legal process. It is crucial preparation for lawyers who engage in formulating public policy at all levels of society. It also provides a solid understanding of international law and foreign legal systems, which is fundamental for effective lawyers in an era of global interdependence.

Highlights of the college's international and comparative law program are the Master of Laws (LL.M.) degree program (see "Master of Laws" later in this Catalog section), work on the journal *Transnational Law & Contemporary Problems*, and participation in the Philip C. Jessup International Moot Court Competition. Students also have opportunities for work related to international and comparative law at the University of Iowa Center for Human Rights and in student groups such as the International Law Society.

Over the years, the college has enjoyed great success in preparing women and men to be professional and civic leaders. In the 20th century, Iowa graduates served as U.S. senators and representatives; state governors; federal and state judges; and presidents of the American Bar Association, major universities, and some of the country's largest corporations. Iowa also has been a leader in preparing American law teachers. The college is resolved to continue its traditional role of training future lawyers for positions of professional and community leadership in the 21st century.

Undergraduate Program of Study

The undergraduate Certificate in Human Rights is administered by the College of Law and awarded by University College. For a description of the program, see Human Rights (p. 1263) (University College) in the Catalog.

Professional Programs of Study

- Juris Doctor
- Master of Laws
- Doctor of Judicial Science

The College of Law collaborates with a variety of University of Iowa graduate programs to offer joint J.D./graduate degree programs. See "Joint J.D./Graduate Degrees" later in this section.

Juris Doctor

The Juris Doctor (J.D.) degree requires 84 s.h. of credit. Entering first-year students must take all first-year courses and may not register for different courses or fewer semester hours without the dean of students' permission. No student may enroll during any fall or spring semester for more than 15 s.h., or during any two adjacent summer sessions for more than 12 s.h., of credit that will be applied to the J.D. degree.

To be eligible for a J.D. degree, a student must:

receive course credit for 84 s.h., including no more than 6 s.h. earned in cocurricular or non-law courses or activities;

take and complete all required courses;

satisfy the writing requirement;

complete the course of study required for the degree in no fewer than 27 months and no more than 84 months after beginning law study at the College of Law or at a law school from which transfer credit has been accepted;

achieve a cumulative g.p.a. of at least 2.10; and

satisfy the requirement of receiving "substantial instruction in other professional skills generally regarded as necessary for effective and responsible participation in the legal profession," as set forth in the American Bar Association's Accreditation Standard 302(a)(4) and Standard Interpretations 302-2 and 302-3.

Receiving credit in a course is dependent upon successful completion of a final examination and any assigned work. Students must satisfy all requirements established by the instructor for class attendance, written work, special readings, oral reports, and so forth in order to take the final exam.

Full-time policy: The faculty believes that students receive a better legal education when they devote substantially all of their time to educational pursuits. For this reason, students are expected to pursue their law training on a full-time basis. This policy is consistent with the accreditation standards of the American Bar Association and the Association of American Law Schools. In extraordinary circumstances, it may be possible for students to enroll for fewer than 10 s.h. per semester. Students who believe they may be unable to attend full time should contact the dean of students before registering for classes.

Entrance date: Students enroll in late August, at the beginning of the fall semester. All students attend courses full time during fall and spring semesters and may attend the summer term at any point during their academic careers. Entrants may expect to graduate no earlier than 27 months after beginning law study.

Admission to the Iowa Bar: A rule adopted by the Iowa Supreme Court requires each individual who intends to apply for admission to the Iowa Bar by examination to register with the Iowa Board of Law Examiners and to pay related fees. See Filing Fees and Deadlines on the Iowa Bar Exam web site. Additional details are available from the College of Law registrar or the clerk of the Iowa Supreme Court.

FIRST-YEAR CURRICULUM

The first-year curriculum emphasizes development of analytical skills, a sense of the role of legal institutions in society, and essential writing skills. Each course in the first-year curriculum shares these emphases and conveys substantive knowledge about a particular area of the law. Four courses during the first year are small-section courses. Two of the four (one each semester) cover traditional first-year subjects—civil procedure, constitutional law, contracts, criminal law, property, torts; they usually enroll no more than 40 students each. The

other two are LAW:8032 (091:130) Legal Analysis Writing and Research I (first semester) and LAW:8033 (091:131) Legal Analysis Writing and Research II (second semester), which usually have an enrollment of approximately 20 students each.

First-year students take the following courses.

Fall semester:

LAW:8017 (091:120) Contracts	4 s.h.
LAW:8026 (091:102) Introduction to Law and Legal Reasoning	1 s.h.
LAW:8032 (091:130) Legal Analysis Writing and Research I	2 s.h.
LAW:8037 (091:132) Property	4 s.h.
LAW:8046 (091:364) Torts	4 s.h.

Spring semester:

LAW:8006 (091:104) Civil Procedure	4 s.h.
LAW:8010 (091:116) Constitutional Law I	3 s.h.
LAW:8022 (091:124) Criminal Law	3 s.h.
LAW:8033 (091:131) Legal Analysis Writing and Research II	2 s.h.
Elective	3 s.h.

The two-semester sequence LAW:8032 (091:130) and LAW:8033 (091:131), called Legal Analysis Writing and Research (LAWR), is designed to equip students with effective skills in legal analysis, writing and oral communication (oral advocacy), and research.

LAWR develops students' legal analysis skills throughout the year in connection with every assignment. Analytical skills include the ability to spot legal issues in a fact pattern; to identify legally relevant facts; to synthesize legal rules, principles, policies, and purposes found in the legal materials (e.g., precedents and statutes); and to understand and formulate legal arguments of different kinds.

LAWR develops students' legal writing and oral advocacy skills. Legal writing centers on effectively communicating the legal analysis of a practical problem, whether the purpose is to predict what a court or other decision maker will do, to persuade someone to agree with the writer's conclusions, or to decide a case and explain the decision. Oral advocacy skills center on using legal analysis to persuade someone, such as a judge, to reach a particular conclusion.

LAWR develops legal research skills. Legal research supports legal analysis primarily by identifying the legal materials, especially legal authorities, that form the basis of effective legal arguments and legal conclusions.

Students are expected to achieve the following objectives during the two-semester LAWR sequence:

- acquire the fundamentals of legal reasoning and analysis, including case analysis, fact analysis, application of law to facts, case synthesis, and analogizing and distinguishing cases;
- learn how to identify a legal problem and resolve it, as well as how to determine which facts in a fact pattern are legally significant;
- learn how to generate arguments and counterarguments;
- develop and employ basic research skills within a limited universe of research tools in order to locate

cases and statutes from citations, to find cases on a given subject, to determine the present status of a case, and to exercise judgment in selecting the most appropriate cases from a larger pool of cases (first semester);

- develop and employ a full range of research skills through assignments that place no limitations on the type of research necessary for their completion (second semester);
- develop the ability to write legal documents, including objective memorandums and persuasive briefs, that are clear, concise, analytically sound, and well organized;
- become familiar with how to cite legal authorities properly and learn the appropriate style, tone, and diction for legal writing, depending on the audience;
- write an appellate brief;
- learn argumentative and persuasive legal writing; and
- craft and present a persuasive oral argument.

SECOND- AND THIRD-YEAR CURRICULUM

All students complete three specific required courses plus required writing units during the second and third years. Beyond that, they plan their own course of study for the two years, drawing from a rich menu of mainstream, specialized, clinical, and perspective courses. Second- and third-year courses cover the range of specialties within the legal profession, allowing students to explore and follow their professional interests in a particular career specialization, to write for one of the school's four student-run scholarly journals, to pursue joint degrees in law-related graduate programs, or to simply obtain the widest possible exposure to the legal landscape.

All second- and third-year students must complete the following work.

LAW:8280 (091:232) Constitutional Law II	3 s.h.
One course on legal ethics	
One course on professional skills	
Four writing units beyond the writing requirements of the first year	

Writing units may be completed through a combination of courses and cocurricular programs that include a writing unit, such as seminar papers, independent research papers, clinical law programs, work on any of the college's four journals, Moot Court Board, and advanced appellate advocacy activities. Two of the four writing units must be completed in courses (including seminars and clinical programs) or through independent research in which there is direct, ongoing faculty supervision.

Course of Study Options for J.D. Students

The College of Law offers numerous programs and opportunities that students may draw upon when planning their course of study.

INTERNATIONAL AND COMPARATIVE LAW

The college's international and comparative law program is supported by more than a dozen faculty members who maintain significant teaching and research interests in the field. The program features an extensive selection of courses and related academic activities; opportunities for study abroad; an innovative journal edited by students and faculty members; and several centers where research

in international and comparative law is conducted. The Master of Laws (LL.M.) program draws scholars and visiting professors from around the world.

Additional resources include the Law Library, which maintains holdings of more than 280,000 volumes of international, comparative, and foreign law and a complete United Nations document collection on microfiche; and programming offered across the University by the UI International Programs office.

To learn more, see "Master of Laws" below and visit International and Comparative Law Program on the college's web site.

INNOVATION, BUSINESS, AND LAW

The innovation, business, and law program integrates intellectual property, antitrust, and corporate law to provide a range of academic opportunities for students interested in those disciplines. Visit Innovation, Business, and Law Center to learn more. Not all courses listed on the site are offered every year.

CONCENTRATED AREAS OF STUDY

Students may pursue their interest in a particular subject area by selecting appropriate course work and independent research projects. For example, students interested in intellectual property and competition law may choose from the following courses.

LAW:8146 (091:208) Antitrust Law	3 s.h.
LAW:8301 (091:283) Copyrights	3-4 s.h.
LAW:8331 (091:241) Business Associations	3-4 s.h.
LAW:8643 (091:286) Introduction to Intellectual Property	3-4 s.h.
LAW:8647 (091:289) Competition Policy and Innovation	3 s.h.
LAW:8763 (091:324) Patent Law	2-4 s.h.
LAW:8856 (091:355) Securities Regulation	arr.
LAW:8954 (091:369) Trademarks and Unfair Competition Law	2-4 s.h.
LAW:9429 (091:508) Intellectual Property Advocacy	1-3 s.h.
LAW:9573 (091:618) Cultural Property/Heritage	arr.
LAW:9863 (091:604) Patent Prosecution Seminar	3-4 s.h.

COLLEGE OF LAW SEMINARS

Seminars may be available for up to 4 s.h., of credit. Seminar credit includes two writing units, but students may complete three writing units with the instructor's approval. Seminar formats vary widely; students should check the course descriptions and consult with the instructor before registering.

Many seminars last two semesters. The first semester (usually fall) is the class portion of the seminar; students earn 2 s.h. for a workload equivalent to that of a 2 s.h. course. During the second semester of the seminar (usually spring), students write their papers, earning the remaining credit for the seminar.

Some instructors offer seminars that do not follow the fall-class/spring-writing format. Students may be convened for the seminar as if they were a legislative drafting committee, or they may be required to complete substantial research, drafting, and writing work over the

entire year. The amount of credit for the seminar may be flexible or determined by the class as a whole. Seminars using this format may have required attendance and no-drop policies; students are strongly encouraged to learn what will be expected of them before registering for these seminars.

Papers produced for seminars or independent research may be eligible for entry in competitions, sometimes with cash prizes. Competition announcements are posted at the Writing Resource Center.

CLINICAL LAW PROGRAMS

Students who have completed the equivalent of three semesters toward the J.D. (at least 39 s.h.) are eligible to apply their theoretical knowledge to real cases and projects under the supervision of faculty members and other attorneys through participation in the College of Law's Clinical Law Programs. Clinical law programs reflect the richness and diversity of modern law practice and the College of Law's commitment to clinical education. The clinical programs operate as areas of a law firm within the Boyd Law Building, giving students the opportunity to put their legal skills to use in a variety of practice areas and venues.

Student interns work on cases supervised by full-time faculty members in the in-house clinic. The interns have primary responsibility for representing their clients at all stages of the legal process, including interviewing and counseling, negotiation, fact investigation, depositions, drafting and briefing, and courtroom appearances. Each semester, most interns have an opportunity to argue cases before various state and federal trial or appellate courts or before administrative agencies. Students also provide basic estate planning, document drafting, and other transactional services to clients. In some projects, interns partner with grassroots organizations, nonprofits, businesses, and public officials to solve recurring and systemic problems that cannot be addressed adequately through litigation or traditional legal methods.

Practice areas include consumer rights, criminal defense, disability rights and policy, domestic violence, immigration, international human rights, juvenile court matters, and workers' rights; see Practice Areas on the Clinical Law Programs web site.

FIELD PLACEMENT PROGRAMS

Iowa's Field Placement Program offers high-quality educational experiences that involve students in the performance of legal work in government or nonprofit agencies, criminal prosecution or defense offices, state and federal judges' chambers, international law offices and agencies, and a limited number of private practice and corporate settings. In addition to earning credit for their fieldwork, students in field placements participate in a seminar or tutorial led by a faculty member, where they maximize the learning that they gain from the field experience.

Students may earn a total of 30 s.h. for field placement work, cocurricular course work (e.g., work on a journal, moot court, or other student-organized activity), and courses taken outside the College of Law (see ABA Standard 304, interpretation 304-B). The 30 s.h. total may include a maximum of 14 s.h. earned in field placements.

Students may apply a maximum of 20 s.h. earned in clinic, field placements, and non-College of Law courses,

combined, toward the J.D. degree. they may apply a maximum of 15 s.h. earned in clinic and field placements, combined, toward graduation.

The College of Law also is involved in programs that do not offer academic credit. Each summer it participates in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state. The college also helps place students in a variety of unpaid clerkships and internships nationwide that provide insight into the workings of the legal system.

STUDY ABROAD

The College of Law administers a consortium of American law schools that offers a study abroad program at Florida State University's London study center. Students spend spring semester at the center studying American and English law with faculty members from Iowa's College of Law and the University of London. They may earn up to 15 s.h.; options include courses and an externship placement opportunity. Learn more about the program and how to apply at London Law Consortium.

Students may earn up to 8 s.h. of College of Law credit for intensive course work in Arcachon, France, for around four weeks in May and June. Courses are taught in English by College of Law professors and French instructors. Visit Summer Program in Arcachon, France to learn more about the program and how to apply.

The college participates in three exchange programs that permit students to earn 12-15 s.h. of credit through courses taught in English. Two students may attend the Universidade Católica Portuguesa School of Law (Lisbon campus) each fall semester; three students may attend Radboud University in Nijmegen, the Netherlands, during fall and spring semesters; and two students may attend the Peking University School of Transnational Law in Shenzhen, China. Learn more at the Católica University, Radboud University, and Peking University School of Transnational Law pages on the College's Study Abroad web site.

LEARNING BEYOND THE CLASSROOM

In addition to the course of study options listed above, J.D. students have numerous opportunities to enhance and supplement their legal, learning, and professional skills outside the classroom setting. They may participate in the college's cocurricular activities, which include four student-produced journals, Moot Court, and the Trial Advocacy Program. They also have access to opportunities and resources provided through the Academic Achievement Program, the Citizen Lawyer Program, and the Writing Resource Center. See "Academic Achievement Program," "Citizen Lawyer Program," and "Cocurricular Programs" below; see "Writing Resource Center" under "Facilities and Resources" toward the end of this Catalog section.

ACADEMIC ACHIEVEMENT PROGRAM

The College of Law Academic Achievement Program (AAP) helps students make the most of their potential by developing the academic skills they will need in order to succeed in law school. AAP services are open to all law students, with a special emphasis on helping first-year students as they make the transition from successful undergraduate careers to the unique challenges of law study. AAP counselors are available to meet one-on-one with students to discuss academic skills and

strategies. AAP coordinates programs on legal study skills and exam taking as part of the 1L Core Series. In the spring semester, AAP convenes a voluntary small-group workshop series for first-year students. AAP also coordinates the First Year at Iowa (FYI) program, which connects incoming students with upperclass student leaders during orientation and throughout the first year.

CITIZEN LAWYER PROGRAM

The Citizen Lawyer Program (CLP) advances the College of Law's teaching and service missions. CLP is a teaching platform that enables students to advance their development of knowledge, values, and skills central to law as a professional calling. By offering a wide variety of opportunities each year for pro bono work, community service, and programs focusing on the issues, skills, and values that are critical to personal and professional success, CLP extends legal education beyond classrooms and clinical programs while engaging students directly in serving the college's mission of public service.

Cocurricular Programs

Students enrich their course of study by participating in the college's cocurricular programs, which include Moot Court, the Trial Advocacy Program, and four student-produced journals. Students may apply a maximum of 6 s.h. earned in cocurricular programs and/or non-law classes toward the J.D. degree.

MOOT COURT

The Moot Court appellate advocacy programs familiarize students with writing appellate briefs, acquaints them with citation form, develops research skills, and strengthens persuasive ability in oral argument at the appellate court level.

Each academic year, the Moot Court office administers LAW:9010 (091:210) Appellate Advocacy I in the fall semester and two Moot Court competitions in the spring semester. Students who rank in the top scoring positions of LAW:9010 (091:210) are eligible for the advanced competitions in the spring semester. Advanced competitions include LAW:9021 (091:404) Van Oosterhout Baskerville Moot Court Competition and LAW:9038 (091:430) Jessup International Moot Court Competition.

The appellate advocacy program is administered by the Moot Court Board, which consists of student judges and an executive board.

TRIAL ADVOCACY

The Trial Advocacy Program is a student-run, faculty-supervised program in which students develop and refine skills used to prepare and try civil and criminal cases. The heart of the program is LAW:9060 (091:370) Trial Advocacy, a 2 s.h. course taught by law school faculty, federal and state judges, and experienced trial attorneys. Students are on their feet during most class sessions, practicing the arts of jury selection, opening statement, direct and cross examination, introduction of exhibits, use of expert testimony, and closing argument. The course culminates with a full-scale trial—from the filing of pretrial motions to the rendering of a jury verdict—conducted by student cocounsel before a visiting judge and a jury of laypersons.

The Stephenson Competition is named after Judge Roy L. Stephenson, a U.S. District Court and Eighth Circuit Court of Appeals judge and a 1940 graduate of the

College of Law. Students who demonstrate superior ability in advocacy skills during the trial advocacy courses participate in a series of mock trials judged by local members of the bench and bar. Individuals selected from the competition represent The University of Iowa in the national trial competition.

IOWA LAW REVIEW

Since its inception in 1915, the *Iowa Law Review* has served as a scholarly legal journal, noting and analyzing developments in the law and suggesting future paths for the law to follow. Students have managed the review since 1935, editing and publishing articles by professors and students. The *Iowa Law Review* is published five times annually and is staffed by second-year student writers and third-year editors. Its subscribers include legal practitioners and law libraries throughout the world. The review also publishes the *Iowa Law Review Bulletin*, an online companion that features responses to the pieces published in the review. To learn more, visit the Iowa Law Review web site.

JOURNAL OF CORPORATION LAW

The *Journal of Corporation Law* is the nation's oldest and most cited student-published legal periodical specializing in corporate law. The journal's scope includes antitrust, intellectual property, labor law, securities, taxation, employment discrimination, insurance, products liability, and regulated industries, as well as traditional corporate topics. Selected articles submitted by practitioners and academics are published in each of four annual issues. Several student articles also are selected for publication. The journal enjoys a worldwide audience.

All students who have completed two semesters of class work are eligible to write for the journal. Students who have achieved third-year standing at the College of Law are eligible for selection to the journal's editorial board and may receive additional academic credit. They also may be eligible for a monetary stipend. See the Journal of Corporation Law web site.

JOURNAL OF GENDER, RACE & JUSTICE

The *Journal of Gender, Race & Justice* pushes the boundaries of legal scholarship and theory in its focus on social justice issues. The journal hosts a symposium at the College of Law every other year, bringing together nationally renowned legal scholars and practitioners to discuss the relationships among the law and race, gender, sex, sexual identity, economic class, ability, and other identity characteristics. The journal publishes an annual volume of legal works that includes symposium papers, papers from conferences outside the college, and articles written by Iowa law students. It also maintains a blog to promote discussion of issues related to its mission.

All students who have completed two semesters of law school, including transfer students, are eligible to write for the journal. Students who have completed the journal's student writer program or who have third-year standing at the College of Law are eligible to apply for a position on the journal's editorial board, which may provide a monetary stipend and academic credit. To learn more, visit the Journal of Gender, Race & Justice web site.

TRANSNATIONAL LAW & CONTEMPORARY PROBLEMS

Transnational Law & Contemporary Problems (TLCP) is published three times a year and is edited by Iowa

law students. *TLCP* addresses issues and problems that transcend traditional political boundaries, that are of interest to the international and comparative law community, and that are not commonly found in other journals and reviews. Two issues each year take the form of a symposium addressing specific topics; these issues have a guest editor who is a legal scholar noted for his or her work on the symposium topic. The third issue is submission based. Every other year the journal organizes and sponsors a symposium on a contemporary international issue; past topics include climate change, the European Union's sovereign debt crisis, and war crimes.

Law students who have completed at least two semesters of law school may earn up to 2 s.h. of credit by writing for *TLCP*. Highly qualified students who complete the writing and secondary hour requirements may be chosen to fill an editorial position, for which they earn additional credit. They also may be eligible for a monetary stipend. For more information, visit the Transnational Law & Contemporary Problems web site.

Joint J.D./Graduate Degrees

The College of Law and the Graduate College offer several joint degree programs in which students work toward the J.D. degree and a graduate degree concurrently. The College of Law may allow students to count up to 12 s.h. of applicable credit earned in the graduate degree program toward both the graduate degree and the J.D. degree, providing that students earn the graduate credit after they enroll in the College of Law. The individual graduate programs determine how much credit earned for the J.D. degree may be applied to the graduate degree. Contact the College of Law dean of students or registrar to learn more.

Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the joint degree program. Applicants to graduate programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

The following academic units and programs have collaborated with the College of Law to offer joint J.D./graduate degree programs: the Tippie College of Business (p. 657) and its Departments of Accounting (p. 663), Economics (p. 680), and Management and Organizations (p. 702) and Master of Business Administration Program (p. 715); the Schools of Journalism and Mass Communication (p. 447) and Social Work (p. 586) and the Departments of American Studies (p. 44), Anthropology (p. 55), Chemistry (p. 139), English (p. 252), History (p. 389), Philosophy (p. 515), Political Science (p. 535), Religious Studies (p. 564), Sociology (p. 599), and Spanish and Portuguese (p. 609) (College of Liberal Arts and Sciences); the Departments of Educational Policy and Leadership Studies (p. 765) and Rehabilitation and Counselor Education (p. 794) (College of Education); the Schools of Library and Information Science (p. 978) and Urban and Regional Planning (p. 998) (Graduate College); the Carver College of Medicine (p. 1038); and the Department of Health Management and Policy (p. 1218) and the Master of Public Health Program (p. 1225) (College of Public Health). Other joint programs may be possible.

Many departments have advisors for their joint programs. For more information, consult the College of Law dean of students and the individual graduate programs.

Students in joint J.D./graduate degree programs pay tuition at the College of Law rate if the tuition is higher for the J.D. program than for the graduate program. An exception is made for students who are not enrolled in College of Law courses or in other courses that will be applied to the J.D. degree during a fall or spring semester or a summer session. Joint J.D./graduate degree students are charged tuition at the College of Law rate for at least six semesters.

Master of Laws

The Master of Laws (LL.M.) degree requires a minimum of 24 s.h. of credit earned in College of Law course work. LL.M. studies may focus on any aspect of international, comparative, or U.S. law that the faculty is equipped to supervise, especially international and comparative law.

The program in international and comparative law is an important component of the College of Law's international approach to legal education. The program is designed for graduates of J.D. programs in the United States who wish to deepen their understanding of domestic or international and comparative law, including the law pertaining to international business transactions or human rights, and for foreign-trained jurists who wish to receive advanced training in these areas or a comparative orientation to and specific training in U.S. law and legal institutions.

The LL.M. program admits 5-15 students per year, allowing each student to receive substantial attention from the faculty. Admission is competitive.

Foreign-trained LL.M. students who do not have a U.S.-based J.D. degree may concentrate on a practice track designed to prepare them to take a U.S. bar exam and to practice in the United States, in states that allow LL.M. graduates without a U.S.-based J.D. degree to take the state bar exam. With their advisor's approval, LL.M. students may count up to 6 s.h. of law study abroad, or non-law graduate-level courses or externships, toward the degree.

LL.M. students take courses together with J.D. students, from the law school's rich offerings on U.S., international, and comparative law. This method of instruction ensures that the foreign-trained students have an effective comparative experience through broad contact with U.S. law students and professors, and the U.S. students benefit similarly from close contact with the foreign-trained lawyers.

LL.M. applicants who are graduates of U.S. law schools must have been granted a J.D. from a school that is a member of the Association of American Law Schools or is approved by the American Bar Association. Graduates of foreign law schools must have completed the basic course of university studies that qualifies them to sit for the bar examination (e.g., the French *maîtrise*, the German first state bar examination). If the home country bar exam does not require a specific degree, applicants should be experienced members of the bar or have completed the equivalent of the first university degree in law. Applicants without a degree from a four-year English-language university must score at least 92 (Internet-based) on the Test of English as a Foreign Language (TOEFL); applicants who score lower than 100 (Internet-based) may be required to take English language course

work when they enter the University. TOEFL is preferred for demonstrating English language proficiency, but IELTS scores are accepted if the overall score is at least 7.0 with no individual score lower than 6.5.

All applicants must present evidence of high academic potential, such as high class rank in their previous law studies; strong recommendations, especially from law professors who supervised their work in classes or seminars; and challenging professional work experience. The College of Law relies heavily on academic references to assess applicants' credentials. Except for foreign-trained LL.M. students on the practice track, all LL.M. students are required to produce a substantial piece of research and writing, so applicants to the research track of the LL.M. must show evidence of ability to carry out complex research and writing projects.

Doctor of Judicial Science

The Doctor of Judicial Science (S.J.D.) degree requires a minimum of 24 s.h. of credit. Students must complete a doctoral thesis.

The S.J.D. program at the University of Iowa College of Law is intended for those who wish to conduct original and advanced legal research under faculty supervision. S.J.D. students are expected to carry out legal research and writing that makes a significant and original contribution to the legal literature. The S.J.D. dissertation must be of publishable quality and must provide lawyers, scholars, and governmental officials with a useful understanding, not previously available, of a particular area of law.

Admission to the S.J.D. program is granted only when a tenured member of the College of Law faculty is available and interested to serve as the chair of the student's dissertation committee (the "S.J.D. chair"). The S.J.D. chair and other members of the dissertation committee supervise and evaluate the student's research and writing on the dissertation topic. S.J.D. candidates are responsible for maintaining contact with the S.J.D. chair and other members of the dissertation committee throughout the S.J.D. program with respect to the progress of their work.

In order to be admitted to the S.J.D. program, students must normally first complete the LL.M. degree at Iowa or a similar master's-level degree in law at another law school, either in the United States or abroad. For applicants currently enrolled in an LL.M. program, the decision on admission into the S.J.D. program may be made toward the end of the student's second semester in the LL.M. program, but the admissions committee may also choose to wait until after the student's grades are available from the second LL.M. semester. In extraordinary cases, students may be admitted to the S.J.D. program without an LL.M. degree based on the excellence of their overall academic record and their strong record of achievement, specifically in legal research and writing.

Once admitted to the S.J.D. program, a student must fulfill the following requirements in order to earn the S.J.D. degree.

YEAR OF RESIDENCY

S.J.D. students must spend at least one academic year (two semesters) in residence at the College of Law in the S.J.D. program (that is, one year after completing the LL.M. degree and being admitted to the S.J.D. program). During that year, the S.J.D. student must enroll in the

S.J.D. tutorial to conduct research and writing under the supervision of his or her dissertation or S.J.D. committee for the purpose of formulating a detailed dissertation proposal and beginning research and writing on some portions of the proposed dissertation. Students admitted to the S.J.D. program without an LL.M. may be required to take one or two seminars requiring research papers or an equivalent number of independent research and writing credits during the year of residency in the S.J.D. program, as well, on topics specified by the student's S.J.D. committee.

Once students have completed one academic year in residence at Iowa in the S.J.D. program and have been admitted to S.J.D. candidacy, they are free to complete the dissertation wherever they wish, but they must continue to register each spring and fall semester as an S.J.D. candidate in the College of Law and must continue to coordinate with their S.J.D. committee.

ADMISSION TO CANDIDACY FOR THE S.J.D.

Students must be granted formal admission to S.J.D. candidacy before they may continue in the S.J.D. program to complete a dissertation. The decision about admission to S.J.D. candidacy is made by the student's S.J.D. committee on the basis of the work done during the student's year of residency at Iowa in the S.J.D. program. In order to admit the student to S.J.D. candidacy, the committee must determine that the student's work on the dissertation topic during the year of residency is of sufficiently high quality that it is reasonable to believe that the student will be able to complete a publishable dissertation on the topic.

As part of the assessment process, the S.J.D. committee holds an oral examination of the student, normally toward the end of the student's year of residency at the College of Law. The examination focuses on the dissertation work that the student has completed by that time, the student's general knowledge and understanding relating to the subject matter of the dissertation, and the student's further plans for completing the dissertation. If the committee is not able to admit the student to S.J.D. candidacy at the conclusion of the first year of residency, the committee may give an extension of up to one calendar year if it finds sufficient basis to believe it is likely that the student will be able to satisfy the foregoing standard within that time. As part of that additional assessment process, the committee may require the student to submit additional writing and/or participate in an additional oral examination.

PRESENTATION OF DISSERTATION WORK

Each S.J.D. student is required to make at least one substantive presentation of his or her dissertation work at a meeting of the S.J.D. tutorial, a specially constituted group of faculty, or at a public meeting, as arranged with the student's S.J.D. committee. That committee may specify that the student will present the entire dissertation or selected portions of it. The presentation is arranged in consultation with the student's S.J.D. committee and normally takes place toward the end of the student's year of residency at the College of Law.

COMPLETION OF THE DISSERTATION

Within five calendar years from the date of admission to S.J.D. candidacy, the student must complete the dissertation and have it approved by his or her S.J.D. committee. In order to approve the dissertation, the

committee must determine that it is of publishable quality. If the committee believes that the dissertation needs revisions or additions in order to bring it up to the requisite level of quality, the committee may give the student an extension, and the student must meet the deadlines set by the committee for the revisions.

ORAL DEFENSE OF THE DISSERTATION

Before the student's S.J.D. committee decides whether to approve the student's completed dissertation as required for the S.J.D. degree, the student must successfully defend the dissertation in an oral examination conducted by the student's S.J.D. committee.

Academic Recognition

Order of the Coif

The Order of the Coif, a national legal honor society, has a chapter at The University of Iowa. The order is dedicated to scholarship and advancement of high ethical standards in the legal profession. Membership is drawn from the top 10 percent of the graduating class. Initiates are selected by the faculty after graduation.

Prizes and Awards

Hancher-Finkbine Medallions are awarded each year by the University to outstanding graduates; honorees are chosen from nominations made by University departments and colleges based on learning, leadership, and loyalty.

The **Philip G. Hubbard Human Rights Award** is presented each year by the University to recognize outstanding contributions to human rights and equal opportunity, as described in the University's Human Rights Policy.

The **Willard L. "Sandy" Boyd Prize** is presented to a student who has demonstrated outstanding ability and creativity in the development of written legal scholarship.

The **Alan I. Widiss Faculty Scholar Award** is presented to a student who has made an especially outstanding and distinctive contribution to the development of written legal scholarship.

The **Randy J. Holland Award for Corporate Scholarships** is presented to a student who has written an outstanding scholarly paper in the area of corporate law.

The **Robert S. Hunt Legal History Award** is presented to a student who has written an outstanding scholarly paper in the field of legal history.

The **Judge William C. Stuart Award** is presented to a third-year student who ranks in the top 10 percent of his or her class and is recommended based on integrity and constitutional principles.

The **Innovation, Business, and Law Excellence Award** is given to two graduating students who have shown interest and excellence across disciplines of intellectual property, business law, antitrust and competition law, and health law and technology; or have done outstanding work in one innovation, business, and law subject matter area.

The **Donald P. Lay Faculty Recognition Award** is presented to a student who has made distinctive contributions to the College of Law's cocurricular, community, or education programs.

The **Iowa State Bar Association Prize** is presented to a student who possesses the attitude, ability, and other qualities that indicate success as a future leader of the bar association.

The **Antonia "D.J." Miller Award for Advancement of Human Rights** recognizes outstanding contributions by a student to the advancement of human rights in the law school community.

The **Dean's Achievement Award** is presented each year to a student, who, through his or her achievements, has exemplified, promoted, or contributed to cultural, racial, or ethnic diversity in the law school.

The **National Association of Women Lawyers Award** is presented to a student who contributes to the advancement of women in society and women in the legal profession and who also has attained high academic achievement.

The **Erich D. Mathias Award for International Social Justice** is presented to a student who has made an outstanding contribution or demonstrated commitment to attaining international social justice.

The **John F. Murray Award** recognizes the student with the highest academic standing in the graduating class.

The **ALI-ABA Scholarship and Leadership Award** is presented to a student who represents an outstanding combination of scholarship and leadership, the qualities embodied by the American Law Institute and the American Bar Association.

The **Innovation, Business and Law Excellence Award** is presented to three students who have shown interest and excellence across varied disciplines.

The **ALI/CLE Scholarship and Leadership Award** is presented to students who best represent a combination of scholarship, leadership, and qualities embodied by ABA and ALI.

The **ABA-Bloomberg BNA Award Program for Excellence in the Study of Labor and Employment Law** includes awards in the study of labor and employment law.

The **Russell Goldman Award** recognizes the student who has demonstrated the most improved academic performance after the first year.

The **Iowa College of Law Appellate Advocacy Award** is presented to a student for outstanding achievement in and service to the appellate advocacy program.

The **Iowa Academy of Trial Lawyers Award** is presented to a student for outstanding achievement in the Roy L. Stephenson Trial Advocacy Competition.

The **International Academy of Trial Lawyers Award** is presented to a student who has demonstrated distinction in trial advocacy skills.

The **Michelle R. Bennett Client Representation Award** recognizes outstanding service in the college's clinical law programs.

The **ABA/BNA Award for Excellence in the Study of Intellectual Property** is presented to a student who has demonstrated excellence in the study of intellectual property law.

The **American Bankruptcy Institute Medal for Excellence in Bankruptcy Studies** is presented to a

student who has demonstrated excellence in the field of bankruptcy.

Student Organizations

Link to the student organizations' web sites on the college's Journals & Student Groups web page.

The **Alternative Dispute Resolution Society** promotes awareness of varied alternative dispute resolution processes, including arbitration, mediation, and other forms of negotiation; explores legal and other careers in alternative dispute resolution; and equips students with the knowledge and practical skills necessary for effective participation in alternative dispute resolution.

The **American Constitution Society (ACS)** is a nonpartisan organization whose goal is to foster discussion of important issues of law and policy.

The **American Health Lawyers Association** is a dedicated to improving health care law.

The **Asian Pacific American Law Students Association (APALSA)** seeks to promote the field of law among Asians and encourage Asians to enter the field; to improve legal services to Asians; to assist Asians in legal matters; and to educate Asians in the social and ethical obligations of the law.

The Iowa chapter of the **Black Law Students Association (BLSA)** focuses on the relationship of black attorneys to the American legal structure and works to foster an attitude of professional competence. BLSA strives to promote the needs and goals of black law students, instill a greater awareness among law students of the needs of the black community, and encourage a greater commitment toward meeting those needs. The chapter seeks involvement in the local community and in recruitment programs. Membership is open to all students who support the association's goals.

The **Christian Legal Society** maintains a Christian law fellowship at the College of Law whose mission is to enable its members to love their Lord and to love their neighbors as themselves.

The **Environmental Law Society** provides an educational forum for environmental law topics. During spring semester, the organization sponsors a lecture series featuring professors and experts in environmental law. The group also provides limited legal research and counseling services for attorneys, organizations, and citizens who have questions concerning environmental law. Membership is open to all College of Law students.

The **Equal Justice Foundation (EJF)** supports public interest law concerns, with emphasis on promoting equal access and adequate representation in the courts and other forums for citizens and citizens' groups. The University of Iowa chapter's professional activities are aligned with those of the national organization. They include work in varied legal activities statewide; College of Law activities, including coordination with other student organizations to provide the college with a better public interest support base; promotion of public interest career opportunities; and provision of information about public interest activities and concerns. Membership is open to all College of Law students.

The **Federalist Society** fosters critical thought and debate about the application of conservative and libertarian principles to the law. Its mission is to promote,

advocate, and defend its founding principles and further their application through its activities, which are aimed at reordering the legal system's priorities to place a premium on individual liberty and the rule of law, and restoring recognition of those principles among law students, faculty members, lawyers, and judges.

The **Intellectual Property Law Society (IPLS)** promotes exploration of traditional areas of intellectual property law (patent, trademark, copyright) and related areas such as antitrust and entertainment law. The society provides a forum for faculty and student discussion of contemporary issues relating to intellectual property law and its practice; fosters interaction between law students and intellectual property law practitioners through a mentor program that pairs members with intellectual property law practitioners; and offers symposia. All members of the University community are welcome to attend a Society meeting or symposium.

The **International Law Society** aims to increase student and faculty awareness of international law and related issues. The society's brown bag lunch lecture series and annual spring conference expose students and faculty to a wide variety of contemporary legal issues surrounding the study and practice of international law. Members also work to support the activities of the University of Iowa Center for Human Rights; promote the Iowa-Arcachon, France, summer program in comparative and international law; participate in the annual Philip C. Jessup International Moot Court Competition; and bring together faculty members and students who share an interest in international affairs.

The **Iowa Student Bar Association (ISBA)** acts as the College of Law's student government. Governed by an executive council, the association provides a collective voice for the student body and a source of organization and funding for a variety of college activities and programs. Law students may get involved with the association by serving as class representatives or on faculty-student committees, which deal with admissions, curriculum, financial aid, placement, and so forth. The association presents speakers, sponsors events with other organizations, publishes a newsletter, and sponsors social events. Its legal guardian program assigns entering law students to upperclass students, who provide encouragement and information.

The **J. Reuben Clark Law Society** emphasizes three basic values and attitudes toward the practice of law and the place of law in modern society: public service, loyalty to the rule of the law and the Constitution of the United States, and appreciation for the religious dimension in American society and in lawyers' personal lives.

The **Jewish Law School Association (JLSA)** strives to provide social, educational, religious, political, cultural, and professional resources and opportunities for all Jewish law students at Iowa. The society educates and involves its members in the social, moral, and ethical obligations of the profession; plans and implements programming to facilitate a sense of community among Jewish law students; and raises awareness of Jewish cultural and educational issues at the college.

The **Latino/a Law Student Association (LLSA)** promotes viable changes within existing legal institutions in order to develop constructive legal and community programs, produce competent and effective Latino and Latina attorneys, and utilize available resources—activities necessary to safeguard and advance the rights and

opportunities of oppressed peoples. To achieve these goals, LLSA recruits for the law school. LLSA's philosophy is that national unity is fundamental for the collective awareness needed to bring about progressive policies in legal education. The association welcomes all students.

Law Students for Reproductive Justice (LSRJ) is committed to increasing education and professional training in reproductive rights law. The society supports Iowa law student activism, advocacy, and networking in order to ensure that new lawyers can successfully defend and expand family planning rights and reproductive freedoms.

The **Middle Eastern Legal Student Association (MELSA)** aims to increase student and faculty awareness of issues pertaining to the Middle East and how they affect the legal profession.

The **Military and National Security Law Society** educates and informs Iowa law students about the practice of military and national security law.

The **Native American Law Students Association (NALSA)** promotes awareness of legal, political, cultural, and social issues that affect Native Americans, Alaskan Natives, Native Hawaiians, and other indigenous peoples. NALSA also seeks to promote the study of federal Indian law and provides a forum for the exploration of issues in tribal sovereignty, natural resources, family law, trust obligations, and cultural identity.

The **Organization for Women Law Students and Staff (OWLSS)** aims to address the changing needs and problems of women in the legal profession and to develop, recommend, and implement new programs, especially those that meet the needs of women at the College of Law. It also sponsors programs of interest to the general law school community. OWLSS has sponsored fall recruitment of prospective women law students, a safety-in-numbers program, brown bag lunches with guest speakers, sponsorship of members to the annual National Women and the Law Conference, a support network, a regular newsletter, and joint programs with women student groups in medicine and dentistry. Membership is open to all College of Law students, faculty members, and staff members.

The Outlaws provides a common forum for gay, lesbian, bisexual, and transgendered persons interested in the law, and promotes a climate of mutual support, protection, and professional advancement. Membership is open to all College of Law students and faculty members.

Founded in 1902, **Phi Alpha Delta (PADS)** is the nation's oldest and largest law fraternity. It was the first law fraternity to remove membership restrictions based on race, color, creed, national origin, and grade-point average. Iowa's Hammond Chapter was established in 1908 and became the first PADS chapter to accept students of all races and religions. It participates in fundraisers and other service projects to benefit local and national service organizations. Membership is open to all College of Law students.

Phi Delta Phi (PHIDS) promotes the highest standards of ethics and professionalism in law schools and the legal profession. Since its establishment in 1869, the fraternity has initiated more than 200,000 members. It has more judges, American presidents, governors,

senators, representatives, and cabinet members among its membership than does any other legal fraternity.

The **Pro Bono Society** exists to reinforce the value of public service and volunteerism in the legal profession. Membership in the *Pro Bono Society* is earned through objectively measured activities during the academic year. Iowa law students who complete and report 15 hours of voluntary public service in each of two consecutive semesters are considered for membership. Time donated to a charitable or public service cause, which may be law-related or not, is considered voluntary public service; the requirement is interpreted broadly, so that students may volunteer in an area of interest to them. Members receive a certificate of membership and are invited to attend the annual recognition dinner. The society is a project of the Iowa Student Bar Association.

The **Sports Law Society** connects College of Law students interested in sports law with professionals in the sports industry. Membership is open to all College of Law students.

Admission

Undergraduate Education and Law School

Applicants for admission to the University of Iowa College of Law must complete all requirements for the baccalaureate degree before beginning law school (except students participating in the college's early admission program; see "Undergraduate 3+3 Admission" below). In addition, the baccalaureate degree must be earned from an undergraduate institution that is accredited by an accrediting agency recognized by the U.S. Department of Education. This is in line with standards set by the American Bar Association, the college's primary accrediting agency.

Fulfillment of the basic requirements does not guarantee admission. The College of Law Admissions Committee selects applicants it deems best able to help the college fulfill its primary mission of providing a high quality legal education in a diverse and stimulating environment and preparing students to serve as leaders in their professional and civic communities. Some additional consideration is given to applicants who are residents of Iowa.

The services that College of Law graduates are called upon to perform are so varied, and the possible fields of endeavor so broad and diverse, that the college prescribes no uniform undergraduate program for those planning to enter law school. With the assistance of faculty advisors, each student should develop an undergraduate program that explores and develops that student's particular intellectual interests. Reading, writing, research, public speaking, critical thinking, and a healthy respect for the historical perspective are important academic skills for students considering law school.

Iowa strongly endorses the three basic objectives recommended by a committee of the Association of American Law Schools: education for comprehension and expression in words; education for a critical understanding of the human institutions and values with which the law deals; and education for greater power in thinking. Anyone thinking of attending law school should keep these objectives in mind while planning an undergraduate course of study.

The association's recommendations emphasize that undergraduate education of students for a full life through liberal education is far more important than education directed too pointedly toward later professional training and practice. Students are urged not to sacrifice broad perspective for detailed specialization.

Undergraduate 3+3 Admission

The college has approved a "3+3" admissions program in which undergraduate students enrolled at participating academic institutions and departments in Iowa may enter law school after their junior year of undergraduate study, with the first year of law school completing the requirements of the baccalaureate degree. Contact the College of Law Office of Admissions for more information.

Selection of Applicants

The college uses multiple criteria in evaluating applicants for admission. Part of the entering class is admitted under a "presumptive admit" process, in which the faculty admissions committee admits students primarily, but not solely, on the strength of their numbers, namely the cumulative undergraduate grade-point average and LSAT score (see "Law School Admission Test" below). Before admission offers are made, each applicant's complete file is reviewed to ensure that the overall record suggests the applicant's suitability for admission, in keeping with the primary mission of the law school.

Although undergraduate academic record and performance on the LSAT are both important admission criteria, the college recognizes that in some circumstances they do not accurately reflect an applicant's potential to succeed in the study of law, develop skills as a leader, enrich the learning environment of his or her fellow students, and serve the public interest as a lawyer.

To evaluate applicants' total suitability for admission, the college has developed a "numbers-plus" admissions policy, under which each entering class is admitted. Under the "numbers-plus" policy, undergraduate record and LSAT scores are supplemented by nonquantifiable factors that may provide insight to an applicant's overall potential for success in the study and practice of law.

For example, an applicant who can substantiate that his or her standardized test scores are not predictive of academic performance in law school may receive proportionately greater consideration from the committee for his or her grade-point average. Other factors the committee may consider include special academic or professional abilities not reflected in the grade-point average, disability or serious health factors that affected prior academic performance, extracurricular activities, exceptional school-year work commitments due to family financial circumstances, postbaccalaureate academic success (including graduate study), law-related employment experience, public service commitment, leadership in groups historically underrepresented in the legal profession, educational or socioeconomic disadvantage, native language other than English, unusual motivation or perseverance in overcoming obstacles to law study, and any other information the committee considers relevant to the applicant's potential for law study.

Candidates who wish to bring such factors to the committee's attention may do so by including addenda and other documentation with their applications.

Entrance Date

Admission is for fall semester classes, which begin in August. Applications are accepted beginning September 1 of the year before admission, with an application deadline of April 1 in the year of admission. Because the college has a rolling admissions process, applicants are encouraged to submit their applications as early as possible. There is no application fee.

For additional information, visit the College of Law Office of Admissions web site, which provides the office's e-mail address and other contact information, and see the Iowa Graduate Admissions web site.

Application Process

CAS REPORT AND TRANSCRIPTS

The University of Iowa College of Law participates in the Credential Assembly Service (CAS). Applicants must register for this service through the Law School Admission Council (LSAC); foreign-educated applicants are exempt from this requirement. Prospective law applicants can find the information they need to complete their application for admission to the law school in the council's free annual publication, *Law School Admission Information Book*, and on LSAC's web site. It takes approximately one week from the time the College of Law requests the CAS report until it arrives.

Applicants whose fall course work does not appear on the Credential Assembly Service report should send an official transcript of that course work to CAS.

Applicants are responsible for submitting an official transcript from each college or university they have attended to Law School Admission Council, Box 2000, Newtown, PA 18940-0998.

Each applicant's undergraduate institution must forward the applicant's class rank or the grade distribution for the applicant's class to the College of Law, if such information is available. Information about class rank is helpful in the application process, but not required. Currently enrolled or former University of Iowa students need not provide this information.

Before classes begin, every applicant who accepts admission to the College of Law must file official transcripts showing conferral of degree with the University's Office of Admissions.

LETTERS OF RECOMMENDATION

The college requires applicants to submit at least two, but not more than three, letters of recommendation. Recommendations from professors or others who can comment on the candidate's critical thinking, writing skills, and potential for success in law school are particularly welcome.

The college participates in the Letter of Recommendation Service offered by the Law School Admission Council. A letter of recommendation form can be downloaded on the council's web site. Individuals writing letters of recommendation should send their letters, with the required forms, to Law School Admission Council, P.O. Box 8508, Newtown, PA 18940-8508.

LAW SCHOOL ADMISSION TEST

Applicants for admission must take the Law School Admission Test (LSAT). The test is given several times each year and may be taken at numerous locations in the

United States and abroad. Test application forms may be obtained from the Law School Admission Council.

Applicants are urged to take the test no later than the February preceding the fall semester for which they are applying. Applicants' LSAT scores may not be available until approximately four weeks after their test date.

The June test date is the last one that the admissions committee can consider for applicants requesting admission the following fall. Scores more than five years old are not accepted.

Applicants whose first language is not English must take the Test of English as a Foreign Language (TOEFL) or the International English Testing System (IELTS) exam.

DEFERRALS

Admission is for the year of application; deferrals are granted only in extraordinary circumstances.

DEPOSIT UPON ACCEPTANCE

All applicants accepting an offer of admission must make a nonrefundable deposit of \$250 (U.S.). Fall entrants accepted before March 15 must submit the deposit by April 1; those accepted after March 15 have two weeks to submit the deposit.

Fall entrants must pay a second nonrefundable deposit of \$150 (U.S.) by June 1.

For those who enroll, the deposit is credited toward tuition and fees. All accepted applicants, including recipients of scholarships, fellowships, and loans, are required to pay the deposit. Applicants who fail to make the deposit by the specified time forfeit their place in the entering class.

Financial Support

The College of Law administers its substantial scholarships and fellowships to advance the goals of its selective admission policy and to provide access to legal education for the talented and diverse students admitted to the college. Inquiries regarding financial aid should be directed either to the College of Law Office of Financial Aid or the University of Iowa Office of Student Financial Aid (financial-aid@uiowa.edu). Information is subject to change without notice.

Application for Financial Aid

Eligibility for federal loans is based on need established by completion of the Free Application for Federal Student Aid (FAFSA) and the required supporting documents. The University of Iowa School Code is 001892. It is important to complete the FAFSA as soon as possible after January 1, since some financial aid is subject to the availability of funds.

Although scholarship and fellowship awards are not made until after applicants are admitted to the College of Law, applicants should not wait for the notice of admission before filing the FAFSA. Admitted students who provide the required documents (see Financial Aid Checklist) receive an e-mail instructing them to access their award notification on ISIS.

Applicants are urged to investigate other sources of aid. The UI Office of Student Financial Aid lists some scholarship sites on its Web Resources page.

Scholarships and Fellowships

All students admitted to the College of Law are automatically considered for the following scholarships and fellowships. A separate application is not required. Recipients are notified by letter.

MERIT SCHOLARSHIPS

These awards are based on academic achievement. Awards range from \$500 to full tuition, with a research-assistantship component in upper-level years. Renewal for the second and third year of merit scholarships requires that the scholarship recipient remain in good academic and professional standing at the College of Law. Good academic standing requires a cumulative g.p.a. of at least 2.10. Good professional standing requires ethical and responsible conduct as a member of the law school community in accordance with University and law school policies. Students who enrolled prior to the fall of 2013 should refer to their retention communication for details.

IOWA LAW SCHOOL FOUNDATION SCHOLARSHIPS

The College of Law enjoys a robust scholarship program due in part to the Iowa Law School Foundation. Recipients of UI Law Foundation scholarships learn about the people and funds behind their scholarships and are asked to write a letter of thanks to donors.

LAW OPPORTUNITY FELLOWSHIPS

The College of Law is committed to affording opportunities for legal careers to persons historically underrepresented in the legal profession. The Law Opportunity Fellowship Program (LOF) was established by the University to provide access to law school for students from groups and backgrounds historically underrepresented within the legal community. Among the criteria considered in awarding the fellowships are educationally and/or socioeconomically disadvantaged backgrounds, leadership potential, academic merit, and need. Awards may be up to full nonresident tuition for three years and the opportunity to hold a research assistant position for the second and third years. To receive LOF awards, students must apply for financial aid each academic year and submit all of the required forms as soon as possible after January 1 for the next academic year. Good academic standing requires a cumulative g.p.a. of at least 2.10. Good professional standing requires ethical and responsible conduct as a member of the law school community, in accordance with University of Iowa and College of Law policies.

Employment

A law student may not be employed more than 20 hours per week during any week in which the student is enrolled for more than 12 class hours [ABA Standard 304(f)].

RESEARCH ASSISTANT POSITIONS

Research assistantships are available with many faculty members; eligibility is limited to second- and third-year students. Quarter-time research assistantships (10 hours per week) change the tuition status of a nonresident student to resident, altering the student's financial aid package. Visit Research Assistantships on the college's web site for more information.

UI PART-TIME EMPLOYMENT

The University offers a variety of part-time employment positions for students. These part-time jobs do not require

an application for financial aid. For more information, visit Part-Time Hourly University Employment on the UI Office of Student Financial Aid web site.

FEDERAL WORK-STUDY PROGRAM

The federal Work-Study Program provides need-based employment opportunities for a limited number of students in their second and/or third year at the College of Law. Participation in the Work-Study Program reduces a student's William D. Ford Federal Direct Loan eligibility. Students must demonstrate financial eligibility for the Work-Study Program through the FAFSA and its required documents. See Work-Study Employment on the UI Student Financial Aid web site.

Loans

All admitted students who file the FAFSA and required supporting documents are considered for the Federal Perkins Loan and the William D. Ford Federal Direct Loans.

FEDERAL PERKINS LOAN

The Federal Perkins Loan is a low-interest loan based on exceptional financial need. Interest does not accrue and payments are not required until the student is no longer enrolled at least half-time in school.

FEDERAL DIRECT FORD/STAFFORD LOANS, FEDERAL GRADUATE/PROFESSIONAL PLUS LOANS

The Federal Direct Ford/Stafford Loans (unsubsidized) and the Federal Graduate/Professional PLUS Loans are funded by the federal government. The two loan programs have different interest rates and interest subsidies based on annual maximum loan amounts. Interest on the Unsubsidized Direct Stafford Loan and Graduate/Professional PLUS Loan accrues while a student is in school, but principal and interest payments may be deferred while a student is in school. Eligibility for the Graduate/Professional PLUS Loan also includes a determination that the applicant does not have adverse credit history. See Loans on the College of Law web site.

The College of Law administers substantial scholarships and fellowships to advance the goals of its selective admission policy and to provide access to legal education for the talented and diverse students admitted to the college. Inquiries regarding financial aid should be directed to the College of Law Office of Financial Aid or the University of Iowa Office of Student Financial Aid. Information is subject to change without notice.

Academic Rules and Procedures

Academic Advising

The **senior associate dean** works with the dean on academic programs and issues of the law school.

The **associate dean for student affairs** provides academic advice and counseling to students; advocates for student concerns; offers information and makes referrals for students with professional, personal, or family problems; facilitates operation of the student discipline system; and arranges reasonable accommodations for disabled students. The associate dean for student affairs also advises law students pursuing combined degrees in University of Iowa graduate programs and serves as the liaison with those programs.

Each year one or two tenured faculty members are selected by the Iowa Student Bar Association to serve as College of Law **ombudspersons**. Students who have a problem or grievance should seek an ombudsperson's help. All complaints are handled in strict confidence.

The College of Law **registrar** is in charge of student record keeping and should be students' first recourse for information about course enrollment, scheduling, joint degree program status, registration, grades, student certification for state bar applications, and progress toward graduation.

A **faculty committee** reviews and makes proposals for policies affecting students. It considers the college's efforts to recruit and provide services for students, including nontraditional students and those from disadvantaged backgrounds. It provides policy guidance and general oversight for the college's career services and its Academic Achievement Program, and it coordinates and reviews the college's methods for providing academic and curricular counseling to students. The committee also advises the dean on curricular counseling for students.

Transfer Credit

No more than 28 s.h. may be transferred to Iowa from another law school. To qualify for transfer credit, courses must have been completed at a law school accredited by the American Bar Association. Grades received at another law school are not counted in calculating the cumulative grade-point average.

Courses Taken Before Admission to the College of Law

Students may not count toward the J.D. any credit they earned in courses they took before matriculating at the College of Law, with the exception of transfer students from other law schools.

Courses Taken Outside the College of Law

Students who take courses outside the College of Law must first obtain permission from the dean of students. If "special permission of the instructor required" is indicated on ISIS (Iowa Student Information Services web site), the student also must obtain the instructor's permission.

Students not enrolled in a joint degree program may apply toward the J.D. a maximum of 6 s.h. earned in courses outside the College of Law and/or through cocurricular work. Such courses are approved only if they contribute directly to the professional competence of an attorney or broaden the student's understanding of law, the legal process, or any particular legal subject. More information about limitations on accreditation of non-College of Law courses is available from the dean of students.

Transfer of Credit after Admission

With the permission of the associate dean, enrolled students may receive credit for courses taken and passed at other law schools accredited by the American Bar Association, up to a maximum of 34 s.h. Courses are shown on the student's transcript as credit for the designated semester hours. Grades received at another law school are not counted in the student's weighted cumulative grade-point average.

Grading Policy

The College of Law has adopted a numbering system for grading, effective for students who entered the college in May 2004 and later.

A numerical grade is assigned to each student in each course, except as otherwise provided (e.g., for courses graded pass/fail, for courses that continue the following term, for grades of incomplete). Grades are recorded in the University's permanent record.

The highest grade awarded at the College of Law is 4.3, the lowest 1.5. No academic credit is given for grades below 1.8 or for grades of "fail."

Numerical grades may be translated into a letter grade as follows.

4.3-4.2 = A+

4.1-3.9 = A

3.8-3.6 = A-

3.5-3.3 = B+

3.2-3.0 = B

2.9-2.7 = B-

2.6-2.4 = C

2.3-2.1 = C-

2.0-1.8 = D

1.7-1.5 = F

Professors may disenroll students for cause or reduce grades for inappropriate academic conduct, for example, plagiarism. Such measures are subject to appropriate due process.

A student who fails a required course must repeat the course, with a different professor if possible. Both enrollments and both final grades earned in the course will appear on the student's transcript and will be included in the calculation of the student's grade-point average. A student who earns a grade lower than 2.1 in the retaken course is referred to the Retention Committee.

A student who fails a nonrequired course may repeat the course with the permission of the associate dean. The grade on the retaken course is recorded as pass (P) or fail (F) and is not used in computing the student's cumulative grade-point average. To receive a P in a course that is retaken, the student must earn a grade of 2.1 or higher.

Pass/Fail Grades

Credit for certain courses is offered only on a pass/fail (P/F) basis. In the case of a failing academic performance in a pass/fail course, the faculty supervisor or instructor may assign a failing numerical grade, i.e., between 1.7 and 1.5. Individual faculty members may allow students to withdraw from a course rather than receive a failing grade.

Miscellaneous Grading Marks

Marks other than pass, fail, and numerical grades are as follows.

Registered (R) indicates that a student has completed the first half of a year-long program, such as a seminar or journal, for which a grade cannot be assigned until the second half of the program has been completed.

Withdrawn (W) carries no course credit and is not used in computing the cumulative grade-point average.

Incomplete (I) carries no course credit toward a degree until it is changed, nor is it used in computing the cumulative grade-point average. A mark of I may be reported only in exceptional cases and only if the unfinished part of the work is small and is unfinished for reasons acceptable to the instructor, and if the student's standing in the course is satisfactory. Students remove an incomplete by completing the unfinished work during their next period of residence.

Class Ranking

Students in the top 10 percent in each class may be informed of their exact rank; grade-point averages at the 12.5 percentile and 37.5 percentile are posted. Students are ranked following the fall semester and spring semester each year. Final class standing is determined each August and is available in September. It includes students who completed all graduation requirements in August, May, and the previous December. For purposes of ranking underclass students, the same system is used, based on the expected graduation date.

Release of Transcripts

A student's grades are not given to persons outside the College of Law, including prospective employers, without written permission of the student.

Class Attendance and Preparation

Students must attend classes regularly and punctually. They must be prepared to participate in class discussions. A student may be dropped from a course or failed, at the discretion of the instructor, for excessive absence or for repeated lack of adequate preparation. In addition, students are expected to attend special class meetings and be punctual in submitting course assignments, in accordance with ABA Standard 304(d).

Examination Policy

One examination is given in each course, with few exceptions. Before taking exams, each student is assigned an identification number to ensure anonymity in grading. Students must write their examination number on any materials that are distributed at the start of the examination and collected at its conclusion. The instructor submits a grade for each identification number, which is kept on file for two years at the College of Law.

To preserve anonymous grading, students must not identify themselves and must not place their name on the examination answer or other materials that the instructor might see. They also may not discuss the examination with their instructors until the exam has been graded and the grades released. Students who have questions should pose them to a proctor during the examination or to the College of Law dean of students or registrar after the exam.

Students may be offered the option of taking some exams on their personal laptops. Each course's instructor determines whether this option is available for his or her specific course. Students who choose this option must purchase and use special exam-taking software available through the College of Law.

Students who have more than one examination scheduled for the same day, two consecutive exams (i.e. Wednesday afternoon, Thursday morning), or exams four days in a

row may schedule a make-up time for one of the exams. Students who have exams three days in a row may reschedule one only with permission of the instructor.

Students are expected to take the exam on the next scheduled makeup date immediately following the regularly scheduled exam. Whenever possible, the dean sets aside one to three days as an upperclass study period between the end of regular classes and the first regularly scheduled upperclass exam. See the College of Law Student Handbook for all policies related to examinations.

Exam Accommodations for English Language, Physical, or Medical Reasons

A student who is at a substantial disadvantage in taking an exam within the specified time limit because he or she does not have English as a primary language or because he or she has a physical or recognized medical disability may be granted additional time to complete the exam commensurate with the extent of the disadvantage. A student seeking such additional time must make a request to the dean of students by the deadline announced each semester, unless the disability comes into existence after that deadline has passed, stating the nature of the disability and the examination(s) for which the student seeks additional time.

An undergraduate degree from an English-language college or University is considered prima facie evidence that the student is not qualified to be granted extra exam time due to not having English as a primary language. When additional time is granted, it generally is reduced each semester as the student becomes more proficient in English.

Program Accommodations for Students with Disabilities

The College of Law is committed to making all of its programs, activities, and services accessible to students with disabilities. In compliance with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973, it strives to provide equal access to all academically qualified students and does not discriminate against students on the basis of disability. The college provides reasonable accommodations to students with disabilities, commensurate with the nature and extent of the disability and consistent with federal law, state law, and policies of The University of Iowa and the College of Law. Students may request accommodations for any University of Iowa sponsored curricular, cocurricular, or extracurricular program, including those in the College of Law.

The College of Law's cocurricular and extracurricular programs include, but are not limited to, Appellate Advocacy I, Trial Advocacy Board, the *Iowa Law Review* and its editorial board, Moot Court Board, Advanced Moot Court Competition, Van Oosterhout-Baskerville Moot Court Competition, National Moot Court Competition, *The Journal of Corporation Law* and its editorial board, *Transnational Law & Contemporary Problems* and its editorial board, *The Journal of Gender Race & Justice* and its editorial board, Jessup International Moot Court Competition, and Jessup International Law Moot Court team.

Withdrawal and Leave of Absence

First-year students who withdraw during the academic year or who fail to reenroll for the second semester must apply for reentry to the College of Law. They must compete with other applicants for a place in the first-year class for the year in which they wish to return. For each readmission application, the reason for the withdrawal and the quality of work done before withdrawal or failure to reenroll is considered. For admission purposes, individuals who have earned fewer than 27 s.h. of credit at the time of withdrawal or failure to reenroll are considered first-year students.

Second- and third-year students who fail to enroll for any semester during the academic year and who have not been granted a leave of absence by the dean of students must obtain permission from the Admissions Committee if they wish to reenroll. Requests for permission to reenroll must be submitted no later than 90 days before the beginning of classes for the semester or summer session in which the student seeks to reenroll.

The dean of students may grant a second- or third-year student a leave of absence for up to one year, if the student shows good cause. First-year students may be granted leaves of absence only under extraordinary circumstances, such as a medical or family emergency, or as a reasonable accommodation for a disability.

Students who withdraw from the College of Law after they have paid tuition are entitled to a pro rata refund of that tuition depending on the effective date of their withdrawal. Consult with the college's Office of Financial Aid for details.

Student Conduct

Students are expected to act in a manner appropriate at a professional school. An act or omission that is dishonest or designed to take unfair advantage may subject a student to sanctions as serious as expulsion from school. Misconduct policies and procedures are published annually in the College of Law Student Handbook.

Research Centers and Programs

Participation in research centers and outreach programs is an important part of the College of Law's service to professional and civic communities. The college was home to the nation's first agricultural law center. Since that center's closing, several new centers and institutes have been founded in diverse fields such as health law and policy, human rights law, not-for-profit entities, public affairs, and public international finance. These programs enjoy increasing national and international recognition for their specialized research projects and service activities. Several have enjoyed success in attracting competitive grants from state, federal, and private sources.

Innovation, Business, and Law Center

The Innovation, Business, and Law Center is an interdisciplinary teaching and research venture that brings together faculty members who teach and study problems of business, technology, innovation, regulation, and legal policy from diverse perspectives. The center's purpose is twofold: first, it offers an innovative curriculum and outstanding legal training in areas pertaining to government regulation of entrepreneurship, innovation, and management of resources; second, it encourages

creative individual and collaborative interdisciplinary research in these areas.

Institute of Public Affairs

The Institute of Public Affairs provides services and information to help maintain and strengthen the effectiveness of Iowa's local governments. The institute facilitates goal setting and strategic planning, educational programs and information, professional development, and public management assistance, and offers information and publications, outreach, and linkage with other University programs and activities. The Institute provides training for newly elected mayors and council members through a municipal leadership academy and publishes the *Iowa Municipal Policy Leader's Handbook* for city officials. It also holds the annual Iowa Municipal Management Institute, a professional development conference for city and county managers and administrators in Iowa.

Larned A. Waterman Iowa Nonprofit Resource Center

The Larned A. Waterman Iowa Nonprofit Resource Center offers information and assistance from across The University of Iowa to help Iowa's charitable nonprofit organizations become more effective in building their communities.

Law, Health Policy & Disability Center

The Law, Health Policy & Disability Center is a leader in law, technology, education, and research focused on improving the quality of life for persons living with disabilities. Based at the University of Iowa College of Law with offices in Washington, D.C., and at other locations, the center concentrates on public policy and its impact on persons with disabilities, emphasizing employment, self-determination, and self-sufficiency.

National Health Law and Policy Resource Center

The National Health Law and Policy Resource Center, founded in 1981, promotes laws and public policies that foster and facilitate accessible, affordable, and quality health services and related services for all Americans, particularly members of vulnerable and disadvantaged populations. The center provides a nonpartisan forum for informed dialogue between academics, practitioners, and public policy makers based on the best available data and information about important health law and policy issues.

Program in Law and History

The Program in Law and History, founded in 2009, builds on the Iowa tradition of scholarship and teaching in the field of legal history by bringing together faculty and students to foster research and teaching at the intersection of law and history.

University of Iowa Center for Human Rights

The University of Iowa Center for Human Rights was founded in 1999 as an outgrowth of the University's year-long commemoration celebrating the 50th anniversary of the Universal Declaration of Human Rights. Based in the College of Law, the center engages in a variety of educational programming, service learning projects, and competitive contests that encourage students to further

their exposure to, understanding of, and involvement in human rights.

Facilities and Resources

Boyd Law Building

The Willard L. Boyd Law Building, completed in 1986, exemplifies Iowa's continuing commitment to legal education and the legal profession. The building's large, circular structure reflects the special character of the Iowa law school and allows the college to operate in a physical environment in which every square foot of space is designed to promote the college's academic and professional programs.

Among the building's facilities are classrooms, the Levitt Auditorium, the Law Library, faculty and administrative offices, offices for the college's cocurricular programs, meeting rooms, a bookstore, and a cafeteria. The newly renovated suite for the college's clinical law programs functions as a teaching law firm, offering ease of access, usability, and visibility. Student and faculty lounges and faculty offices are located on the same floor, encouraging student-faculty interaction.

University of Iowa Law Library

The centerpiece of the Boyd Law Building is the University of Iowa Law Library. The Law Library has one of the most comprehensive collections of legal materials in the country, containing more than 1.3 million bound volumes and microform equivalents and more than one million separately cataloged titles as of July 2013. A particular strength of the library is its collection of U.S. legal materials. The Law Library also holds an exceptionally strong collection of materials in foreign, comparative, and international law (FCIL). The library currently receives over 1,500 FCIL-related serials and subscriptions and has an estimated print collection of comparative, international, and foreign law of approximately 280,000 volumes. The library also provides access to approximately 95 databases with FCIL-related resources.

The library's extensive collection of electronic resources is accessible both on and off campus on the Law Library's web site. The library provides access to numerous comprehensive legal databases, such as Westlaw, Lexis, and Bloomberg Law, in addition to numerous specialized legal databases. The Law Library's print and electronic legal collections are included in the University of Iowa Libraries' online catalog, InfoHawk.

The Law Library is open 106 hours a week during the regular academic year. Study carrels, large tables, and casual seating are located throughout the library, in addition to wireless Internet access and electrical outlets. The Reference Desk is staffed seven days a week by experienced reference librarians, who assist with a wide range of questions.

Writing Resource Center

The Writing Resource Center serves as an extension of the classroom and of the required first-year LAWR sequence, LAW:8032 (091:130) Legal Analysis Writing and Research I and LAW:8033 (091:131) Legal Analysis Writing and Research II. The center's director holds a Ph.D. focused on teaching writing.

The center provides one-on-one tutorial assistance for writers working on course assignments, journal articles,

writing samples, and so forth. Students come to the center through the recommendation of faculty members or through self-referral. They find help with rhetorical, stylistic, and grammatical concerns that arise in their writing. Center staff members also work with students on general writing improvement and on strategies for dealing with everything from overcoming writer's block to adapting material for varied audiences. More than two-thirds of all first-year law students and more than one-third of all law students make use of the Writing Resource Center in a typical year.

Career Services Office

The College of Law's Career Services Office provides personalized career and life planning, strategic networking, experiential learning programs, and job search assistance to law students and alumni. It assists approximately 100-150 firms, corporations, government agencies, and courts that visit the College of Law during a typical year to interview and hire Iowa law students. Visit the Career Services Office web site to learn about the office's wide range of services in detail.

Bookstore

The College of Law Bookstore carries all required legal texts and supplements. The bookstore stocks photocopied handouts and teaching materials assigned by course instructors. It also carries a variety of professionally prepared outlines, horn books, and other study aids as well as a limited selection of school supplies and merchandise, including pens, notebook paper, binders, computer disks, exam software, stamps, T-shirts, and sweatshirts. In addition, the bookstore can make change.

Students may charge costs for books, class materials, supplies, and merchandise directly to their University accounts. The bookstore does not accept credit cards.

Information Technology

Since electronic information technologies are vital in legal and business work, the College of Law encourages all law students to become proficient with computers. Access to word processing software also helps law students draft the many papers, articles, and other manuscripts that are a regular part of the law curriculum. The college has installed 41 personal computers attached to a local area network for use by its students. Students also are encouraged to purchase personal computers and Microsoft Windows software, if possible, and to use them in connection with their law school work.

The law college provides network and Internet access from all student library carrels. To participate, law students supply their own laptop computers, which must meet required specifications. Specifications are available from the Law Library computer support office. Wireless Internet access is available throughout the Boyd Law Building.

The college's computers are loaded with WordPerfect and Microsoft Office software, and the college provides training for and access to the two major online computer research databases, West Publishing Company's WESTLAW and Mead Data's LEXIS. Once students complete the training, they have unlimited free access to these services at home via their own PCs and on the student and public workstations in the Law Library.

The Law Library also provides CD-ROM workstations that allow access to databases in CD-ROM formats. Some of the

titles available are United Nations documents, complete from 1945; Index to Legal Periodicals; TIARA, a database containing treaties; and numerous U.S. government documents published on CD-ROM.

The University provides free e-mail accounts to its students, faculty, and staff through its Information Technology Services office (ITS). Students can sign up for e-mail accounts online or at the ITS offices in University Capitol Centre. ITS advises University of Iowa students, faculty, and staff on computer hardware and software needs and can provide information about educational discounts on some purchases. ITS also offers a wide variety of free computer short courses throughout the year. For information on computing resources at the University, consult the Information Technology Services web site.

College of Law Events

The College of Law holds a number of events for its students each week; check the College of Law Event Calendar for current listings. Parents and Partners Day and Iowa Supreme Court Day are two time-honored events held each fall at the college.

Parents and Partners Day

Parents and Partners Day, held during fall semester, provides law students with the opportunity to give the people close to them a glimpse into law school life. The day's activities include a mock class, building tours, a cookout, and the annual Law School Auction, which helps provide support for law students who work in low-paying or unpaid summer positions in the public sector.

Iowa Supreme Court Day

The College of Law hosts the Iowa Supreme Court on the University of Iowa Campus each fall. Supreme Court Day honors the state's top court and recognizes the college's origins in the court's chambers. During the day, four student advocates selected from the previous spring's Moot Court competition argue a case before the justices; the public is invited to attend the arguments. In the evening, faculty members host dinners in their homes for the justices and students.

Iowa Law School Foundation

The Iowa Law School Foundation (ILSF) is a nonprofit corporation established to solicit, manage, and grant gifts of money and/or property to the College of Law to support the college's research and educational activities. The ILSF Board of Directors includes alumni, faculty, and students.

Courses

The following courses are those offered by the College of Law during the past four academic years and those scheduled to be offered during the coming academic year. See College of Law Guide to Courses for a list of College of Law courses defined by Interpretation 509-1 of the American Bar Association Standards for the Approval of Law Schools.

First Year

LAW:8006 (091:104) Civil Procedure 4 s.h.

Procedure before trial; commencement of a suit; subject matter jurisdiction; jurisdiction over the person and venue; pleadings, motion practice, including summary judgment, simple joinder of parties and claims in determining scope and size of the lawsuit; pretrial discovery procedures, the trial, claim and issue preclusion.

LAW:8010 (091:116) Constitutional Law I 3 s.h.

Constitutional allocation of governmental powers; doctrine of judicial review and nature of judicial function in constitutional cases; relationships among several branches of national government; the federal system, including powers delegated to national government, powers reserved to states, and intergovernmental immunities; role of judicial process in structuring limits within which society operates; institutional development of legal system, relationship among institutions within the system.

LAW:8017 (091:120) Contracts 4 s.h.

Law that governs the otherwise unregulated sector of the economy; making and enforcement of promises, usually as part of a bargain; formation of agreements, consideration, invalidating causes, parole evidence and interpretation, conditions, and remedies; roles of promises and promissory exchanges in a modern economy; the law's limitations on freedom of contract; brief introduction to Uniform Commercial Code, Article 2.

LAW:8022 (091:124) Criminal Law 3 s.h.

Basic understanding of substantive criminal law; underlying premises of and justifications for criminal law; emphasis on general doctrines that dictate the minimum elements necessary to impose criminal liability, essential requirements of culpable conduct (an *actus reus*, or guilty act), blameworthy mental state (a *mens rea* or guilty mind); rape, homicide, causation, attempt, conspiracy, accomplice liability; various defenses to criminality, such as self-defense, duress, intoxication, insanity, diminished capacity.

LAW:8026 (091:102) Introduction to Law and Legal Reasoning 1 s.h.

Basic concepts and intellectual skills necessary for understanding the first-year curriculum.

LAW:8032 (091:130) Legal Analysis Writing and Research I 2 s.h.

Structured development of effective skills in legal analysis, writing, and research; first of a two-semester sequence.

LAW:8033 (091:131) Legal Analysis Writing and Research II 2 s.h.

Structured development of effective skills in legal analysis, writing, and research; second of a two-semester sequence. Prerequisites: LAW:8032 (091:130).

LAW:8037 (091:132) Property 4 s.h.

Concept of private property as one of the legal system's basic foundations; historical development of Anglo-American property law examined in conjunction with changing currents of economic, social, and political thought; emphasis on understanding decision making by courts in the common-law tradition, and its interplay with legislative enactments intended to change the common law; fundamental notions relating to the origins of property rights; relationship of possession and ownership, with emphasis on capacity of property law to recognize a wide range of interest configurations; impetus for promoting ease and reliability in conveyance of property interests, commercially and gratuitously; function of public recording in providing stability to transfers of interest in land; role of adverse possession and prescriptive use in recognizing expectations based on long-standing property relationships; responsiveness of property law to social change as illustrated by modern reforms in landlord-tenant act.

LAW:8046 (091:364) Torts 4 s.h.

Development of tort principles; civil responsibility for harms to tangible personal and property interests; roles of legislatures, judges, juries; intentional harms, negligence, and strict liability considered from perspectives of jurisprudence, economics, and moral philosophy.

LAW:9442 (091:129) Legal Analysis Writing and Research for Foreign Trained Lawyers 1-2 s.h.

Development of legal analysis, writing, and research skills in connection with a variety of assignments for foreign trained lawyers.

LAW:9445 (091:103) Foreign-Trained Lawyer Orientation 2 s.h.

Orientation for foreign-trained student to U.S. legal system; introduction to U.S. patterns of legal argumentation, main institutional structures of U.S. legal system, and other distinctive aspects and/or fundamental principles of U.S. law; material drawn from basic areas of law (e.g., constitutional law, civil and criminal procedure, contracts, torts, property).

Second and Third Years**LAW:8105 (091:204) Administrative Law** 3 s.h.

Formal and informal procedures, processes, and functions of state and federal administrative agencies; legislative, executive, and judicial control of their actions; nature and definition of administrative agencies; permissible delegation of authority to administrative agencies; scope of agency authority; agencies' right to obtain information from members of the public; citizens' right to obtain information in agencies' possession; definition and types of administrative rules; rule-making procedure; agency discretion to make law by rule or adjudication; right to a trial-type hearing before an agency; parties' specific rights in an administrative hearing, including notice, open or closed hearing, right to counsel, evidence, nature and exclusivity of the record; agency decision-making process, including role of hearing officers, separation of functions and bias of decision makers, nature of opinion required; judicial review of administrative action, including reviewability of agency action, primary jurisdiction of agencies, exhaustion of administrative remedies, standing, scope of judicial review, mechanics of judicial review.

LAW:8112 (091:202) Advanced Civil Procedure arr.

Complex civil litigation; advanced civil procedure topics not taught in first year; essential aspects of civil procedure (e.g., personal and subject matter jurisdiction); joinder devices (intervention, necessary parties, interpleader, consolidation), discovery and confidentiality orders, appellate jurisdiction, mechanisms to structure the trial (e.g., bifurcation of issues); class. Prerequisites: LAW:8006 (091:104).

LAW:8121 (091:339) Advanced Legal Research Methods in Specialized Subjects 1 s.h.

Legal research methods in specific legal practice and research areas; specific topic rotates each year (litigation and ADR legal research, business and tax legal research, federal legislative history legal research, legal history research); students work with real-world examples to improve research skills related to a particular legal subject.

LAW:8123 (091:198) Advanced Legal Research 2 s.h.

Builds on 091:130 (LAW:8032 (091:130)) and 091:131 (LAW:8033 (091:131)); in-depth exploration of American legal resources; current print and electronic resources that help students develop better, more efficient search techniques and select the most effective formats for their research; opportunity to review the basic sources of legal information, use varied techniques to access legal information, develop personal strategies for managing information; advanced training in LEXIS, WESTLAW, the Internet; nonlegal information sources important to the legal community, research resources of other legal jurisdictions and international law.

- LAW:8125 (091:199) State Legal Research** 1 s.h.
Legal resources available for a particular state; exploration of current print and low-cost electronic resources (i.e., Internet) to develop better, more efficient search techniques; selection of the most effective formats for research; sources of legal information; techniques for accessing legal information.
- LAW:8146 (091:208) Antitrust Law** 3 s.h.
Laws dealing with restraints of trade, monopolization and mergers; history of these laws and their development in the courts; current doctrine and its underlying legal and economic theories; analytical tools of trade: sufficiency of economic efficiency as the measure of justice.
- LAW:8159 (091:207) Arbitration: Law and Theory** 2-3 s.h.
The law of arbitration and its role in modern conflict resolution, conceptual framework and explanatory theories for the analysis of issues frequently encountered; statutory and contractual grounds for arbitration, such as labor relations, employment, consumer, and commercial transactions; the decision to use arbitration; the role of lawyers; judicial enforcement of arbitration agreements and arbitration awards; contractual issues and defenses; federal preemption; arbitrability and separability; remedies; the relationship between arbitration and litigation and mediation and other non-adversary forms of dispute resolution.
- LAW:8160 (091:240) Arbitration: Practice and Advocacy** 1-2 s.h.
Skill development to effectively participate in arbitration and related court proceedings; advise clients on various aspects of arbitration; opportunity to draft an arbitration agreement, a petition to compel arbitration, a prehearing arbitration booklet with legal authorities and supporting exhibits, and pleadings necessary for judicial review; examination of all aspects of the arbitration process; procedures for post-award remedies and judicial review; hybrid methods of arbitration, applicable rules, and ethics concepts.
- LAW:8161 (091:209) Arbitration Advocacy Competition** 1-2 s.h.
Development and application of arbitration advocacy skills in preparation for the Iowa intramural and regional competitions; addresses arbitration presentation methodology, procedure, prehearing preparation, and advocacy skills; students who advance in the intramural Iowa Arbitration Tournament are selected to represent Iowa in the ABA Arbitration Competition the following fall.
- LAW:8163 (091:192) Art, Law, and Ethics** 3 s.h.
How law and ethics apply to individuals and institutions concerned with the visual arts. Same as ARTH:4040 (01H:182).
- LAW:8167 (091:382) The American Legal Experience** 3-4 s.h.
Historical role of law in American society and its engagement with politics, social and biological science, economics. Same as HIST:4287 (16A:179).
- LAW:8186 (091:214) Bankruptcy** 3-4 s.h.
Rights of individuals and entities under the federal bankruptcy laws, from perspectives of debtors and creditors; foundational topics from liquidation bankruptcy (chapter 7) to reorganization bankruptcy (chapters 11 and 13); consumer and business bankruptcies; advanced bankruptcy topics such as small business reorganizations, farm bankruptcies, ethical issues in bankruptcy law, international insolvencies. Prerequisites: LAW:8374 (091:215).
- LAW:8194 (091:272) Basic Federal Income Taxation** 3-4 s.h.
Operation, policies, principles of federal income tax, including gross income, deductions, property dispositions, tax accounting, assignment of income among family members, time value of money, leveraging.
- LAW:8216 (091:219) Civil Procedure in Pre-Trial Theory and Practice** arr.
The law of pleadings and other pretrial matters presented in LAW:8006 (091:104); hypothetical case developed from interview to pleading to early pretrial stages; experience drafting relevant pleadings and motions. Prerequisites: LAW:8006 (091:104).
- LAW:8250 (091:223) Comparative Islamic Law** 3 s.h.
Sources of Islamic law; origins and functions of varied schools of jurisprudence; Islamic legal philosophy and Islamic legal rulings in contexts of five major schools of law; major legal topics covered by the Ottoman Legal Code. Same as RELS:4859 (032:159).
- LAW:8263 (091:224) Comparative Law** 2-3 s.h.
Comparative study of origins, development, and principal features of the world's main legal systems; common and civil law traditions; historical development of the main legal systems, their sources, ideologies, techniques; subjects important to international legal practice (e.g., international judicial assistance, application of foreign law in American courts; in-depth study of modern legal systems of the United States, Britain, France, Germany, Japan, Russia; introduction to other legal traditions, including preliterate tribal law, traditional Chinese and Islamic law.
- LAW:8272 (091:228) Conflict of Laws** 2-3 s.h.
Problems created when a transaction or relationship has associations with more than one jurisdiction; emphasis on selection of appropriate rules where there are differences in laws of various jurisdiction and on recognition of judgments of other states; current evolution in theoretical approaches to these problems; limitations on American state courts by the federal constitution.
- LAW:8280 (091:232) Constitutional Law II** 3 s.h.
Limits on governmental power imposed by the national constitution for protection of individuals; protection of life, liberty, and property by due process and equal protection; freedom of expression and association; religious freedom and the guarantee against establishment of religion; 1st and 14th Amendments.

- LAW:8301 (091:283) Copyrights** 3-4 s.h.
Federal law of copyrights, primarily the Copyright Act of 1976; emphasis on copyright protections affecting new technologies, such as videotape, computer hardware and software, electronic data transfer, cable television rebroadcast; ability of legal concepts to keep pace with technological developments. Recommendations: LAW:8643 (091:286).
- LAW:8307 (091:217) Corporate Finance** 1-3 s.h.
Introduction to fundamental principles of corporate finance, including financial statement analysis, valuation of corporate securities and of businesses, capital structure decisions, portfolio theory, and efficient capital markets hypothesis; focus on financial and accounting aspects of corporate decisions than with any particular body of law. Prerequisites: LAW:8331 (091:241).
- LAW:8318 (091:239) Corporate Governance and Control** 1-3 s.h.
Principal issues in creation of appropriate governance and control systems for large publicly-held corporations; questions of corporate structure, shareholder voting rights, duties of directors, derivative suits, indemnification and transfers of control viewed from perspective of Delaware's statutory and common law. Recommendations: LAW:8331 (091:241).
- LAW:8322 (091:231) Corporate Taxation** 3 s.h.
Influence of tax considerations on the structure of corporate transaction, from a merger to a restructuring to a securities offering; examination of primary Internal Revenue Code provisions that affect corporations and their shareholders; corporate formations, dividends, redemptions, liquidations, taxable asset and stock acquisitions, tax-free reorganizations; analysis of statutory and regulatory materials; tax reform proposals. Prerequisites: LAW:8194 (091:272). Corequisites: LAW:8331 (091:241).
- LAW:8331 (091:241) Business Associations** 3-4 s.h.
Structure, characteristics of both large publicly and closely held corporations; distribution of powers among management, directors, shareholders; fiduciary duties that limit those powers; enforcement of such duties by shareholder suits; may include basic principles of agency, partnership, and limited partnership law.
- LAW:8342 (091:386) Topics in Criminal Law Practice** 1-3 s.h.
Substantive and procedural aspects of criminal law not covered in regular College of Law criminal law and criminal procedure courses; students divided into teams (prosecutors and defense attorneys); hands-on exercises designed to reflect substantive criminal law and procedure discussion; jury selection, jury instructions, pretrial motions, client and witness interviews, depositions, investigation; ethical considerations for prosecutors and defense attorneys, including prosecutorial discretion in charging decisions and conflicts of interest. Prerequisites: LAW:8022 (091:124).
- LAW:8348 (091:206) Criminal Procedure: Adjudication** 3-4 s.h.
Adjudicatory phases of the criminal justice system: indictments and the charging process, preliminary hearings, applications for release on bail and pretrial detention, processes of discovery, guilty pleas, jury selection, conduct of criminal trials, sentencing proceedings and post-trial motions, appellate review, collateral remedies; focus on constitutional rights, specifically the Fifth, Sixth, Eighth, and Fourteenth Amendments; statutory provisions, rules of criminal procedure.
- LAW:8350 (091:125) Criminal Procedure: Investigation** 3-4 s.h.
Guarantees and rights of the Fourth, Fifth, and Sixth Amendments to the U.S. Constitution against police and prosecutorial practices designed to investigate and prove criminal cases; protection against unreasonable searches and seizures, guarantee against extraction of involuntary confessions, privilege against self-incrimination constraints upon securing confessions (i.e., *Miranda* doctrine), due process protection against unreliably suggestive identification procedures, right to counsel, protection against inculpatory admissions and identification practices; exclusionary rules and remedies that enforce constitutional guarantees.
- LAW:8362 (091:623) Critical Race Theory** arr.
Race relations and racial discrimination in America from perspectives of the Critical Race Theory movement (CRT); affirmative action, hate speech, queer theory, voting rights, postmodernism, liberalism, Asian-critical theory, Latin-critical theory, federal Indian law, critical white studies; critical race feminism—essentialism, motherhood, lawbreaking, employment law, sexual harassment, global issues.
- LAW:8374 (091:215) Debt Transactions** 4 s.h.
Laws and practices of modern lending; procedures for collection of unsecured debts, including enforcement of judgments, exemptions, prejudgment remedies, fraudulent conveyances, statutory liens; secured transactions that involve real property (mortgages) and personal property (security interests governed by Uniform Commercial Code, Article 9); consumer and commercial transactions, counseling hypothetical creditor or debtor clients, understanding realities that shape enforcement of credit agreements.
- LAW:8384 (091:244) Law of Disability Discrimination** 1-3 s.h.
Survey of various laws that govern the field of disability discrimination; particular attention to Americans with Disabilities Act, Section 504 of the Rehabilitation Act, The Individuals with Disabilities Education Act, and Fair Housing Act Amendments; emphasis on field of education law, including higher education; how to conduct an accessibility audit.

- LAW:8399 (091:385) Election Law** 3 s.h.
The Supreme Court has long declared that the right to vote is fundamental, because it is preservative of all other rights; the right to vote in theory and practice, with focus on its relationship to racial and economic justice; what has been done and what should be done to move us closer to the ideal of political equality; proper role of unelected judges in our democracy; history of the right to vote, "one person, one vote" principle, Voting Rights Act, partisan gerrymandering, voter identification, voter registration, political parties, and campaign finance.
- LAW:8407 (091:251) Topics in Employee Benefits Law** arr.
Survey of major topics in employee benefits law; overview of the plans that are subject to the Internal Revenue Code, ERISA, or both; tax-qualification rules for retirement plans focusing on 401(k) plans; disclosure owed and relief available to plan participants under ERISA; fiduciary responsibility for investment decisions under 401(k) plans; and whether ERISA preempts state and local initiatives to expand health care coverage.
- LAW:8415 (091:253) Employment Discrimination** 2-3 s.h.
Legal prohibitions against discrimination in employment on the basis of race, sex, national origin, age; focus on Title VII of the Civil Rights Act of 1964; procedural and remedial problems, elementary issues of proof.
- LAW:8421 (091:250) Employment Law** 2-3 s.h.
Rights of employers, employees in unorganized workplaces; legal issues that arise between employers and employees in nonunionized settings; hiring, discipline, termination, minimum wage, covenants not to compete, employment-related intellectual property issues, occupational safety and health, unemployment.
- LAW:8428 (091:298) English Legal System** 1 s.h.
Taught in spring London Law Consortium.
- LAW:8433 (091:255) Environmental Law** 2-3 s.h.
Role of the legal system in addressing problems of environmental disruption, with special emphasis on air, water, hazardous waste pollution.
- LAW:8444 (091:302) Estate Planning** 2-3 s.h.
Introduction to will drafting, use of powers of attorney, and advance directives (topics frequently taught in courses on trusts and estates); taxes that can be imposed upon the transfer of money or other property by gift (the gift tax), at death (the estate tax), and by certain generation skipping transfers (the generation-skipping tax); interrelationship of these taxes with each other and with the income tax. Prerequisites: LAW:8194 (091:272). Recommendations: LAW:8981 (091:378).
- LAW:8452 (091:266) European Union Law** 2-3 s.h.
Law of the European Union; EU legal and institutional structure; role of the European Court of Justice in elaborating constitutional and administrative law for the EU on the basis of treaties and legislation; principle of free movement; progress of European integration.
- LAW:8460 (091:265) Evidence** 3 s.h.
Rules of evidence developed in common-law courts and under statutes; judicial notice; examination of witnesses; privilege and competence; remote and prejudicial evidence; hearsay; burden of proof and presumptions; roles of judge and jury.
- LAW:8467 (091:268) Family Law** 3-4 s.h.
Creation, dissolution of marriage and parent-child relationships; lawyer's practical approach to family law problems combined with a broader view of how the law might treat those problems in light of findings from social and behavioral sciences.
- LAW:8481 (091:274) Federal Courts** 3 s.h.
Role of the federal courts in our federal system of government; the federal courts' original and appellate jurisdiction; Supreme Court review of state courts' judgments; Congress' power to strip the federal courts of jurisdiction; development of federal common law; federal writ of habeas corpus; abstention doctrines; state sovereign immunity; federal remedies against state and local action; and Congress' power to create non-Article III adjudicative tribunals. Prerequisites: LAW:8006 (091:104) and LAW:8010 (091:116).
- LAW:8487 (091:259) Federal Government Contracting** 1 s.h.
Specialized litigation forums created by the federal government to remedy contract disputes over federal contracts for goods, services, and construction; similarities and differences between the federal litigation system and the common law of contracts and UCC Article 2 law; assessment of whether the federal litigation forums and policy goals work; related issues most attorneys encounter during their practices.
- LAW:8497 (091:256) Federal Criminal Practice** 2 s.h.
Introduction to each step in the criminal process together with instruction in advocacy skills required for the effective practice of law; complete chronology of a typical federal criminal case, from grand jury investigation through post-trial motions; importance of strategic thinking. Prerequisites: LAW:8350 (091:125).
- LAW:8504 (091:218) Federal White Collar Criminal Law** 1-3 s.h.
How corporations and their officers, directors, employees, and agents can violate criminal law; liability imposed under state and federal laws in the United States, criminal liability under laws of other countries; fundamentals of U.S. law; case studies of recent prosecutions involving American corporations.
- LAW:8509 (091:319) Food and Drug Law** 3 s.h.
Food and Drug Administration (FDA) as gatekeeper for permission to market prescription drugs and devices; key role in creation and analysis of information on these products; focus on prescription drugs and devices; five theoretical issues—autonomy, trust/agency costs, information, insurance, and markets in health care; substantive legal doctrines including IP, tort, administrative law, health law, and commercial speech; applied administrative law course.

LAW:8513 (091:285) Foreign Comparative and International Legal Research 1-2 s.h.

Treaty research, locating and identifying documents from international organizations and tribunals, legal research in selected jurisdictions outside the United States; variety of print and electronic sources; research methods in foreign and international law.

LAW:8527 (091:260) Foreign Relations Law arr.

Impact of the constitutional distribution of powers on the conduct of U.S. foreign relations; influence of separation of powers doctrines on conduct of foreign relations, status of international law in the U.S. legal system, role of courts in adjudicating issues affecting foreign relations, controversy over distribution of war powers between the president and Congress.

LAW:8533 (091:358) Forms of Argument/ Systems of Belief 2-3 s.h.

Major theories of law relevant to study and practice of law in contemporary America; six distinct operating systems, including legal formalism, legal realism, the legal process school, law and economics, the legal positivist/analytic tradition, and critical legal theory (including legal studies, feminist legal theory, critical race theory); diverse forms of legal argument, including those associated with particular theories of law.

LAW:8551 (091:252) Family, Gender, and Constitutional History 3 s.h.

Same as HIST:4285 (16A:175).

LAW:8562 (091:261) Health Law 2-3 s.h.

Major areas of concern in health law; tension between quality, access, costs; may include malpractice, quality control, health care financing, access (insurance, Medicare, and Medicaid), licensing, bioethics (end-of-life decisions, informed consent, surrogacy, organ transplantation).

LAW:8570 (091:193) Human Rights in the World Community 1-3 s.h.

Introduction to established and developing legal rules, procedures, and enforcement mechanisms that govern protection of international human rights; liberal western and developing world notions of human rights, recent examples of human rights controversies worldwide; international human rights of women.

LAW:8577 (091:280) Immigration Law and Policy 1-3 s.h.

Legal, historical, social, philosophical, and policy foundations of immigration control; modern debate over immigration; criteria and procedures that govern admission of non-U.S. citizens to the United States for permanent residence and temporary visits; deportation criteria and processes; national security and civil liberties implications of immigration policy; refugees and political asylum; undocumented migrants; acquisition, loss, and significance of U.S. citizenship; focus on U.S. law with introduction to perspectives from comparative and international law; experience analyzing varied fact problems that require strategic decision making and interpretation of complex statutory provisions.

LAW:8584 (091:284) Insurance 1-3 s.h.

Legal principles of insurance; applicability of general principles of contract formation; principles involved in determining which persons and interests are protected, which risks are transferred, and when rights are at variance with insurance policy provisions; claims process, disposition of disputed claims; adoption of tort principles and statutes to alter common law approach to insurance contracts.

LAW:8593 (091:303) Federal Indian Law 3 s.h.

Specialized body of law that allocates power and authority in Indian country and has grown up around Native American peoples and their reservations; sovereignty arrangements, jurisdiction, federal Indian policy, tribal self-government. Same as AINS:8593 (149:178).

LAW:8599 (091:387) International and Comparative Inequality Law 3 s.h.**LAW:8600 (091:282) International Business Transactions** 1-3 s.h.

Legal and practical issues in international trade and investment; typical private transactions, such as the sale of goods (documentary sales transaction, INCOTERMS, letters of credit, agency, distribution), transfer of technology (franchising, licensing), and direct investment across national borders; how private international sales, investment, and licensing transactions are structured to permit private businesses to minimize and plan for the risks associated with conducting business on a global scale.

LAW:8615 (091:295) International Commercial Arbitration arr.

Formation and enforcement of agreements to enter arbitration in order to settle international business disputes; recognition and enforcement of arbitral awards, process of arbitrating an international business dispute; role-playing exercises to hone advocacy and decision-making skills.

LAW:8618 (091:296) International and Comparative Family Law 1-3 s.h.

Introduction to family law system in England; issues of international legal practice in family cases; international legal instruments for protection of children, including U.N. Convention on the Rights of the Child, Hague Convention on the Civil Aspects of International Child Abduction, and Hague Convention on Intercountry Adoption. Corequisites: LAW:8467 (091:268).

LAW:8622 (091:291) International Environmental Law 3 s.h.

Laws and institutions developed by the international community to deal with international environmental problems, including those of the atmosphere (acid rain, ozone depletion, radioactive fallout, climate change), hydrosphere (land-based sea pollution, sea-based vessel pollution, transboundary groundwater diversion), lithosphere (hazardous waste disposal, toxic pollutants, decertification), biosphere (driftnet fishing, endangered elephants, loss of tropical rainforests).

LAW:8626 (091:299) International Humanitarian Law arr.

Examination of modern international law of war (referred to as law of armed conflict or international humanitarian law); purposes, sources, and principles of this body of law; specific provisions; emphasis on responding to terrorism and other forms of asymmetrical warfare, use of weapons of mass destruction and chemical and biological weapons, and intersection between international humanitarian law and international human rights; legal and policy issues related to international humanitarian responses to natural disasters. Recommendations: LAW:8570 (091:193) or LAW:8649 (091:195).

LAW:8629 (091:277) Taxation of International Business Transactions 3 s.h.

Introduction to U.S. aspects of international taxation and international tax policy issues; how the United States taxes foreign persons on income they derive from U.S. sources; taxation of U.S. persons on their worldwide income; United States bilateral tax treaty network, under which many of the statutory rules regarding the taxation of foreigners are modified or supplanted; solving problems that illustrate the operation of the Code and regulations. Prerequisites: LAW:8194 (091:272). Corequisites: LAW:8331 (091:241).

LAW:8631 (091:287) International Trade Law: Basic Norms and Regulations 3 s.h.

Basic norms and legal framework of international trade as expressed in the GATT/WTO regime and U.S. trade laws; issues raised by regional trade blocs such as NAFTA; controversies such as the economic and philosophical justifications for, and objections to, free trade from a variety of perspectives.

LAW:8634 (091:301) International Transacting Skills 1-2 s.h.

Key negotiation concepts and skills necessary to successfully negotiate international deals through a series of role simulations involving cross-border joint ventures, international project finance deals, and deal-making in developing countries; students engage in one or more simulated negotiations each session, followed by debrief—discussion of how negotiation concepts and features of international transactions, introduced in readings, played out in negotiation dynamics.

LAW:8643 (091:286) Introduction to Intellectual Property 3-4 s.h.

Introduction to some of the most important intellectual property rules; goals and theories underlying these rules; common ways in which ideas may be protected—from basic form of protection (secrecy and trade secrecy) to exclusive rights granted over inventions (patents) and creative works (copyright), and concluding with rights related to market-based identities (trade and service marks); brief exploration of ways in which debates over intellectual property rights have permeated modern culture.

LAW:8647 (091:289) Competition Policy and Innovation 3 s.h.

Important issues at intersection of federal competition policy and intellectual property law; competition policy referenced as antitrust laws; competition policies that emanate from intellectual property laws or other regulatory provisions; exclusionary practices, collusion and joint ventures, vertical integration, and procedural issues.

LAW:8649 (091:195) Foundations of International Law 1-3 s.h.

Introduction to fundamentals of international law; focus on aspects of international law that concern interests in the United States; survey of sources, methodology, and major doctrines of international law within framework of understanding diverse jurisprudential approaches; international law's relationship to U.S. domestic law and institutions; procedural aspects of international law involving international institutions, including the International Court of Justice; foundation course for students interested in international trade, business, family law, human rights, environmental law, and an interest in European Union law.

LAW:8658 (091:288) Jurisprudence 2-3 s.h.

Exploration of questions central to jurisprudence by looking at positions that have been adopted by legal positivist, natural law theory, and sociological models of jurisprudence (i.e., is there more to legal argument than the strategic battle for a favorable judicial ruling? How would one have to conceive of legal reasoning if one were a judge? Are there right answers to legal questions? Do they presuppose a necessary connection between law and morality? Is any exchange of pros and cons merely a spectacle created in order to hide from the dumbfounded public that legal reasoning does not really matter?); comparative dimension provided in readings with background in civil law.

LAW:8666 (091:310) Law and Development 2-3 s.h.

Origin of development law and institutions that were created in order to advance it, including the World Bank and International Monetary Fund.

LAW:8670 (091:292) Labor Law 3-4 s.h.

How national labor law regulates labor relations in the private sector; law relating to unionized employees and firms; right of employees to organize into unions; limits of concerted activities by employees; scope and provisions of collective bargaining; enforcement of the collective bargaining agreement; rights of individual employees in collective units and in labor organizations; lawyer's role in dealing with judicial, administrative, and arbitral tribunals involved in enforcing labor law; lawyer's role in complex interrelationships between policy, statute, judicial, and administrative decisions.

LAW:8680 (091:309) Law and Economics 3 s.h.

Introduction to economics analysis of law; how economic reasoning is used to explain and predict the effects of legal rules; fundamental areas of American law (e.g., property, contracts, torts, criminal law); use of economic efficiency as a normative criterion for evaluating legal rules; efficiency compared to various moral concepts to evaluate such rules.

LAW:8698 (091:307) Law in the Muslim World 2-3 s.h.

International and comparative law issues relevant to countries in the Muslim world; legal cultures, institutions, rules, actors, processes of several jurisdictions including Afghanistan, Saudi Arabia, Iran, Iraq, Algeria, Nigeria, Palestine, Pakistan; Islamic sharia law as practiced in Sunni and Shiite countries; the role of church versus state, fundamentalism versus secularism, as manifested in the legal system; tension between communitarianism and individualism in modern constitutionalism; intertwining of customary and religious legal practices; first, second, and third generations of human rights; international law on issues such as terrorism, self-determination; women's rights, including polygamy, divorce, child custody, inheritance. Requirements: junior or senior standing.

LAW:8703 (091:306) Cyber and Electronic Law 2-3 s.h.

Legal and public policy issues created by electronic technologies—computers, the Internet and Web, other electronic communications and new media, including privacy and surveillance; cyber-torts (defamation) and cyber-crime; cyber-terrorism and cyber-warfare; social networking in politics and revolution; cyber-property, real (copyright, Fair Use, trademark) and virtual; First Amendment and restrictions on speech; geography and sovereignty (jurisdiction); regulation by means of technology as well as law; electronic commerce; broadband and other transmission technologies policies (net neutrality); and intermediaries' liability for content.

LAW:8709 (091:311) Introduction to French Law 2-3 s.h.

Introduction to laws of France, characteristic features, and role of main institutions; civil law, contracts, tort, family law, commercial law, criminal law, labor law; visits to a French law school, Paris Court, and Ecole of Magistrature National (ENM), the National Judge School in Bordeaux. Summer abroad program.

LAW:8711 (091:376) The Legal Profession 1-3 s.h.

Exploration of various aspects of history, structure, organization and function of legal profession; effective practice strategies; ethical and practical challenges of legal practice in different settings (i.e., working for judges, small and big firms, solo practice, corporations, non-profit organizations, public sector, internationally); readings, interviews, and discussion sessions with practicing attorneys; development of professional portfolios; practice of professional skills including effective communication, professional legal writing, and interviewing.

LAW:8712 (091:314) Legislation 2-3 s.h.

Issues related to legislation and legislative process at state and federal level; introduction to legislation, legislative process, legislative advocacy, statutory drafting, statutory interpretation, and constitutional issues; role of lawyers in legislative process and formation of public policy.

LAW:8714 (091:341) Managing National Security 1-3 s.h.

Substance, process, and practice of national security law.

LAW:8720 (091:315) Mediation: Theory and Practice 3-4 s.h.

Essential characteristics; comparison of mediation with litigation and other alternative dispute resolution processes; stages of mediation; confidentiality; enforceability of agreement; ethical problems, particularly lawyer-mediator; student role playing; short writing assignments.

LAW:8726 (091:318) Mergers and Acquisitions 3 s.h.

Significant legal and financial aspects of business combination transactions; transaction documents (e.g., stock purchase agreements, asset purchase agreements, merger agreements); valuation of companies and pricing of deals; legal and financial considerations affecting the structuring of deals; tender offers and their regulation under the Williams Act, tender offer rules; fiduciary duties of target board, including Revlon duties and the Unocal standard; anti-takeover devices (e.g., poison pills and staggered boards, deal protection devices, freezeout transactions); state anti-takeover statutes. Prerequisites: LAW:8331 (091:241).

LAW:8733 (091:317) Narrative Strategies for Lawyers 1-3 s.h.

Fiction writing; narrative nonfiction writing techniques; use of narrative in the legal context; workshop format to read and critique stories, published works, and works students have written.

LAW:8742 (091:342) Negotiations 2-4 s.h.

Nature and theory of negotiations, diverse rhetorics (including the rhetoric of legal argument) relevant to conduct of negotiations, conflict between ethics and effectiveness; readings from game theory, social psychology, anthropology, rhetoric and ethics.

LAW:8751 (091:320) Nonprofit Organizational Effectiveness I 3 s.h.

Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as SLIS:6430 (021:263), MGMT:9150 (06J:247), HMP:6360 (174:247), SSW:6247 (042:247), URP:6278 (102:278), MUSM:6010 (024:247), SPST:6010 (028:257), RELS:6070 (032:227).

LAW:8752 (091:322) Nonprofit Organizational Effectiveness II 3 s.h.

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Requirements: for LAW:8752 (091:322) — LAW:8751 (091:320); for HMP:6365 (174:248) — HMP:6360 (174:247) or MGMT:9150 (06J:247) or MUSM:6010 (024:247). Same as MGMT:9160 (06J:248), SLIS:6435 (021:265), SSW:6248 (042:248), HMP:6365 (174:248), URP:6279 (102:279), MUSM:6020 (024:248), SPST:6020 (028:258), RELS:6075 (032:228).

- LAW:8763 (091:324) Patent Law** 2-4 s.h.
All aspects of U.S. patent law; patent claims, adequacy of disclosure, statutory subject matter, validity, inequitable conduct, infringement, remedies, varied specialized doctrines; focus on recent pronouncements from the Court of Appeals for the Federal Circuit. Recommendations: LAW:8615 (091:295).
- LAW:8770 (091:327) Payment Law** 1-3 s.h.
Law that governs methods by which businesses and consumers typically pay for goods and services in modern economy; legal rules applicable to traditional paper-based payment system, including negotiable instruments (checks and notes) and bank collection of checks; modern payment methods (credit cards, debit cards, wire transfers); focus on Articles 3, 4, and 4A of the Uniform Commercial Code and related federal law and regulations.
- LAW:8787 (091:276) International Finance** 3 s.h.
International banking and securities transactions; major national markets of the United States, Europe, and Japan, and offshore markets; major areas of international regulation and policy, such as capital adequacy, clearance, and settlement.
- LAW:8791 (091:308) Professional Responsibility** 2-3 s.h.
Public and private professional responsibility of lawyers; organization of the profession; its economics, ethics, and sociology.
- LAW:8796 (091:136) Property II** 3 s.h.
Continuation of 091:132; limitations imposed on landowner's use of their property by private agreements, judicial actions, and public regulations; problem areas including servitudes, nuisance, eminent domain ("takings"), constitutional limitations on governmental activities adversely affecting private property, community planning, zoning and other forms of local land use control; discrimination as it relates to land development and housing; relative effectiveness of private ordering, judicial decisions, legislative enactments and administrative processes for resolving conflicts over use of land resources; relationships between law and other disciplines, particularly economics, in forging solutions to land use issues; law's utility as an instrument for achieving societal objectives regarding land use.
- LAW:8819 (091:340) Remedies** 3 s.h.
Legal and equitable remedies by which the law corrects injustice and redresses legal wrongs; remedies for tortious wrongs, including damages and injunctive relief; remedies for breaches of contract, including damages, specific performance, rescission, reformation; law of restitution, with emphasis on restitutionary remedies (quasi-contract, constructive trust, equitable lien).
- LAW:8856 (091:355) Securities Regulation** arr.
Regulation and sale of securities to the public under the Securities Act of 1933 and state blue-sky laws; remedies provided through the Securities Act; regulation and litigation under the Securities Exchange Act of 1934, which focuses on companies with publicly-traded securities. Prerequisites: LAW:8331 (091:241).
- LAW:8877 (091:349) Sex-Based Discrimination** 2-3 s.h.
Survey of sex-based discrimination and legal responses in the United States and worldwide; American context—constitutional guarantees and various statutory guarantees, including Title VII of the Civil Rights Act of 1964 and Title IX of the Education Amendments of 1972; global context—examination of various regions of the world, emphasis on France, South Africa, and countries with majority Muslim populations; issues involving customary law, affirmative action/quotas, and constitutional reform.
- LAW:8879 (091:346) Sports Law** 3 s.h.
Exploration and understanding of the many ways in which law and lawyers intersect and impact the multi-billion-dollar industry that is high school, collegiate, and professional sports; basic legal foundation for those who are merely curious as well as those considering legal representation for players, coaches, teams, leagues, schools, media, or other sports related institutions and individuals; common contractual processes and provisions, judicial oversight of institutional self-governance and commissioner enforcement, antitrust implications of leagues, labor law, gender issues, intellectual property, criminal and torts law.
- LAW:8887 (091:354) State and Local Government** 1-3 s.h.
Allocation of decision-making authority in society; allocation between public and private decision makers; allocation among governmental units, and among public institutions; principles and policies that underlie legal doctrines and the relationship of those principles and policies.
- LAW:8891 (091:359) State and Local Taxation** 3 s.h.
Limitations on state taxing powers under the United States Constitution, including Commerce, Due Process, and Privileges and Immunities Clauses; subnational jurisdictions, particularly states with an emphasis on sales tax and corporate income taxes, gross receipts taxes, and excise taxes; issues relating to e-commerce.
- LAW:8917 (091:356) Substitute Decision Making for Incapacitated Individuals** 1-2 s.h.
Types and forms of substitute decision making for individuals whose decision making capacity is impaired due to conditions such as dementia, mental disabilities, or mental illnesses and who need a surrogate (or substitute decision maker) to make decisions about matters such as finances; health care, personal care, living arrangements; financial powers of attorney; guardianships; conservatorships; advance directives including living wills, health care powers of attorney, out-of-hospital do-not-resuscitate orders (OOH-DNR); representative payees; introduction to probate court procedures and processes.
- LAW:8919 (091:330) Survey of Work Law** 2-3 s.h.
Introductory survey of four types of legal regulation of the workplace: labor law, employment discrimination, law of private employment, and law of public employment.
- LAW:8921 (091:383) Taxes and Business Strategy** 3 s.h.

Effect of taxes on business decisions, including investment strategies, capital structure decisions, compensation policies, international business, mergers and acquisitions, and financial reporting. Prerequisites: ACCT:3500 (06A:141) or MBA:8140 (06N:215) or LAW:8194 (091:272). Requirements: graduate standing in business. Same as ACCT:9050 (06A:231).

LAW:8929 (091:361) Taxation of Partnerships 2-3 s.h.

Introduction to federal tax treatment of partnerships and limited liability companies, the most common business entities in use in the United States today; classification of entities as partnerships for federal tax purposes; formation of partnership and subsequent contributions to partnership capital; flow-through tax treatment of partnership operations; tax-sensitive allocations of items of partnership income, deduction, credit and loss; partnership distributions and related tax-sheltering strategies, liquidation or sale of partnership interests; death or retirement of partners, tax treatment of partnerships compared with S corporations. Prerequisites: LAW:8194 (091:272).

LAW:8939 (091:352) Title Examination and Selected Real Estate Transactions 2 s.h.

Examination of abstracts of title to real property and preparation of resulting title opinion; drafting and interpretation of legal description to real property; subdivision of real property; negotiating and drafting basic contractual and transfer documents involved in typical real estate transactions.

LAW:8954 (091:369) Trademarks and Unfair Competition Law 2-4 s.h.

Law of unfair competition with primary emphasis on trademarks; policies underlying unfair competition law, creation and establishment of trademark and trademark-like rights, enforcement of those rights, non-trademark concepts of false advertising, rights in one's persona; traditional doctrinal components and skill-based exercises; for students interested in trademark and unfair competition law, specifically and as part of a broader business law practice. Recommendations: LAW:8643 (091:286).

LAW:8961 (091:366) Select Issues in Transnational Litigation arr.

Transnational litigation as any litigation involving a foreign element (usually an American party in a foreign court or a foreign party in an American court); litigation that seems completely domestic and turns into a transnational one (when discovery, interim measures, or enforcement are sought overseas); encountering elements of transnational litigation in today's global economy; in-depth study of a few representative topics; emphasis on all relevant aspects of transnational litigation (practice, doctrine, policy, theory).

LAW:8977 (091:375) Advanced Trusts and Estates Practice 2 s.h.

Wide range of current issues in modern family estate planning; difficult non-tax issues in family estate planning, difficult tax-sensitive planning issues affecting clients of modest means, difficult complex tax planning issues affecting wealthy clients. Prerequisites: LAW:8981 (091:378).

LAW:8979 (091:379) Trusts and Estates II arr.

Substantive provisions of wills and trust instruments; recurring construction problems and pitfalls in drafting; powers of appointment; future interests and how they operate in complex trusts; impact of rules of policy restricting the disposition of property, including the rule against perpetuities. Corequisites: LAW:8981 (091:378).

LAW:8981 (091:378) Trusts and Estates I 1-4 s.h.

Transmittal of wealth within the family; policy of donative freedom, with focus on property law, including intestate succession, wills, lifetime transfers in trust or otherwise, powers of appointment, future interests; experience drafting a will, trust, or other estate planning document; for 4 s.h., additional classes on federal estate, gift, generation skipping transfer taxes, their effect on wealth transfer.

LAW:8992 (091:377) Water Law arr.

Legal schemes for securing and using water rights in surface water and groundwater for private and public uses in the United States; riparian and prior appropriation doctrines of water allocation, groundwater management regimes, federal water management and regulation, and interstate and transboundary allocation devices; evolving role of science, economics, and policy in water allocation law; does not address issues of water quality, which are covered in environmental law.

LAW:9010 (091:210) Appellate Advocacy I 1 s.h.

Experience based on an assigned fictitious case: writing an appellate brief asserting the client's position, and arguing the case before a panel of students, faculty, community attorneys.

LAW:9021 (091:404) Van Oosterhout Baskerville Moot Court Competition 1 s.h.

Single-elimination tournament culminating in the final four advocates arguing before a panel of judges; advocates write a portion of the brief, argue for and against the issue they briefed. Prerequisites: LAW:9010 (091:210).

LAW:9028 (091:431) Jessup Moot Court Competition Team 1-2 s.h.

Participation as team member in Jessup International Moot Court Competition; preparation of memorials in fall, travel to February regional rounds; travel to international competition in Washington, D.C., for top two teams. Prerequisites: LAW:9010 (091:210).

LAW:9033 (091:408) National Moot Court Competition 1 s.h.

Participation by third-year students as law school's representatives in the regional Moot Court competition (fall semester), and in judging intramural Moot Court competitions (spring semester). Requirements: placement as one of four finalists in LAW:9021 (091:404).

LAW:9037 (091:403) Advanced Moot Court Competition Team 1 s.h.

Advanced Moot court team; members are top advocates from previous year's Van Oosterhout/Baskerville competition. Fall of third year.

LAW:9038 (091:430) Jessup International Moot Court Competition 1 s.h.

Participation by second-year students in intramural regional- and national-level moot court competition in international law; intensive criticism in appellate brief writing and oral argument. Prerequisites: LAW:9010 (091:210).

LAW:9046 (091:402) Moot Court Board 1-3 s.h.

Experience as member of the Moot Court Board administering the Appellate Advocacy Program, researching appellate cases used in the program, judging appellate arguments. Requirements: membership based on performance in LAW:9010 (091:210).

LAW:9051 (091:414) National Arbitration Competition Team 1 s.h.

Eight finalists from spring intramural arbitration competition represent the College of Law at the National Arbitration Competition in fall of second or third year.

LAW:9060 (091:370) Trial Advocacy 2 s.h.

Training in basic skills of trial advocacy; focus on particular aspects of trial technique (direct examination, cross-examination, handling documents, making objections, expert witnesses, jury selection, opening statements, closing arguments); pedagogical emphasis on learning by doing with immediate feedback by classmates, faculty, and outside attorneys or judges with subsequent videotape critiques; full-scale trial, from filing of pretrial motions to rendering of a jury verdict conducted by student co-counsel before a visiting Iowa judge and jury of lay people. Prerequisites: LAW:8460 (091:265).

LAW:9061 (091:374) Advanced Trial Advocacy - Stephenson Competition 1-2 s.h.

Review and expansion of topics presented in the initial trial advocacy course; preparation and application of these principles in the Stephenson trials; introduction to additional advanced problems such as the evidentiary issues raised in the trial problem. Corequisites: LAW:9060 (091:370).

LAW:9062 (091:371) Trial Advocacy Board 1-2 s.h.

Administration of Trial Advocacy Program and Stephenson Competition; research and writing in connection with trial problems and readings used in program; critique of performances of trial problems. Prerequisites: LAW:8460 (091:265) and LAW:9060 (091:370).

LAW:9066 (091:373) Stephenson Trial Advocacy Team arr.

Student participation as College of Law representatives in Stephenson Trial Advocacy Competition. Prerequisites: LAW:9061 (091:374).

LAW:9070 (091:248) Deposition Practice and Civil Pretrial Advocacy 2 s.h.

Preparation to use all avenues of civil pretrial practice to develop essential facts, protect client interests, and obtain client goals; facts established in a mock complaint used to navigate primary aspects of civil pretrial process—document requests, interrogatories, requests for admissions, offers of judgment, and depositions; focus on use of written discovery and depositions to lead to a formidable settlement posture and either a successful dispositive motion or advantageous position for trial.

LAW:9115 (091:400) Law Review 1-2 s.h.

Performance of substantive tasks to produce a first-rate scholarly journal; writing a substantial note; comprehensive legal research experience; analysis of complex legal issues with enhanced critical-reasoning skills and command of the legal standard, The Bluebook citation system; selection of students that transfer to UI College of Law after their first year and rising second-year students is based on the Write-On Competition.

LAW:9118 (091:401) Student Journal Editor —Law Review arr.

Experience on the *Iowa Law Review* editorial staff: managing production, overseeing business operations, administering student writing program, selecting and editing articles for publication, supervising student research and writing. Eligibility based on previous writing for the journal. Prerequisites: LAW:9115 (091:400).

LAW:9124 (091:415) Journal of Corporation Law 1-2 s.h.

Experience editing articles and writing commentaries for *The Journal of Corporation Law*, a student-operated scholarly publication that examines subjects of current importance to businesses and the bar.

LAW:9127 (091:416) Student Journal Editor —Journal of Corporate Law arr.

Experience on *The Journal of Corporation Law* editorial staff: managing production, overseeing business operations, administering student writing program, selecting and editing articles for publication, supervising student research and writing. Eligibility based on previous writing for the journal. Prerequisites: LAW:9124 (091:415).

LAW:9142 (091:420) Transnational Law and Contemporary Problems Journal 1-2 s.h.

Experience researching and writing on issues in international and comparative law for the journal *Transnational Law & Contemporary Problems*. Requirements: second- or third-year law standing.

LAW:9145 (091:421) Student Journal Editor —TLCP Journal arr.

Experience researching, writing, and editing on issues in international and comparative law for the journal *Transnational Law & Contemporary Problems*. Requirements: second- or third-year law standing.

LAW:9163 (091:425) Journal of Gender, Race and Justice 1-2 s.h.

Academic year experience on *The Journal of Gender, Race & Justice*: writing two journal pieces, including a recent development and a note or a comment, and performing office duties. Requirements: second- or third-year law standing.

LAW:9166 (091:426) Student Journal Editor —Gender, Race and Justice arr.

Experience on *The Journal of Gender, Race & Justice* editorial staff: managing student writing program, overseeing business operations and production, selecting symposium topic and participants, selecting and editing all publications pieces; eligibility based on writing and editing experience.

- LAW:9251 (091:480) Legal Practice Capstone** 3-7 s.h.
Preparation for professional settings in which junior attorneys are expected to manage assignments from several different supervisors at once and execute projects in areas of law not formally studied in law school; variety of legal projects covering an array of doctrinal areas; identities of participating faculty members and nature of assigned projects revealed when course commences (e.g., junior attorneys in large and mid-sized law firms often discover day-to-day who their next supervisors are and what their next projects will be). Requirements: J.D. standing and in final year of study.
- LAW:9302 (091:406) Clinical Law Program—Internship** arr.
Experience working directly with faculty members on cases and in-house program; full participation in interviewing, fact investigation, negotiation, courtroom proceedings.
- LAW:9307 (091:407) Clinical Law Program—Externship** arr.
Experience representing clients through legal assistance offices in eastern Iowa, under supervision of faculty members and staff attorneys.
- LAW:9322 (091:399) Field Placement: Judicial** arr.
Close work with a federal district court judge or state appellate judge conducting research and drafting a wide variety of legal memoranda, orders, and opinions; assist in hearings and perform other duties generally associated with a judicial clerkship; weekly meetings with a faculty supervisor to discuss student's work in chambers; participation in biweekly classroom discussions.
- LAW:9331 (091:267) Field Placement: General** arr.
Experience in nonprofit organizations, government agencies; unpaid; usually summer.
- LAW:9335 (091:395) Summer Legal Placement** 1-3 s.h.
Externship opportunities for direct involvement in activities characteristically performed by attorneys (e.g., research and writing, document drafting, client interviewing and counseling, fact investigation, negotiations, court appearances); in-depth exposure to as many facets of the actual practice of law as practicable in each externship.
- LAW:9346 (091:390) British Legal Methods Clinical Program** 3 s.h.
British Law externship; placement in London law office under guidance of barrister or solicitor; seminar and enrollment in course on English legal system taught by faculty of King's College, University of London.
- LAW:9380 (091:445) Courts Colloquium** 1 s.h.
Opportunity to learn about inner workings of American judicial system through the lens of many judges; each semester centered on a theme (i.e., Iowa Courts, State Supreme Courts); sessions led by judges who, based on their positions, fit within selected theme.
- LAW:9404 (091:450) Field Placement: Corporate Law** arr.
One-semester placement at a Delaware court; students typically assigned to many of the same tasks required of judicial clerks, may include corporate law issues. Prerequisites: LAW:8331 (091:241).
- LAW:9413 (091:455) Health and Elder Law Practicum** 1-4 s.h.
Opportunity to participate in research involving current health and elder law and policy issues, in collaboration with public health agencies, legislators, professional organizations, and advocacy organizations.
- LAW:9423 (091:513) Tutorial** arr.
Different types of pedagogical techniques.
- LAW:9424 (091:504) Tutorial** 1-4 s.h.
Work under faculty supervision; may involve substantive area of the law of jurisprudential ideas as they appear in various intellectual spheres; tutorials.
- LAW:9429 (091:508) Intellectual Property Advocacy** 1-4 s.h.
Integrates teaching of substantive intellectual property law with development of oral and written advocacy skills in intellectual property field; builds on earlier learning in preparation for practice of law.
- LAW:9433 (091:512) Service Tutorial** arr.
Designed to enhance learning through the completion of a group service project. Corequisites: LAW:8460 (091:265).
- LAW:9435 (091:514) Sexual Orientation and the Law Tutorial** arr.
Exploration of the intersection of law and sexual orientation.
- LAW:9444 (091:506) LL.M. Tutorial** 1 s.h.
Requirements: LL.M. candidate.
- LAW:9450 (091:520) Patent Law Tutorial** arr.
Examination of recent patent-related en banc Federal Circuit and Supreme Court decisions. Prerequisites: LAW:8643 (091:286) or LAW:8763 (091:324).
- LAW:9455 (091:660) Medical Tutorial for Law Students** arr.
Participation on medical and/or surgical rounds under supervision of attending physician; didactic sessions on legal, medical, and ethical issues arising from the clinical experience, and issues such as peer review, credentialing, quality assurance, cost containment, AIDS, reproductive technology; recent developments in medical technologies. Cosponsored by Carver College of Medicine. Prerequisites: LAW:8562 (091:261).
- LAW:9473 (091:503) Writing Tutorial** arr.
Writing project on a subject or topical area specified by the supervising faculty member; group meetings; writing tutorial.
- LAW:9481 (091:502) Supplementary Writing** arr.

Supplemental writing project that is related to a student's course, but goes beyond the requirements for the course, and is supervised by the faculty member who teaches the course.

LAW:9486 (091:501) Directed Research and Writing arr.

Research and writing project unrelated to any substantive course, supervised by a faculty member.

LAW:9490 (091:500) Independent Research Project arr.

Work under faculty supervision; research.

LAW:9491 (091:505) Independent Research arr.

Work under faculty supervision; research.

LAW:9503 (091:686) Advanced Immigration Law and Policy arr.

Examination of issues arising out of contemporary problems of immigration law and policy; topics vary, may include critical analysis of initiatives for national, state, and local immigration reform; traditional class-based component, experiential component, advanced legal research component, and rigorous writing requirement. Requirements: LAW:8577 (091:280) or legal clinic experience.

LAW:9504 (091:610) Advanced Problems in Contract Law arr.

Legal issues arising from standard form consumer contracts; reality of consent to such contracts and their terms, adequacy of unconscionability doctrine to manage abuses, consequences of contracts of adhesion, special rules of interpretation, disclaimers of warranties, limitations on remedies, alternatives to consent as basis of a consumer's obligations; research, analytical papers.

LAW:9518 (091:601) Advanced Topics in Corporate Law arr.

Wide range of topics; theory of the firm, fiduciary duties, corporate counseling issues, history of corporate law, and so forth. Requirements: one law or business course in corporate law.

LAW:9528 (091:663) Advanced Topics in International Law arr.

Contemporary problems of public international law and policy; issues arising from armed conflict, use of force, pacific settlement of disputes; human rights law and policy (individual civil, political, economic, social, and cultural rights; group rights such as self-determination, development, environment, peace); trade and development; environmental law and policy (e.g., climate change, species extinction, pollution).

LAW:9537 (091:689) Appellate Adjudication Seminar 3-4 s.h.

Introduction to skill and art of writing appellate judicial opinions; brief, preliminary study of appellate jurisdiction and procedure; group responsibility for deciding a number of cases pending before regional appellate courts (e.g., the Iowa Supreme Court, the United States Court of Appeals for the Eighth Circuit); students study briefs and conduct additional research as appropriate, conference cases sitting as a mock appellate court, assign and prepare opinions, solicit votes, and write one or two opinions.

LAW:9549 (091:603) Capital Punishment arr.

Overview of the death penalty as presently applied in America; moral issues; long-term trends limiting the use of the death penalty in the United States and abroad; legal issues and Eighth Amendment jurisprudence that has developed since the 1960s regarding limits on the exercise of juror discretion, jury selection, proportionality, the execution of minors, racial discrimination, *mens rea* requirements, capital appeals and collateral attacks, and death penalty lawyering; critique of death penalty bills proposed in recent years for Iowa.

LAW:9552 (091:196) Child Maltreatment and Child Welfare System arr.

Coercive state intervention through child welfare system to protect children from maltreatment by parents and other caretakers; definitions of child abuse and neglect as defined by statutes and case law, reporting laws, civil child abuse and neglect proceedings, foster care and out-of-home placement of children, termination of parental rights, role of attorneys and guardians ad litem in child abuse and neglect proceedings.

LAW:9557 (091:613) Constitutional Interpretation Seminar arr.

How the United States Supreme Court interprets the Constitution; particular emphasis on substantive due process and equal protection doctrine. Corequisites: LAW:8280 (091:232).

LAW:9563 (091:615) Topics in Criminal Procedure arr.

In-depth look at criminal procedure topics not addressed or discussed briefly in basic criminal procedure courses, including jury selection, trial strategies, bond hearings, litigating suppression motions, sentencing advocacy, inner workings of courtrooms, and mass incarceration.

LAW:9573 (091:618) Cultural Property/Heritage arr.

Concept of cultural property, measures for its protection, impact of these measures on the transfer of cultural items; traditional art and architecture, biological and fossil material, human remains; contexts in which issues have arisen, such as stolen cultural property, property acquired during armed conflict and in colonial settings, and property collected in the field or excavated; international, national, and state law, including UNESCO convention on illicit transfer of cultural property, U.S. Archaeological Resources Protection Act, Native American Graves Protection and Repatriation Act; how developing professional ethics codes affect the concept of cultural property.

- LAW:9582 (091:694) Deals** arr.
Economic structure of complex commercial transactions as memorialized in agreements including bank credit facilities, indentures, underwriting agreements, other documents governing equity financings and financings involving convertible or preferred securities, venture capital agreements, securitization documents, business combination agreements, joint venture and shareholders agreements, limited liability company operating agreements, project finance documents; commercial agreements and how sophisticated parties order their private relationships to achieve efficient results. Prerequisites: LAW:8331 (091:241).
- LAW:9616 (091:658) Seminar on the First Amendment** arr.
Issues decided in the Supreme Court's unfolding jurisprudence under the First Amendment; varied topics from year to year.
- LAW:9631 (091:632) Higher Education and the Law** arr.
Practice of law in and for a complex institution; problems confronting attorneys in higher education, doctrinal issues prevalent in a university setting; focus on real or hypothetical problems considered in light of background reading rather than doctrinal analysis.
- LAW:9639 (091:629) History of Regulation of Smoking and Tobacco** arr.
Regulation of smoking and tobacco use; history, beginning with 19th and early-20th centuries; state statutes and case law; OSHA, EPA, and FDA regulations; class action litigation, involvement of law firms in formulating tobacco company strategies, use of medical studies, economic history of the tobacco industry.
- LAW:9656 (091:625) Topics in 19th-Century American Legal History** arr.
Exploration of selected focus topics, may include developments in the law of the home and the law of the workplace (free labor, worker immigration, apprenticeship, indentured labor, slavery); women's legal history; land issues and various Homestead Acts; Blackstone in America; Reconstruction of the Constitution after the Civil War; The National Archives—which houses American legal historical documents—displays the phrase, "What is past is prologue;" legal history that explains how we got to the legal present and to understand what is the law, you have to know how something got to be the law. Same as HIST:7256 (016:216).
- LAW:9681 (091:622) Elder Law** arr.
Qualification for Medicaid, elder abuse and neglect, discrimination in employment and elsewhere, retirement pension planning and taxation, elderly patients' rights in nursing homes; conservatorships and guardianships.
- LAW:9701 (091:633) International Criminal Law** arr.
How a single crime may occur in or harm more than one nation; questions addressed: which courts have jurisdiction, whose law governs; when countries may apply their criminal law extraterritorially; collaborative enforcement; the International Criminal Court.
- LAW:9717 (091:667) Iowa Medical Innovation Group Seminar** arr.
Team of law, medicine, engineering, and business students observe medical procedures, interview surgical and other medical personnel, and originate an idea for a medical device; design and produce figures or prototype, reports on patentability, and draft patent application; design business model for marketing with required legal documents, which may include entity documents and licensing documents; law students procure necessary intellectual property rights, business association documents, contracts, and licensing agreements.
- LAW:9720 (091:635) UI Center for International Finance & Development** arr.
Study of problems and issues in the complex world of international finance and development; focus on the International Monetary Fund and the World Bank; research and writing a new issue for the UICIFD web site.
- LAW:9723 (091:636) Seminar on Islamic Law and Government** 3 s.h.
Islamic legal and political legacy from formative period until modern time; critical analysis of logic and context of development; development of jurisprudential, legal, and political literature; overview of theories and practices of governance in Islam beginning with Caliphate system and ending with modern nation-state models. Same as RELS:6723 (032:225).
- LAW:9758 (091:659) Law and Lawyers in Literature** arr.
Fundamental societal issues and ethical questions examined through discussion of literary works, including novels and plays by writers such as Camus, Coetzee, Dostoyevsky, Durrenmatt, Faulkner, Ibsen, Kafka, Melville, Schaffer, Thucydides.
- LAW:9787 (091:647) The Law of the Frontier: U.S. 1820-1870** arr.
How law really functioned at the edges of the nation's jurisdictional limits; earlier patterns of power, adjustments for environmental circumstances; difference between concepts of law and justice.
- LAW:9803 (091:649) Law and Social Science** arr.
Fundamental legal concepts and theories built on empirically testable assumptions about human behavior and decision making; testing common sense assumptions against relevant psychological and social neuroscience research; focus on domains of criminal law and criminal procedure.
- LAW:9811 (091:655) Law of War, Peace, and Military Affairs** arr.
Three aspects of law's efforts to govern military affairs: international law of war, U.S. law regulating foreign commitment of the nation's military forces, rights of individual soldiers (particularly women, homosexuals, religious observers).
- LAW:9818 (091:661) Legal Issues: Intercollegiate Athletics** arr.

Legal issues affecting college and university athletics and athletes; includes drug testing, recruitment, gender equity (Title IX), NCAA regulations, endorsement contracts, coaching contracts, trademark licensing, and broadcasting rights.

LAW:9826 (091:657) LL.M. Seminar arr.

Basic research and analytical methodologies for the international and comparative law fields; workshop approach to project proposals, drafts.

LAW:9838 (091:278) Selected Topics in International and Comparative Law 1-3 s.h.

Opportunity for students to learn from distinguished faculty from U.S. and international institutions.

LAW:9841 (091:666) Notable American Trials: Trial Skills arr.

Trial skills and strategy; real trial transcripts, contemporary accounts of the selected trials, secondary literature evaluating what actually happened in the courtroom and relevant history; skills of opening and closing argument, *voir dire*, direct and cross examination, witness selection, use of exhibits.

LAW:9849 (091:646) Nonprofit and Philanthropic Organizations arr.

Issues in law and policy relating to philanthropic and nonprofit institutions; creation, role, nature, and history of nonprofit entities; tax exemption, tax treatment (including property and donor tax issues); political and legislative activities; roles of members, directors, officers; problems of external regulation, accreditation, ethics; special issues for religious organizations, community foundations, private foundations, universities; development of philanthropic and nonprofit activity in foreign jurisdictions.

LAW:9863 (091:604) Patent Prosecution Seminar 3-4 s.h.

Drafting seminar on patent application preparation and prosecution; student drafting exercises and presentations on advanced patent law topics; administrative rules and procedures governing practice before the U.S. Patent and Trademark Office; for students who plan to practice patent law. Prerequisites: LAW:8763 (091:324).

LAW:9877 (091:684) The Future of Public Law arr.

Addresses slowly developing sense of crisis in public law worldwide, arising from attempt to use a model of law as an autonomous force in society that arose in the development of Western legal traditions as a way of resolving private disputes and only later applied to resolution of disputes between private citizens and the state; how this model is called upon to resolve disputes of great political salience involving various state or supra-national actors increasingly in the modern world; can public law provide what is expected of it, and is public law an experiment that has run its course?

LAW:9882 (091:692) Public Health Law arr.

Introduction to scope, function, and history of governmental activities and programs encompassed by public health regimes (primarily in the United States); legal and constitutional powers and duties of states to create prerequisites for health of population as a whole; limitations on exercise of that power to restrict individuals interests (inter alia) in liberty, autonomy, privacy, and property; tensions and conflicts that arise when collective action on behalf of public/common good constrains what the state deems to be acceptable risks triggered by actions of private individuals.

LAW:9912 (091:672) Selected Issues in Family Law arr.

In-depth look at an issue or set of issues in family law; relevant cases, statutes, scholarship; class visits or on-the-job observations with community members who play roles in the family law process being examined.

LAW:9920 (091:673) Federal Criminal Sentencing arr.

Sentencing as a key stage of the criminal justice system; purposes of sentences, guilty pleas, and plea bargaining; procedural rights during the sentencing process; types of sentencing statutes, federal guidelines, and the federal death penalty; supervised release, probation, and revocation of supervised release and collateral; consequences and sanctions.

LAW:9933 (091:671) Selected Topics in Health Care Law arr.

Examination and analysis of issues relating to the delivery of health care; topics may include doctor/patient relationship, financing of health care, public health issues, bioethics issues; preparation and presentation of papers in seminar.

LAW:9941 (091:679) State Constitutional Law arr.

Power of state courts to independently interpret state constitutional provisions that are identical or similar to the federal counterparts; various approaches taken by state courts with respect to this issue; in-depth analysis of cases where a state court has departed from the federal interpretation. Prerequisites: LAW:8280 (091:232).

LAW:9959 (091:680) Supreme Court Seminar arr.

Supreme Court practice, procedure, jurisdiction; the art of opinion writing; in-depth analysis of cases on the court's pending docket; writing briefs, conducting research, conferencing cases sitting as a mock Supreme Court, assigning and preparing opinions, soliciting votes of colleagues; preparation of two opinions.

Law Study Abroad

LWAB:8230 (660:823) Program in Comparative Law in Bordeaux, France arr.

Intensive course work in France taught by professors from Iowa and France. Five-week courses in May and June.

LWAB:8240 (660:824) London Law Consortium arr.

Study abroad program for students from seven law schools (Iowa, Georgia, Utah, Kansas, Missouri-Columbia, Indiana-Bloomington, Chicago-Kent); American and British law taught by faculty drawn from the seven schools and British universities; clinical law program, work with British barristers and solicitors.

LWAB:8250 (660:466) Law Study Abroad at Peking University School of Transnational Law arr.

Exchange study program at Peking University of Transnational Law in China.

LWAB:8825 (660:825) International and Comparative Study Abroad arr.

One-week course in London, England.

LWAB:9220 (660:460) Law Study Abroad at Bucerius arr.

Exchange student study at Bucerius Law School, Hamburg, Germany. Fall semester.

LWAB:9223 (660:463) Law Study Abroad at Catolica University arr.

Exchange student study at the University of Católica in Lisbon, Portugal.

LWAB:9226 (660:464) Law Study Abroad at Radboud University Nijmegen arr.

Exchange student study at Radboud University in Nijmegen, Netherlands.

Carver College of Medicine

Dean

- Debra A. Schwinn

Executive associate dean

- Donna Hammond

Associate dean, clinical and translational science

- Patricia L. Winokur

Associate dean, student affairs and curriculum

- Christopher Cooper

Associate dean, faculty affairs and development

- Lois J. Geist

Associate dean, cultural affairs and diversity

- Sherree A. Wilson

Associate dean, information technology

- Boyd Knosp

Associate dean, graduate medical education

- Mark C. Wilson

Associate dean, clinical affairs

- Douglas Van Daele

Assistant deans

- David Asprey, Steven Craig, James D. Henderson, Denise Martinez, Nancy Rosenthal

Undergraduate majors: medical laboratory science (B.S.); nuclear medical technology (B.S.); radiation sciences (B.S.)

Professional degree: M.D.

Graduate degrees: M.A.; M.M.E.; M.P.A.S.; M.S.; D.P.T.; Ph.D.

Web site: <http://www.medicine.uiowa.edu>

The Roy J. and Lucille A. Carver College of Medicine is an integral part of The University of Iowa. It contributes to the education of several thousand University students, is home to ground-breaking research in a wide array of disciplines, and provides a statewide health care resource.

The Carver College of Medicine is the only college in Iowa that offers a curriculum leading to the Doctor of Medicine. It also offers a Bachelor of Science in medical laboratory science, nuclear medicine technology, and radiation sciences (see "Undergraduate Programs" later in this Catalog section) as well as Master of Science and Doctor of Philosophy degrees in several disciplines, the Master in Medical Education, the Master of Physician Assistant Studies, and the Doctor of Physical Therapy (see "Graduate Programs" later in this section).

Doctor of Medicine and other health sciences students have a number of opportunities to gain experience in private medical offices, community hospitals, and a major

academic medical center. M.D. graduates may pursue further training in the specialties of family medicine, internal medicine, surgery, and pediatrics at one of 13 University of Iowa-affiliated residency programs in six Iowa cities.

The college also participates in the education of students in the Colleges of Dentistry, Nursing, Pharmacy, and Public Health and in the life-sciences and health-related programs of the College of Liberal Arts and Sciences, the College of Engineering, and the Graduate College.

Health professionals from throughout the Midwest take part in the college's year-round continuing medical education programming, updating their knowledge and skills through refresher courses, clinics, and conferences. The college also offers a variety of services that support Iowa physicians and community hospitals.

In addition to providing education and resources for physicians and other health care organizations, the college addresses broad public issues of distribution and organization of health care services. Its faculty members advise and serve on national, state, and regional health planning councils, health boards, and various health agencies.

Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, the Carver College of Medicine meets the requirements of all state licensing boards. Its M.D. diploma admits the holder to all privileges granted to graduates of all medical colleges before such boards. All other professional programs administered by the college are accredited by their respective accrediting bodies.

Professional Program of Study (M.D.)

The Doctor of Medicine is a four-year program that prepares students to practice primary care medicine and to pursue further education and training in specialized areas of medicine. For a description of the M.D. curriculum and information about admission to the program, financial support, and academic rules and procedures, see Doctor of Medicine (p. 1066) in the Catalog.

Undergraduate Programs of Study

The Carver College of Medicine offers a Bachelor of Science with majors in medical laboratory science, nuclear medicine technology, and radiation sciences. The medical laboratory science major is offered through a partnership with Allen College, in Waterloo, Iowa. See Medical Laboratory Science (p. 1084), Nuclear Medicine Technology (p. 1100), and Radiation Sciences (p. 1136) in the Catalog.

Undergraduate study in the Carver College of Medicine is guided by the following academic rules and procedures.

Health Insurance, Immunizations

All health professions students are required to provide proof of health insurance coverage annually. Contact the University Benefits Office or visit its web site.

All health sciences students must show proof of health examinations and screenings annually. For more

information, contact Student Health & Wellness and see Requirements and Forms on its web site.

Application for Degree

Students who want to be considered for graduation must file an Application for Degree with the Office of the Registrar before the deadline for the session in which the degree is to be conferred. Students who want to have a minor listed on their transcript must indicate this on the degree application form so that completion of the requirements for the minor can be verified.

Academic Recognition

The University of Iowa and the Carver College of Medicine recognize academic achievement every fall and spring semester.

GRADUATION WITH DISTINCTION

Graduating students may be recognized for their scholastic achievement upon recommendation by their academic program and with the dean's approval. Graduation with distinction, high distinction, or highest distinction is determined by cumulative and University of Iowa grade-point average. Highest distinction requires a g.p.a. of 3.85 or higher; high distinction requires a g.p.a. of 3.75 to 3.84; and distinction requires a g.p.a. of 3.65 to 3.74. Radiologic technology certificate course grades are not included in grade-point average.

To graduate with distinction, students must have completed a minimum of 60 s.h. in residence at The University of Iowa and must have completed 45 of the final 60 s.h. before their final semester of registration.

Students graduating with distinction are recognized at graduation and a notation is added to their transcript and diploma.

DEAN'S LIST

Undergraduate students who achieve a g.p.a. of 3.50 or higher on 12 s.h. or more of University of Iowa graded course work during a given semester or summer session and who have no semester hours of I (incomplete) or O (no grade reported) during the same semester are recognized by inclusion on the Dean's List for that semester. Students may qualify for the Dean's List with fewer than 12 s.h. of graded credit if deemed appropriate by the college.

PRESIDENT'S LIST

University of Iowa undergraduate students who achieve a g.p.a. of 4.00 on 12 s.h. or more of University of Iowa graded course work and who have no semester hours of I (incomplete) or O (no grade reported) for two consecutive semesters (excluding summer sessions) are recognized by inclusion on the President's List.

Financial Support

Students are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University's Office of Student Financial Aid. Part-time work in related areas is sometimes available.

Registration, Credit, Grading

REGISTRATION

Information about tuition and fees, registration, and deadlines is available from the Office of the Registrar. Students who add or drop a course after registration or

who register late are assessed a fee. Each course dropped after the deadline results in a W (withdrawal) on the transcript (see Changes in Registration below). Students are not allowed to register for full-semester courses after the second week of the semester or the first week of the summer session. Students must register for off-cycle courses before the first day of the course.

The maximum permitted registration for fall and spring semesters is 18 s.h. per semester. The maximum registration for summer session varies: 4 s.h. for the four-week session; 9 s.h. for the eight-week session; 9 s.h. for the six- and eight-week sessions combined; 12 s.h. for the four-week session and the eight-week session; and 12 s.h. for the four-, six-, eight-, and twelve-week sessions combined. Students may register for a maximum of 16 s.h. of fall semester or spring semester course work during early registration. Students must obtain permission from the head of the division to register for more than the maximum semester hours allowed.

CHANGES IN REGISTRATION

Courses may be added with the signatures of the advisor and the course instructor at any time during the first one-fifth of the course. They may be dropped at any time during the first two-thirds of the course. Approval is required from the dean of the Carver College of Medicine for all other changes in registration and is granted only in extraordinary circumstances. Students are assigned a mark of W (withdrawn) for any course dropped after the first one-fifth of the course. Students whose drop of one or more courses results in a registration of 0 s.h. for the semester must follow the procedure for withdrawal from the University instead of the add/drop procedure.

Students who have registered for courses offered for variable or arranged credit may change the number of semester hours with the signatures of the instructor, the advisor, and the head of the division at any time before the end of the first two-thirds of the course.

Other changes in registration (such as to audit for zero credit) may be made only during the first one-fifth of the course.

It is the student's responsibility to see that the change of registration form is approved by the necessary individuals and is delivered to the Registration Center. Changes in registration become effective on the date the completed form is submitted to the Registrar's Service Center.

WITHDRAWAL OF REGISTRATION

Students may withdraw registration without academic penalty at any time before the end of the first four-fifths of the course, but no credit is given for the course. Later withdrawal results in automatic assignment of an F. Students who withdraw are not reinstated after the deadline for that session.

AUDITING COURSES

Students may register to audit a course with approval of the appropriate program director and course instructor. In addition to obtaining these signatures, students must register for zero credit in the course to be audited. The mark of AUS (audit successful) is assigned if the student's attendance and performance are satisfactory; if they are unsatisfactory, the mark of AUU (audit unsuccessful) is assigned. Courses completed with a mark of AUS do not meet any college requirement and carry no credit toward

graduation. Auditing may not be used as a second-grade-only option.

COURSES OFFERED BY OTHER UNIVERSITY OF IOWA COLLEGES

Students who enroll in courses offered by other University of Iowa colleges are governed by those colleges' rules in matters regarding the courses. See Policy Governing Students Enrolled in Courses Outside Their Own College or Degree Program.

IN-RESIDENCE REQUIREMENT

The in-residence requirement may be met by earning the final consecutive 30 s.h. in residence at The University of Iowa, or 45 of the last 60 s.h. in residence, or an overall total of 90 s.h. in residence.

Nonresident instruction includes course work and correspondence study at other colleges, universities, and institutions. Undergraduate course work in other University of Iowa colleges counts toward in-residence requirements.

DUPLICATION AND REGRESSION

Duplication occurs when students take the same course more than once or when they take a course that duplicates the content of a course they already have completed satisfactorily. Regression occurs when students take a course that is less advanced or at a lower level than one in the same subject that they already have completed satisfactorily. Duplication and regression are assessed by the registrar at the time of graduation analysis. Semester hours earned by duplication or regression do not count toward graduation.

MINIMUM GRADE REQUIREMENT

Students must earn a g.p.a. of at least 2.00 each semester in all college work attempted, all work undertaken at The University of Iowa, and all graded work attempted after admission to the Carver College of Medicine. Students enrolled in a program that uses the pass/fail/honors grading system must pass all courses required to complete the program.

Students must earn a C or higher in professional specialty (modality) courses.

GRADING PROCEDURES

Grading procedures vary from program to program. Students should consult individual program policy statements for information.

PASS/NONPASS

Students have the option of taking elective courses pass/nonpass (P/N) with the permission of the course instructor and/or the department offering the course. Students may register for the P/N grading option from the first day of classes until the last day for undergraduates to add a course; see Academic Deadlines on the Office of the Registrar web site.

To register for a P/N course, the student must print the Grading Option Form, have it signed by the course instructor and the academic advisor, and submit the completed form to the Registrar's Service Center before the published deadline.

Semester hours graded P/N are not used in computing a student's grade-point average. Semester hours graded P count toward graduation; those graded N do not. The college accepts a maximum of 15 s.h. of University of

Iowa credit graded P toward the bachelor's degree, and it accepts a maximum of 30 s.h. of credit graded P and/or S from all sources (UI and transfer credit) toward the bachelor's degree. Students must be in good academic standing to be eligible for the pass/nonpass option.

SATISFACTORY/FAIL OR SATISFACTORY/UNSATISFACTORY

Many courses use satisfactory/fail (S/F) or satisfactory/unsatisfactory (S/U) grading. All students registered for these courses receive a grade of S, F, or U. Students do not need special forms or permission in order to register for S/F or S/U courses.

Semester hours graded S or U are not used in computing a student's grade-point average, but semester hours graded F are used in grade-point average computation. Semester hours graded S count toward graduation; semester hours graded F or U do not.

Students may use course work graded S to fulfill General Education Program requirements and/or the requirements of their major, a minor, or a certificate. The college accepts a maximum of 15 s.h. of University of Iowa credit graded S toward the bachelor's degree, and it accepts a maximum of 30 s.h. of credit graded P and/or S from all sources (UI and transfer credit) toward the bachelor's degree.

SECOND-GRADE-ONLY OPTION

Repeating courses for the second-grade-only option is allowed in extraordinary circumstances. To repeat a course for the second-grade-only option, students must obtain the signatures of the course instructor, the program director, and the dean on a form available from the dean's office; the signed form must be returned to the Registrar's Service Center before the end of the first one-fifth of the course. Both grades remain on the permanent record, but only the second one is used to calculate grade-point average and credit earned. Students using the second-grade-only option for courses that are not part of their major must follow the procedure for the college that offers the course.

INCOMPLETE

A grade of I (incomplete) may be reported if the reasons for inability to finish the course satisfactorily are acceptable to the program director and the course instructor. There also must be evidence that the course work will be finished within a reasonable length of time, usually by the end of the next academic session. Incompletes not removed by the deadline for submission of final grades for the next session result in the assignment of a grade of F. Changing the grade when an incomplete has been converted to an F requires the signature of the dean on a change-of-grade form.

REPORTS TO STUDENTS

Instructors notify any student whose work falls below the minimum acceptable level once the problem is recognized. Grades are reported on the student's transcript, following University protocol. No formal midterm reports are given.

Degrees and Minors

TWO BACHELOR'S DEGREES

Students who want to earn two bachelor's degrees, each from a different college, must graduate from one major, must apply to the college of the second major, and must

complete the degree requirements for the second major, including the residency requirement.

SECOND BACHELOR'S DEGREE

Students who already hold a bachelor's degree and wish to earn an additional bachelor's degree must complete at least 30 s.h. consecutively in the Carver College of Medicine and must meet college and program degree requirements. Individuals interested in earning a second bachelor's degree must apply for admission to the degree program at the University's Office of Admissions.

MINORS

Students graduating from the Carver College of Medicine may earn a minor or minors in any degree-granting department or program in the college outside of their major department or in another college of the University by meeting that department's requirements for the minor.

Academic Progress, Probation, Dismissal

Students are expected to maintain satisfactory academic and professional standards and to demonstrate reasonable progress toward the Bachelor of Science and certificate of completion. Students who fail to maintain satisfactory academic progress or professional standards of behavior as determined by their program may be placed on probation or dismissed from the program. Probation serves as a warning that the student will not graduate unless his or her academic performance and/or professional behavior improves.

Students on probation are restored to good standing by the program director upon evidence that the problem has been corrected. Such action is usually taken at the end of a semester or session. Entering students may be admitted on probation if they fail to meet the minimum stated standards for admission.

Continued unsatisfactory scholarship or unprofessional behavior may result in dismissal from a program. Students dismissed from a program must reapply for admission through the regular, established program admissions process, following review by a faculty committee, at least four months before the requested date of readmission.

Students placed on probation or dismissed from a program are notified in writing; copies are placed in their files. An academic probation notation is placed on the transcript.

In order to be restored to good standing, students placed on academic probation during a semester or summer session must have a University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.00 by the end of the next semester (for full-time students) or by the time they have earned the next 8 s.h. (for part-time students). Students on academic probation who fail to meet the grade-point average requirement in the designated time frame for restoration to good standing are subject to dismissal at the end of the semester.

Students are expected to attend classes regularly. Students who miss classes or examinations because of illness are expected to present evidence that they have been ill. Any other absences must be approved in advance by the course instructor.

Any offense against good order committed by a student in a classroom, clinical setting, or laboratory may be dealt with by the instructor or referred to the program director.

The instructor reports in writing any disciplinary action taken against a student to the program director. Repeated or exceptional instances are reported to the dean.

Academic Misconduct

PLAGIARISM AND CHEATING

All cases of plagiarism and cheating in the Carver College of Medicine are reported to the dean with a statement of relevant facts. The program director and the instructor may submit recommendations for appropriate disciplinary action.

The individual instructor may reduce the student's grade, including assignment of the grade of F in the course. A report of this action is sent to the student, the program director, and the dean.

The dean, or a faculty committee appointed by the dean, may impose the following or other penalties, as the offense warrants: disciplinary probation, requirement of additional hours for the degree, suspension from the program for a period of time, or recommendation of expulsion from the program.

APPEALS PROCEDURE

Students who want to appeal a decision should appeal in writing to the dean within two weeks after the date of receipt of the decision in writing.

Graduate Programs of Study

The Carver College of Medicine offers graduate programs leading to the M.S. in pathology (p. 1111); the M.S. and Ph.D. in biochemistry (p. 1055), free radical and radiation biology (p. 1076), microbiology (p. 1088), molecular physiology and biophysics (p. 1094), and pharmacology (p. 1115); the Ph.D. in anatomy and cell biology (p. 1048) and physical rehabilitation science (p. 1118); the Master in Medical Education (p. 1082) (M.M.E.); the Master of Physician Assistant Studies (p. 1127) (M.P.A.S.); and the Doctor of Physical Therapy (p. 1118) (D.P.T.).

It also offers a joint M.D./Ph.D. degree through the Medical Scientist Training (p. 1086) Program; see "Joint M.D./Graduate Degrees" in the Doctor of Medicine (p. 1066) section of the Catalog.

Many of the college's faculty members participate in the Graduate College's interdisciplinary programs in genetics, immunology, molecular and cellular biology, and neuroscience, and in its Biosciences Program.

The Biosciences Program gives graduate students the opportunity to become acquainted with basic molecular research in the Departments of Anatomy and Cell Biology, Biochemistry, Biology, Biomedical Engineering, Chemistry, Communication Sciences and Disorders, Microbiology, Molecular Physiology and Biophysics, Pharmacology, and the Programs in Free Radical and Radiation Biology, Genetics, Human Toxicology, Immunology, Molecular and Cellular Biology, Neuroscience, and Physical Therapy and Rehabilitation Science. The Biosciences Program offers graduate students flexibility during their first year of study, after which they select the department or program in which they will earn their Ph.D. degree. See Biosciences (Graduate College) for details.

Interdisciplinary Programs and Centers

The college's interdisciplinary programs and centers draw strength from college faculty members and the facilities available to them, without regard to departmental units or to the distinction between graduate and postgraduate training. For more information, contact the senior associate dean for scientific affairs.

The following centers are subdivisions of the Carver College of Medicine.

Alzheimer's Disease Research Center

The Alzheimer's Disease Research Center studies Alzheimer's disease and related neurological conditions from the viewpoint of neuroanatomy, neuroimaging, neuropsychology, and neurochemistry. The center's purposes are to improve the diagnosis and treatment of these conditions, to disseminate information on new research to the public, and to contribute to a better understanding of the neural basis of cognition.

Carver Genetic Testing Laboratory

The John and Marcia Carver Nonprofit Genetic Testing Laboratory provides genetic testing for rare eye diseases, especially diseases so rare that commercial tests are unavailable for them. The laboratory's test results provide information to patients and their families while keeping the tests affordable.

Holden Comprehensive Cancer Center

The Holden Comprehensive Cancer Center (HCCC) coordinates the efforts of University of Iowa faculty and staff in research, education, and clinical programs related to all aspects of cancer. The HCCC is recognized by the National Cancer Institute as an NCI-designated cancer center and has "comprehensive" status, a designation that recognizes the depth and breadth of interdisciplinary cancer research activity taking place at the University of Iowa.

Iowa Mental Health Clinical Research Center

The major emphasis of the Iowa Mental Health Clinical Research Center is the study of schizophrenia. The center provides the facilities for research linking the clinical picture of the illness with its underlying neurobiology. The center's seven research units conduct the necessary integrative and interdisciplinary research to advance knowledge about the disease.

UI Heart and Vascular Center

The UI Heart and Vascular Center coordinates research and training programs related to cardiovascular diseases. It encompasses several programs: Program Project Grant on Integrative Neurobiology of Cardiovascular Function, Program Project Grant on Cerebral Blood Vessels, Program Project Grant on Oxidative Mechanisms in Vascular Disease, Program Project Grant on Genetic and Signaling Mechanisms in the Central Regulation of Blood Pressure, Program Project Grant on Airway Physiology and Pathophysiology in a Porcine CF Model, Program Project Grant on Gene Therapy for Cystic Fibrosis Lung Disease, a Leducq Foundation Consortium grant, and a Cystic Fibrosis Foundation research and development program. It also

coordinates several training programs and a program of other interdisciplinary research supported by a number of individual project grants. The center occupies two floors of cardiovascular research laboratories and administrative offices in the Medical Research Center.

Facilities

Education and Patient Care Facilities

Carver College of Medicine classes are taught in the Medical Education and Research Facility, Bowen Science Building, Medical Education Building, Medical Laboratories, and in University of Iowa Hospitals and Clinics classrooms and conference rooms.

The Medical Education and Research Facility contains the college's four learning communities. The communities group students who are at different stages in their medical education, encouraging peer-to-peer learning and emphasizing leadership and community service. Each learning community features small-group rooms, study and social spaces, computer workstations, a kitchen area, and staff offices. The Medical Education and Research Facility also houses the Performance-Based Assessment Program, which evaluates students' clinical and communications skills by reviewing simulated physician-patient encounters recorded in mock patient examination suites.

The Hardin Library for the Health Sciences is centrally located on the health sciences campus.

Students acquire clinical-skills experience at the 711-bed University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, and in affiliated hospitals and ambulatory care centers throughout Iowa.

University of Iowa Hospitals and Clinics serves as a tertiary care center for Iowa and portions of adjoining states. Many patients are referred to UI Hospitals and Clinics for care and treatment not available in their home communities.

Research Facilities

The Eckstein Medical Research Building provides space, mechanical systems, and support services that offer flexibility and adaptability for current and future research. The facility enables interdisciplinary groups of faculty scientists, each of whom is researching a human biology problem at the advancing edge of science, to conduct research in close proximity to other select researchers. It also is home to the Biomedical Research Store, which provides University of Iowa investigators with common molecular and cell biology enzymes, reagents, and kits.

The Medical Education and Research Facility houses research laboratories in addition to space for medical education. Connected to it is the Carver Biomedical Research Building. With a state-of-the-art nuclear magnetic resonance facility on its lower level and five floors of laboratories above, the Carver Biomedical Research Building greatly expands the college's research capabilities.

Other buildings that house research labs include Medical Laboratories, Bowen Science Building, Medical Education Building, Medical Research Facility, Medical Research Center, and buildings at the University of Iowa Research Park.

The Office of Consultation and Research in Medical Education is staffed by education specialists from a range of disciplines who serve the faculty, staff, and

administrators of all Carver College of Medicine programs. The office provides educational consultation, initiates and cooperates in educational research endeavors, and conducts faculty development activities.

Core Research Facilities are centralized laboratories dedicated to developing and providing resources that facilitate biomedical research. They are available on a fee-for-service basis to University of Iowa investigators as well as to entities outside the University.

Currently under construction is the Pappajohn Biomedical Discovery Building. The 225,000-square-foot, six-story facility, located adjacent to the Medical Education and Research Facility and the Carver Biomedical Research Building, is scheduled for completion in 2014. It will contain laboratories and office space and will house the Fraternal Order of Eagles Diabetes Research Center and the Pappajohn Biomedical Institute, which will bring together scientists from across campus to collaborate on high-risk, high-yield life sciences research.

Nondepartmental Courses

Most Carver College of Medicine courses are offered by the college's departments and programs. They are listed and described in the corresponding General Catalog sections; see the links under "Index: Academic Programs" toward the top of this page. The college also offers the following nondepartmental courses.

MED:3740 (050:147) End-of-Life Care for Adults and Families 2-4 s.h.

End-of-life issues in care of adults, older adults, and their families. Requirements: RN license. Same as NURS:3740 (096:147), ASP:3740 (153:147), PHAR:3740 (046:146).

MED:5300 (050:283) Health Informatics I 3 s.h.

Technological tools that support health care administration, management, and decision making. Requirements: graduate standing. Same as SLIS:5900 (021:275), RSNM:3195 (074:191), HMP:5370 (174:226), BME:5250 (051:187), IE:5860 (056:186), IGPI:5200 (200:110).

MED:7205 (050:174) Foundations of Clinical Practice for Physician Assistants 5 s.h.

Practice and expansion of clinical skills; development of broad understanding of the practice of medicine in social context; strengthening of self-directed learning skills in clinical medicine. Prerequisites: PA:8209 (117:101). Requirements: Physician Assistant Studies and Services enrollment.

MED:7215 (050:175) Foundations of Clinical Practice IV for Physician Assistants arr.

Basic diagnostic considerations in each of medicine's clinical disciplines, as required of primary care providers.

MED:8001 (050:001) Medical Elective arr.

MED:8003 (050:003) Clinical Clerkships arr.

MED:8005 (050:005) Medical Student Research Fellowships 0 s.h.

MED:8006 (050:006) Doris Duke Clinical Research Fellowship 0 s.h.

Clinical research projects under University of Iowa faculty mentorship. Requirements: leave of absence from Carver College of Medicine.

MED:8010 (050:190) Introduction to Medical Education at Iowa 0 s.h.

Introduction to first-year fall courses; advanced concepts in anatomy, biochemistry, cell biology, and clinical reasoning skills; for M.D. students.

MED:8021 (050:195) Community Health Outreach I 0-1 s.h.

Presentations and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.

MED:8022 (050:196) Community Health Outreach II 1-2 s.h.

Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.

MED:8023 (050:197) Community Health Outreach III 1-2 s.h.

Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.

MED:8028 (050:286) Introduction to U.S. Health Care System 1 s.h.

Structure, function, and finance of U.S. health care system; access, cost, quality, finance mechanisms, reform process.

MED:8040 (050:168) Teaching of Physical Exam Skills 1-2 s.h.

Components of complete physical exam and educational techniques for teaching such skills: teaching of physical exam components to first-year students. Requirements: fourth-year M.D. enrollment.

MED:8041 (050:178) Facilitation of Patient-Centered Learning 1-2 s.h.

Experience in facilitating patient-centered learning groups; case discussion, critique of student presentations and assignments, clinical insight, evaluation of student performances.

MED:8070 (050:185) The Examined Life: Writing and Medicine 1 s.h.

Literature, essays, poetry; discussion of participants' writing; students prepare portfolios of their own writing.

MED:8071 (050:188) Career Life Planning 1 s.h.

Students' individual interests, values, and decision-making processes important in selecting a specialty, engaging in the match process, and integrating oneself into the medical profession; personal career development, culture and climate in which physicians work and learn.

MED:8072 (050:189) Evidence-Based Medicine for Clinical Medicine 1 s.h.

Evaluation of literature and development of critical thinking skills necessary for evidence-based medical practice.

MED:8073 (050:191) Biomedical Innovation 1 s.h.

Introduction to all phases of medical device/technology development; development of knowledge of entire medical innovation process through didactic sessions, faculty, interactions, and interdisciplinary collaboration; interdisciplinary approach; research and development of a novel medical device, therapy, or model of care. Requirements: M.D. enrollment.

MED:8076 (050:176) Bioethics and Humanities Seminar 1 s.h.

Broad range of topics in bioethics and medical humanities, including philosophical principles, clinical ethics, research ethics, medical professionalism, narrative ethics, and historical and cultural aspects of medicine. Requirements: Carver College of Medicine student in humanities distinction track.

MED:8081 (050:281) Global Health Issues I 1 s.h.

Core issues in the current field of global health, including history of global health, health and development, social determinants of health, measuring health and disease, disparities in the American health care system, poverty and health, gender issues and reproductive health, child health, immigrant and migrant health issues, and introduction of major players in global health. Requirements: M.D. enrollment.

MED:8082 (050:285) Global Health Issues II 1 s.h.

Core issues in the current field of global health, including health care as a human right, why the Third World is the Third World, communicable disease issues, outbreaks and pandemics, noncommunicable issues, malnutrition and obesity, cultural context of health care, violence as a health issue, and emergency response and transition to development. Prerequisites: MED:8081 (050:281). Requirements: M.D. enrollment.

MED:8083 (050:284) Global Cross-Cultural Elective arr.

Cross-cultural medical program with focus on health care problems of a domestic or international community; individually arranged.

MED:8084 (050:287) Global Health Seminar 1 s.h.

Presentations by faculty members, University special guests, and alumni on their current work in global medicine/global health; implementation of global health concepts. Requirements: M.D. enrollment.

MED:8102 (050:120) Medical Cell Biology 2 s.h.

MED:8105 (050:162) Foundations of Clinical Practice I 5 s.h.

MED:8112 (050:240) Human Organ Systems 8 s.h.

Microscopic structure and function of major and specialized human organ systems; approach integrating normal microscopic anatomy and human physiology. Requirements: M.D. enrollment.

MED:8115 (050:163) Foundations of Clinical Practice II 5 s.h.

MED:8121 (050:351) Clinical and Professional Skills I 3 s.h.

Introduction to concepts of clinical reasoning, communication, physical examination, and evidence-based clinical practice; principles of biomedical ethics; early clinical interactions and placement of classroom experiences into context of patient care through the Longitudinal Clinical Mentor (LCM) program; interaction with students from other health sciences colleges to explore interprofessional approach to caring for patients. Requirements: M.D. enrollment.

MED:8122 (050:352) Medicine and Society I 3 s.h.

Delivery of individual disease prevention/health promotion services; introduction to social determinants of health; influence and impact of culture and community on health care; community resources; application of health and risk assessment to individual patients and self. Requirements: M.D. enrollment.

MED:8123 (050:355) Foundations of Cellular Life 5 s.h.

Genetics, embryology, molecular biology, biochemistry, cell biology and histology; molecular events required for cellular life; how cells grow and interact to form basic tissues of human body; necessary framework to explore six mechanisms of health and disease. Requirements: M.D. enrollment.

MED:8124 (050:356) Mechanisms of Health and Disease I 5 s.h.

Normal and healthy processes within and among mechanisms of oxygenation, metabolism, and genetics/development; first in a series of multisystem mechanisms of health and disease. Requirements: M.D. enrollment.

MED:8131 (050:353) Clinical and Professional Skills II 4 s.h.

Interpersonal skills, lifelong learning, interviewing skills, physical examination skills, ethical issues in patient care, and basic approach to patients in terms of prevention, treatment, and follow-up care. Second in a sequence during preclinical semesters of medical school and continuing as an integrated strand throughout curriculum. Requirements: M.D. enrollment.

MED:8132 (050:354) Medicine and Society II 4 s.h.

Knowledge and skills related to health promotion and disease prevention from a medicine and society perspective, including impact of behavior, environment, culture, and socioeconomics; identification of major public health problems associated with mechanisms of health and disease. Second in a sequence during preclinical semesters of medical school and continuing as an integrated strand throughout curriculum. Requirements: M.D. enrollment.

- MED:8133 (050:357) Mechanisms of Health and Disease II** 6 s.h.
Normal and healthy processes within and among mechanisms of Immunology/Inflammation, locomotion/integument, and neuropsychiatry; second in a series on mechanisms of health and disease. Requirements: M.D. enrollment.
- MED:8134 (050:358) Mechanisms of Health and Disease III** 6 s.h.
Abnormalities or disruptions leading to disease within and among mechanisms of oxygenation, metabolism, and genetics/development; third in a series on multisystem mechanisms of health and disease. Requirements: M.D. enrollment.
- MED:8205 (050:164) Foundations of Clinical Practice III** 5 s.h.
Experience practicing and expanding clinical skills and self-directed learning skills in clinical medicine; understanding medical practice in a social context. Prerequisites: MED:8105 (050:162) and MED:8115 (050:163). Requirements: second-year M.D. enrollment.
- MED:8213 (050:183) Healthcare Ethics, Law, and Policy** 2 s.h.
Ethical and legal aspects of health care delivery.
- MED:8215 (050:165) Foundations of Clinical Practice IV ICD** arr.
Basic diagnostic considerations in each of medicine's clinical disciplines, as required of primary care providers. Prerequisites: MED:8105 (050:162), MED:8115 (050:163), and MED:8205 (050:164). Requirements: second-year M.D. enrollment.
- MED:8221 (050:359) Clinical and Professional Skills III** 4 s.h.
Advanced clinical reasoning skills through focused patient encounters and interactions with special patient populations; emphasis on integration and use of concepts for cost conscious, patient-centered, interdisciplinary care. Requirements: M.D. enrollment.
- MED:8222 (050:360) Medicine and Society III** 4 s.h.
Health services organization and delivery; emphasis on community dimensions of medical practice and patient safety. Requirements: M.D. enrollment.
- MED:8223 (050:361) Mechanisms of Health and Disease IV** 6 s.h.
Abnormalities or disruptions leading to disease within and among mechanisms of immunology/inflammation, locomotion/integument, and neuropsychiatry; fourth in a series on multisystem mechanisms of health and disease. Requirements: M.D. enrollment.
- MED:8224 (050:362) Mechanisms of Health and Disease Keystone** 6 s.h.
- Transition between classroom instruction in mechanisms of health and disease and clinical practice; foundational information from mechanisms of health and disease sequence approached from perspective of what is commonly encountered in clinics; application of information to making diagnostic and management decisions of common important clinical problems. Requirements: M.D. Enrollment.
- MED:8300 (050:170) Clinical Beginnings** 1 s.h.
Orientation to third-year clerkships; technical skills, simulated patient activities, competence with the physical exam.
- MED:8301 (050:180) Community-Based Primary Care** arr.
Introduction; clinical activities, work with community agencies and resources, didactic and conferences. Requirements: M.D. enrollment.
- MED:8401 (050:280) Medicine, Literature, and Writing** arr.
Insights, freedom, joy, responsibilities, and challenges of a life in medicine; reading, discussion, individual creative writing.
- MED:8403 (050:300) Teaching Skills for Medical Students** 4 s.h.
Practical teaching techniques; opportunity for students to develop teaching skills before they become medical residents.
- MED:8404 (050:301) Advanced Teaching Skills for Medical Students** 2 s.h.
Opportunity to expand knowledge and experience in medical education; investigation of medical education in students' specialty of interest through literature research and interaction with faculty; primary focus is to design and successfully complete a faculty approved project. Prerequisites: MED:8403 (050:300). Requirements: fourth-year M.D. enrollment.
- MED:8410 (050:310) Patient Safety for Health Professional Students** 2 s.h.
Interprofessional experience using multiple pedagogic methods, including team-based simulation to teach about patient safety and teamwork; collaboratively taught by representatives from anesthesia, pediatrics, internal medicine, Office of Consultation and Research in Medical Education, College of Nursing, College of Public Health, and office of UIHC chief quality officer. Same as NURS:3728 (096:128).
- MED:8480 (050:282) Global Cross-Cultural Clerkship** arr.
Cross-cultural medical program at an international site; focus on health care problems of a specific community; individual educational objectives set in advance.
- MED:8499 (050:999) Individually Arranged Medicine Elective** arr.
Individually arranged elective through the Office of Student Affairs and Curriculum.
- MED:9701 (050:701) Instructional Design and Technology** 3 s.h.

Skills and techniques necessary for analysis, design, development, implementation, and evaluation of effective instruction.

MED:9702 (050:702) Clinical Teaching in Medical Education 3 s.h.

Principles and methods for teaching individuals and small groups in outpatient and inpatient settings. Prerequisites: MED:9701 (050:701) or PSQF:6205 (07P:205). Recommendations: educational psychology course.

MED:9703 (050:703) Educational Research and Evaluation 3 s.h.

Research design and program evaluation; approaches relevant to medical education.

MED:9711 (050:711) Teaching Methods in Medical Education 3 s.h.

Principles and methods for teaching in large and small classrooms. Recommendations: educational psychology course.

MED:9712 (050:712) Introduction to Educational Measurement in Medical Education 3 s.h.

Classical test theory; overview of medical education assessment methods; practical information for designing and critiquing assessments.

MED:9713 (050:713) Assessment in Medical Education 3 s.h.

Medical education assessment methods; research methods and literature that support current practices; research project. Prerequisites: MED:9712 (050:712).

MED:9714 (050:714) Current Issues in Medical Education 3 s.h.

Selected issues, policies, and research.

MED:9720 (050:720) Portfolio Project 3 s.h.

Production of individual student portfolios used to integrate knowledge across courses; capstone activity.

MED:9721 (050:721) Study in Faculty Development 3 s.h.

Academic credit for approved project or other assigned activities for students in the Teaching Scholars program.

MED:9722 (050:722) Independent Study arr.

MED:9724 (050:724) Leadership in Medicine 3 s.h.

Introduction to basic leadership and management theories pertaining to a health care setting; focus on the history of leadership development, various components of leadership, and how these components can be used to be a successful leader/administrator. Requirements: Master in Medical Education degree program enrollment.

MED:9725 (050:725) Simulation in Medical Education 3 s.h.

Appropriate use of various types of simulation in medical education; how to design, deliver, and debrief a simulation activity; literature supporting use of simulation in medical education. Requirements: Master in Medical Education degree program enrollment.

Hospital Certificate Programs of Study Courses

The following courses are conducted by University of Iowa Hospitals and Clinics staff.

EMT-Paramedic Program

EMTP:0101 (677:101) Emergency Medical Technician—Paramedic I 0 s.h.

Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Requirements: certification as an emergency medical technician—basic.

EMTP:0102 (677:102) Emergency Medical Technician—Paramedic II 0 s.h.

Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisites: EMTP:0101 (677:101).

EMTP:0103 (677:103) Emergency Medical Technician—Paramedic III 0 s.h.

Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisites: EMTP:0102 (677:102).

Orthoptics Teaching Program

OTP:4902 (671:902) Orthoptics Program 0 s.h.

Clinical science of binocular vision, ocular motility, and related eye disorders; practical, theoretical training in the Department of Ophthalmology and Visual Sciences two-year program; written, oral and practical national board examinations required at completion. Requirements: bachelor's degree with specific class recommendations.

Professional Degree

Doctor of Medicine (p. 1066)

Departments and Programs

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Cardiothoracic Surgery (p. 1062)

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Pathology (p. 1111)
Pharmacology (p. 1115)
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Anatomy and Cell Biology

Chair

- John F. Engelhardt

Professors

- Adel K. Afifi, Brad A. Amendt, Martin D. Cassell, Masataka Kawai, Nicholas J. Pantazis

Associate professors

- Botond B. Banfi, Robert A. Cornell, Adam J. Dupuy, Charles A. Yeaman

Assistant professors

- Amit Choudhury, C. Andrew Frank, Fang Lin, Hank Qi, D. Thomas Rutkowski, Tina Tootle

Lecturers

- Kathleen Andersen, Darren S. Hoffmann, Marc Pizzimenti, Justin Sipla, Nathan Swailes

Professors emeriti

- Ronald Bergman, Ramesh C. Bhalla, Jackie Bickenbach, Paul M. Heidger Jr., Jean Y. Jew, Frank J. Longo, Alexander Sandra, Jeanne M. Snyder, Robert J. Tomanek

Graduate degree: Ph.D. in anatomy and cell biology

Web site: <http://www.medicine.uiowa.edu/acb/>

The Department of Anatomy and Cell Biology performs three major functions. It teaches human anatomy to students preparing for careers in the health care professions; provides advanced courses, teaching experience, and research training to graduate students preparing for careers in academic research and related scientific fields; and conducts original research on the biological basis of cellular functions and human disease processes.

Preclinical Study

The department contributes to the preclinical education of health care professionals by providing major courses in gross anatomy, cell biology, histology, and neuroscience. The department participates in the Carver College of Medicine's Medical Scientist Training (p. 1086) Program and the Graduate College's Biosciences (p. 951), Molecular and Cellular Biology (p. 986), Immunology (p. 970), Genetics (p. 965), and Neuroscience (p. 989) Programs.

Graduate Program of Study

- Doctor of Philosophy in anatomy and cell biology

Doctor of Philosophy

The Doctor of Philosophy program in anatomy and cell biology requires a minimum of 72 s.h. of graduate credit. Students in the Ph.D. program work toward the doctorate without an intermediate master's degree program. They complete courses focused in one of three major areas—molecular medicine and gene therapy, developmental and stem cell biology, or cancer biology—in addition to related background and elective courses. Students also teach in lecture and laboratory courses under faculty supervision. The program may be completed in four or five years of intensive, full-time residence.

Students interested in pursuing graduate study in anatomy and cell biology spend their first year in the University of Iowa Biosciences Program, where they investigate different disciplines by performing research rotations in three of the program's affiliated laboratories. They also take courses that introduce them to basic principles in the biosciences; participate in the biosciences seminar, where they learn how to evaluate scientific literature critically; and attend departmental seminars.

Students are assigned an advisor, who helps them select courses and research rotations during the Biosciences Program year. The curriculum is tailored to fit each student's individual interests. For more detailed information about the program, see Biosciences (p. 951) (Graduate College) in the Catalog.

Students enter the Biosciences Program in fall semester. The following May, after completing three research rotations, each student is expected to select a research laboratory and program affiliation and to begin his or her thesis research project. Students who choose to pursue a Ph.D. in anatomy and cell biology may apply all credit earned in the Biosciences Program toward requirements for the degree.

By the end of their second year of graduate study, anatomy and cell biology students take the comprehensive examination, which assesses their ability to analyze, organize, and apply the information, concepts, and skills acquired during the first two years of study. They define a research problem with their major advisor and formulate a research prospectus.

Subsequent years are devoted primarily to research.

The final Ph.D. examination consists of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the major advisor and at least four other faculty members on the thesis committee.

Admission

Individuals interested in pursuing a Ph.D. in anatomy and cell biology must apply to and be accepted by the University's Biosciences Program, where they will spend their first year of graduate study. The program accepts applicants with a variety of backgrounds in the biological and physical sciences.

The Biosciences Program has specific admission requirements, including a bachelor's degree and certain undergraduate course work; specific scores on the Graduate Record Examination (GRE) General Test; and for applicants whose first language is not English, specific scores on the Test of English as a Foreign Language (TOEFL). For detailed admission requirements and application information, see Biosciences (p. 951) (Graduate College) in the Catalog.

Admission to the Department of Anatomy and Cell Biology, after completion of the biosciences year, is based on evaluation of each applicant's credentials by the department's faculty. In addition to having met all admission requirements of the Biosciences Program, applicants to the Ph.D. program in anatomy and cell biology must have completed a bachelor's degree with the following undergraduate course work: chemistry through organic chemistry, one semester of biochemistry or the equivalent, one semester of another advanced biology course, mathematics through calculus, one year of

physics, and one semester of statistics or the equivalent. Desirable qualifications include an undergraduate major in the biological sciences or chemistry; a master's degree in the biological sciences, chemistry, or a related area; and scores from a GRE Advanced Test in the applicant's major area.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

All students in the Department of Anatomy and Cell Biology receive stipends and tuition support. Sources include training grants from the National Institutes of Health, University of Iowa and departmental fellowships and graduate research assistantships, and individual faculty research grants.

Facilities

The department occupies more than 35,000 square feet in the Bowen Science Building on the University of Iowa health sciences campus. The building houses modern teaching facilities and well-equipped research laboratories. The most modern instrumentation is available, including facilities and equipment for digital microscopic imaging, confocal microscopy, molecular biological techniques, tissue culture, and protein chemistry. Other specialized equipment (e.g., electron microscopes, mass spectrophotometers) is available in other facilities. Through collaborative programs with the Holden Comprehensive Cancer Center and Iowa Cardiovascular Center, faculty and students also have access to outstanding research facilities throughout the University's health sciences campus.

Courses

ACB:1199 (060:099) Human Anatomy and Basic Physiology for Radiation Science 4 s.h.

Integrative systemic study of the structure and function of the human body; body systems defined and described by their constituent organs; body's most basic cellular level, tissue level, and study of organs which comprise various systems; online course with lectures, assignments, and virtual laboratory study. Requirements: high school biology course.

ACB:3109 (060:109) Human Anatomy Lab for Health Professions 1 s.h.

Regional and systemic approaches to the study of human anatomy, using histological (microscopic) as well as gross (macroscopic) studies. Prerequisites: BIOL:1141 (002:002). Requirements: ACB:3110 (060:110) for pre-nursing students.

ACB:3110 (060:110) Principles of Human Anatomy 3 s.h.

Gross and microscopic human anatomy; systemic approach to regional anatomy, with emphasis on clinical relevance; optional tutorial sessions. Offered fall and spring semesters. Prerequisites: BIOL:1141 (002:002) or BIOL:1411 (002:031). Requirements: pharmacy, pre-nursing, or associated medical sciences major.

ACB:3113 (060:113) Human Anatomy Online 4 s.h.

Integrative systemic and regional study of the human body's structure. Prerequisites: BIOL:1141 (002:002).

ACB:3122 (060:122) Independent Study in Anatomy and Cell Biology arr.

Projects arranged with department faculty members.

ACB:4156 (060:156) Scanning Electron Microscopy and X-Ray Microanalysis arr.

Microscopy methods for research; all aspects of research, from sample preparation to imaging to data analysis; when to use a particular microscopy procedure; theory, operation, and application of scanning electron microscopy, scanning probe microscopy, laser scanning microscopy, X-ray microanalysis. Requirements: a physical science course. Same as CBE:4156 (052:156), EES:4156 (012:156).

ACB:5108 (060:108) Human Anatomy 5 s.h.

Regional dissection, lectures, demonstrations; areas important to physical therapists, particularly the upper and lower extremities. Offered fall semesters. Requirements: physical therapy and rehabilitation science enrollment.

ACB:5203 (060:203) Gross Human Anatomy for Graduate Students 6 s.h.

Regional dissection, lectures, demonstrations, tutorials, discussions, seminars; clinically relevant areas of anatomical radiology, surface anatomy with clinical correlations. Requirements: anatomy and cell biology graduate standing.

ACB:5205 (060:205) General Histology for Graduate Students 1-4 s.h.

Structure and function of cells, tissues and organs studied at light and electron microscopic levels; advanced study of head and neck tissues. Offered spring semesters. Corequisites: MED:8112 (050:240). Requirements: graduate standing in anatomy and cell biology or Carver College of Medicine graduate program.

ACB:5206 (060:206) Graduate Research in Anatomy and Cell Biology arr.

Individual laboratory research training in anatomical sciences.

ACB:5218 (060:218) Microscopy for Biomedical Research arr.

Basic microscopy methods for research including optics, preparation, and analysis of biomedical specimens; light, fluorescence, confocal, transmitting electron, scanning electron, atomic force microscopes, elemental analysis; immunochemistry and stereology techniques; individualized laboratory instruction. Prerequisites: BIOL:2723 (002:114). Same as MICR:5218 (061:218), BIOL:5218 (002:218).

ACB:5220 (060:220) Advanced Microscopy for Biomedical Research arr.

Technically advanced microscopy and instrumentation for research; individualized laboratory experience with opportunity to explore applications of microscopy methods. Requirements: for ACB:5220 (060:220) — an introductory microscopy course; for BIOL:5220 (002:220) — ACB:4156 (060:156) or ACB:5218 (060:218) or CBE:4156 (052:156) or EES:4156 (012:156) or MICR:5218 (061:218); for MICR:5220 (061:220) — an introductory EM course. Same as BIOL:5220 (002:220), MICR:5220 (061:220).

ACB:5224 (060:224) Graduate Student Seminar 0-1 s.h.

Current research, literature. Requirements: anatomy and cell biology graduate standing.

ACB:6000 (060:270) Human Anatomy for Advanced Practice 3 s.h.

Interrelationships between anatomic structure and physiological function in health and disease; clinical assessment of functional integrity of organ systems; implications of pathophysiology for anesthesia. Requirements: admission to anesthesia nursing program. Same as NURS:6000 (096:270).

ACB:6200 (060:200) Special Topics in Genetics 1 s.h.

Current research in a selected field of genetics; different topic each year. Companion to a genetics seminar series. Same as GENE:6200 (127:200).

ACB:6210 (060:210) Clarity and Style in Scientific Writing 3 s.h.

Forms of scientific writing; writing with clarity and style about scientific problems, principles, and discoveries; writing strategies and how to write for specific audiences; exercises to improve clarity and style in writing; writing a professional scientific paper (review or research), and writing a science article for nonscientists. Requirements: biomedical sciences trainee.

ACB:6220 (060:216) Mechanisms of Cellular Organization 3 s.h.

Current understanding of basic cell biological processes; key experiments that led to guiding insights; mechanisms that cells use for compartmentalization and how those mechanisms are regulated; biogenesis of major organelles (e.g., mitochondria, peroxisomes, nucleus, secretory/endocytic membrane system); functions of cytoskeleton in cell motility, organelle motility, and cell division. Prerequisites: BIOC:3130 (099:130). Same as MCB:6220 (142:220), MPB:6220 (072:220).

ACB:6225 (060:225) Growth Factor Receptor Signaling 1 s.h.

Mechanisms of signaling by growth factors; cytokines and related molecules that regulate cell proliferation, development, differentiation, and survival; emphasis on molecular mechanisms of signaling, relevance of these signaling processes to various human diseases. Recommendations: BISC:5201 (156:201) and BISC:5203 (156:203). Same as MCB:6225 (142:225), MPB:6225 (072:225).

ACB:6226 (060:226) Cell Cycle Control 1 s.h.

Cell cycle regulation, DNA damage-dependent cell cycle regulation, redox-dependent cell cycle regulation, cellular senescence. Recommendations: BISC:5201 (156:201) and BISC:5203 (156:203). Same as MCB:6226 (142:226), MPB:6226 (072:226).

ACB:6227 (060:223) Cell Fate Decisions 1 s.h.

Cellular fate decisions, including signal integration, terminal differentiation in development, mechanisms of embryonic stem cell gene regulation/cellular reprogramming, cell death paradigms, and cell death in development and cancer. Recommendations: BISC:5201 (156:201) and BISC:5203 (156:203). Same as MCB:6227 (142:227), MPB:6227 (072:227).

ACB:6237 (060:237) Critical Thinking in Biochemistry and Molecular Biology 1 s.h.

How nucleic acids, proteins, lipids, and carbohydrates interact to influence the function of cells and tissues; how molecules drive signaling pathways and cellular processes essential for biological functions; based on research publications.

ACB:6238 (060:238) Critical Thinking in Genetics 1 s.h.

Current topics in molecular and classical genetics; emphasis on genetic underpinnings of disease; based on primary research publications.

ACB:6239 (060:239) Critical Thinking in Cell Biology 1 s.h.

Understanding subcellular organization and intercellular communication; emphasis on critical thinking and primary research publications.

ACB:6248 (060:248) Critical Thinking in Development 1 s.h.

Current topics in molecular basis of vertebrate development; based on primary research publications.

ACB:6249 (060:249) Critical Thinking in Cellular Physiology 1 s.h.

Control of physiological systems at the cellular level; emphasis on regulation by molecular signaling pathways; literature-based.

ACB:6252 (060:252) Functional Neuroanatomy arr.

Basic principles of neuroanatomy and neurophysiology; emphasis on human central nervous system; laboratory emphasis on anatomical study of spinal cord and brain. Offered spring semesters. Requirements: physical therapy and rehabilitation science enrollment or graduate standing.

ACB:6265 (060:265) Neuroscience Seminar 0-1 s.h.

Research presentations. Offered fall and spring semesters. Same as PSY:6265 (031:265), MPB:6265 (072:265), NSCI:6265 (132:265), BIOL:6265 (002:265).

ACB:7227 (060:227) Anatomic Study for Teaching 2-3 s.h.

Experience completing a detailed dissection of a region of the human body; opportunity to create models depicting anatomical concepts. Requirements: enrollment in teaching certificate program.

ACB:8101 (060:103) Medical Gross Human Anatomy 5 s.h.

Complete dissection of the body with regional emphasis stressing relationships to the living system; clinically relevant areas of radiologic imaging, surface anatomy, embryology, and clinical correlations; anatomical knowledge through lectures, small group work, independent activities. Offered fall semesters. Requirements: M.D. enrollment.

ACB:8114 (060:234) Medical Neuroscience 4 s.h.

Basic principles of neurophysiology, neuroanatomy; emphasis on human central nervous system; laboratory emphasis on anatomical study of spinal cord, brain. Offered spring semesters. Requirements: physical therapy and rehabilitation science or M.D. enrollment, or graduate standing.

ACB:8120 (060:101) Human Gross Anatomy for Dental Students 6 s.h.

Exploration of gross anatomy of human body including thorax, abdomen, upper limb; extensive focus on head, neck, and neuroanatomy; regional and systemic approaches; course sequence and assessment blended with general histology for dental students; cadaveric dissections closely follow lecture sequence; emphasis on correlations to dental practice. Offered spring semesters. Requirements: D.D.S. enrollment.

ACB:8121 (060:112) General Histology for Dental Students 4 s.h.

Microscopic study of cells, fundamental tissues, organ systems; emphasis on tooth-related structures. Offered spring semesters. Requirements: D.D.S. enrollment or anatomy and cell biology graduate standing.

ACB:8201 (060:111) Gross Human Anatomy for Physician Assistant Students 6 s.h.

Focused regional dissection with clinical integration through lectures, demonstrations, and tutorials; neuroanatomy, radiology. Offered summer sessions. Requirements: physician assistant studies and services or M.D. enrollment.

ACB:8250 (060:250) Integrated Gross Human Anatomy, General and Oral Histology for Dental Students (GRISTO) 10 s.h.

Integrated study of morphology of human body at microscopic and macroscopic levels; covers breadth and depth of traditional professional-level anatomy and histology courses; focus on structures of head and neck, oral cavity, and in-depth study of nervous system; combination of traditional lectures, cadaver laboratory dissection, virtual histology laboratories, and supported self-regulated learning strategies. Requirements: D.D.S. program enrollment.

ACB:8401 (060:232) Advanced Human Anatomy arr.

Regional dissection of the body with emphasis on systems relevant to student's specialty interests; discussion, reading, clinically relevant imaging, embryology. Offered spring semesters. Requirements: fourth-year M.D. enrollment or graduate standing.

ACB:8402 (060:403) Teaching Elective in Regional Anatomy 2,4 s.h.

Expand knowledge and experience in medical education; investigate educational pedagogy in a laboratory setting coupled with self-directed learning of anatomical content relevant to professional development; prepare, design, and implement four teaching interactions with M1/D1/PA1 students; design a classroom exercise (e.g., interactive lecture, learning activity, computer-based study module) that helps bridge the basic science content with clinical procedure. Requirements: M.D. standing and enrollment in teaching track distinction.

Anesthesia

Chair

- Michael M. Todd

Professors

- Timothy J. Brennan (Samir Gergis Professor of Anesthesia), Javier H. Campos, Franklin Dexter, Robert B. Forbes, Donna L. Hammond, Bradley J. Hindman, Robert Raw, Debra A. Schwinn, Michael M. Todd

Associate professors

- Max T. Baker, James N. Bates, Robert I. Block, James Y. Choi, Deborah J. Dehring, Robert P. From, Laurilyn Helmers, Yasser M.G.A. Karim, Toshihiro Kitamoto, John Laur, Paul A. Leonard, Anil Marian, Rashmi N. Mueller, Clark J. Obr, David P. Papworth, Kent S. Pearson, Alan F. Ross, Jonathan Simmons, Shawn T. Simmons, Ramprasad Sripada, Debra J. Szeluga, Joss Thomas, Kenichi Ueda, Ruth E. Wachtel, Tyrone B. Whitter

Assistant professors

- Ron Abrons, Emine Bayman, Anke Bellinger, Esther Benedetti, Foad Elahi, Yasser M.S. El-Hattab, Brent Hadder, Satoshi Hanada, Denisa Haret, Jeanette A. Harrington, Merete Ibsen, Unyime Ituk, Katherine Keech, Sundar Krishnan, Ronald Lind, Magboul M.A. Magboul, Nicholas Mohr, Martin Mueller, Srinivasan Rajagopal, Sundara Reddy, Melinda Seering, Rapipen Siriwetchadarak, Christina Spofford, David E. Swanson, Kokila Thenuwara, Sarah Titler, Danai Udomtecha

Associates

- Sinyoung Kang, Esther Kim, Jenna Masters, William Rogers, Sudhakar Subramani

Adjunct professor

- Dale Morgan

Adjunct assistant professor

- Lee Kral

Professors emeriti

- Won W. Choi, Mohamed Ghoneim, Peter J.R. Jebson, John R. Moyers, Franklin L. Scamman, Martin Sokoll

Web site: <http://www.anesth.uiowa.edu/>

M.D. Student Training

The Department of Anesthesia introduces second-year medical students to anesthesia as a specialty; helps third-year students develop concepts and technical skills related to resuscitation, airway management, and care of the unconscious patient; and offers fourth-year students intensive study in the specialty. It offers the following courses for medical students. For course descriptions and prerequisite information, see "Courses" below.

ANES:8301 (116:006) Clinical Anesthesia	2 s.h.
ANES:8401 (116:010) Clinical Anesthesia Senior	arr.
ANES:8402 (116:011) Surgical and Neurosciences Intensive Care	arr.
ANES:8495 (116:333) Intensive Care Off Campus	arr.

ANES:8498 (116:998) Anesthesia On Campus arr.

ANES:8499 (116:999) Anesthesia Off Campus arr.

Postgraduate and Residency Program

The department's postgraduate and residency program involves diverse clinical experiences, seminars and teaching conferences, and ongoing research activities that help postgraduate students and residents develop the knowledge and skills required of an anesthesia specialist.

Anesthesia Nursing Program

The department coordinates the Anesthesia Nursing Program, a collaboration between the Carver College of Medicine and the College of Nursing. The program, which is open to nurses who hold a bachelor's degree, prepares nurse anesthetists to serve rural hospitals in Iowa and nationwide. The curriculum provides intensive training in didactic and clinical anesthesia and includes diverse clinical experience as well as classroom instruction, seminars, and clinical case conferences. It includes the following courses. For course descriptions and prerequisite information, see "Courses" below.

ANES:6005 (116:271) Chemical and Physical Principles of Anesthesia Practice	3 s.h.
ANES:6006 (116:273) Pharmacology of Anesthesia Practice II	3 s.h.
ANES:6007 (116:274) Basic Principles of Anesthesia Practice	5 s.h.
ANES:6010 (116:275) Advanced Principles of Anesthesia Practice I	4 s.h.
ANES:6012 (116:277) Advanced Principles of Anesthesia Practice II	1 s.h.
ANES:6016 (116:279) Equipment and Technological Principles of Anesthesia Practice	3 s.h.
ANES:6050 (116:290) Introductory Clinical Anesthesia	1 s.h.
ANES:6051 (116:291) Clinical Anesthesia I	1 s.h.
ANES:6052 (116:292) Clinical Anesthesia II	1 s.h.
ANES:6053 (116:293) Advanced Clinical Anesthesia	1 s.h.
ANES:6054 (116:294) Obstetrical Anesthesia	1 s.h.
ANES:6055 (116:295) Rural Anesthesia	1 s.h.

Courses

For M.D. Students

ANES:8301 (116:006) Clinical Anesthesia 2 s.h.
Clinical instruction in perioperative care of the surgical patient; preoperative evaluation, consideration of coexisting medical problems, intraoperative care, postoperative management; basic airway management; introduction to clinical management of acute and chronic pain; case conferences, simulator training.

ANES:8401 (116:010) Clinical Anesthesia Senior arr.

Advanced clinical experience in anesthesia management of surgical patients with coexisting medical problems; clinical experience in various forms of anesthesia; general, regional (spinal, epidural, peripheral nerve block) anesthesia; practical experience in airway management; mask ventilation, endotracheal intubation, LMA placement, other alternative airway techniques; medical management of surgical patient under anesthesia; pharmacology, cardiovascular and pulmonary physiology; case conferences.

ANES:8402 (116:011) Surgical and Neurosciences Intensive Care arr.

Evaluation and treatment of critically ill neurological and post-surgical patients; evaluation of pulmonary function, ventilator management, monitoring and management of hemodynamics, fluid balance, acid-based problems, acute kidney injury, acute neurological events, and advanced monitoring techniques.

ANES:8495 (116:333) Intensive Care Off Campus arr.

Evaluation and treatment of seriously ill patients in an intensive care unit (other than University of Iowa Hospitals and Clinics); artificial ventilation, evaluation of pulmonary function, monitoring of cardiovascular status, fluid balance and acid base problems, advance monitoring techniques. Requirements: 4 s.h. of ANES:8401 (116:010).

ANES:8498 (116:998) Anesthesia On Campus arr.

Well defined research project relating to anesthesia; arranged by student with departmental approval.

ANES:8499 (116:999) Anesthesia Off Campus arr.

Knowledge development in anesthesia work and monitor use; ability to identify respiratory, cardiovascular, and neurologic effects of anesthetic agents; skill in airway management; basic skills in general, spinal, epidural, and peripheral nerve block anesthesia.

For Anesthesia Nursing Students

ANES:6005 (116:271) Chemical and Physical Principles of Anesthesia Practice 3 s.h.

Chemistry and physics, as applied to anesthesia. Requirements: admission to anesthesia nursing program. Same as NURS:6005 (096:271).

ANES:6006 (116:273) Pharmacology of Anesthesia Practice II 3 s.h.

Continuation of PCOL:6204 (071:115); vascular, hepatic, renal, GI, endocrine aspects; cellular mechanisms, electrolytes alterations, anesthesia specific implications. Prerequisites: PCOL:6204 (071:115). Requirements: grade of 2.75 or higher in PCOL:6204 (071:115) and enrollment in anesthesia nursing program. Same as NURS:6006 (096:273).

ANES:6007 (116:274) Basic Principles of Anesthesia Practice 5 s.h.

Overview of anesthesia as a nursing specialty; patient assessment, anesthetic planning and management, pertinent regulations; principles of general and regional anesthesia for surgical specialties. Requirements: for NURS:6007 (096:274) — grades of 3.00 or higher in PCOL:6204 (071:115) and NURS:6005 (096:271); for ANES:6007 (116:274) — grades of 3.00 or higher in PCOL:6204 (071:115) and ANES:6005 (116:271). Same as NURS:6007 (096:274).

ANES:6010 (116:275) Advanced Principles of Anesthesia Practice I 4 s.h.

Special needs and intraoperative management of obstetric, pediatric, and neurological patients; emphasis on pathophysiology, monitoring, ancillary requirements. Prerequisites: NURS:6007 (096:274) or ANES:6007 (116:274). Requirements: grade of 3.00 or higher in NURS:6006 (096:273) or ANES:6006 (116:273). Same as NURS:6010 (096:275).

ANES:6012 (116:277) Advanced Principles of Anesthesia Practice II 1 s.h.

Acute and chronic pain management; anesthetic problems with concurrent multisystem disease, advanced age, altered physical and/or mental status. Prerequisites: NURS:6007 (096:274) or ANES:6007 (116:274). Requirements: grade of 3.00 or higher in NURS:6006 (096:273) or ANES:6006 (116:273). Same as NURS:6012 (096:277).

ANES:6016 (116:279) Equipment and Technological Principles of Anesthesia Practice 3 s.h.

Anesthesia delivery systems, ancillary equipment, monitoring devices; correlation of applicable chemical and physical principles for use, safe operation, care, and cleaning of anesthesia-related equipment. Prerequisites: ANES:6005 (116:271). Requirements: anesthesia nursing program enrollment. Same as NURS:6016 (096:279).

ANES:6050 (116:290) Introductory Clinical Anesthesia 1 s.h.

Initial anesthesia preceptorship; development of basic clinical skills for work as a nurse anesthetist. Requirements: for NURS:6050 (096:290) — grades of 3.00 or higher in NURS:6006 (096:273) and NURS:6016 (096:279); for ANES:6050 (116:290) — grades of 3.00 or higher in ANES:6006 (116:273) and ANES:6016 (116:279). Recommendations: basic science core courses and anesthesia nursing program enrollment. Same as NURS:6050 (096:290).

ANES:6051 (116:291) Clinical Anesthesia I 1 s.h.

Supervised anesthesia clinical experience for general, orthopedic, gynecologic, pediatric, urologic, dental, EENT, ambulatory surgery, or invasive diagnostic procedures. Prerequisites: NURS:6050 (096:290) or ANES:6050 (116:290). Requirements: for NURS:6051 (096:291) — grade of S (satisfactory) in NURS:6050 (096:290); for ANES:6051 (116:291) — grade of S (satisfactory) in ANES:6050 (116:290). Recommendations: anesthesia nursing program enrollment. Same as NURS:6051 (096:291).

ANES:6052 (116:292) Clinical Anesthesia II 1 s.h.

Clinical anesthesia experience under faculty supervision at University Hospitals and Clinics, in surgical subspecialty rotations not completed in NURS:6051 (096:291) or ANES:6051 (116:291). Prerequisites: NURS:6051 (096:291) or ANES:6051 (116:291). Requirements: for NURS:6052 (096:292) — grade of S (satisfactory) in NURS:6051 (096:291); for ANES:6052 (116:292) — grade of S (satisfactory) in ANES:6051 (116:291). Recommendations: anesthesia nursing program enrollment. Same as NURS:6052 (096:292).

ANES:6053 (116:293) Advanced Clinical Anesthesia 1 s.h.

Clinical anesthesia experiences in neurologic surgery, cardiovascular/thoracic surgery; experience providing anesthesia for patients with complex pathophysiology in varied surgical settings. Requirements: for NURS:6053 (096:293) — anesthesia nursing program senior standing, anesthesia nursing concentration courses, and grade of S (satisfactory) in NURS:6052 (096:292); for ANES:6053 (116:293) — anesthesia nursing program enrollment, anesthesia nursing concentration courses, and grade of S (satisfactory) in ANES:6052 (116:292). Same as NURS:6053 (096:293).

ANES:6054 (116:294) Obstetrical Anesthesia 1 s.h.

Experience providing anesthesia for the parturient, initial neonatal care; two one-month rotations off campus. Requirements: for NURS:6054 (096:294) — anesthesia nursing program enrollment and grade of S (satisfactory) in NURS:6052 (096:292); for ANES:6054 (116:294) — anesthesia nursing courses, anesthesia nursing program enrollment, and grade of S (satisfactory) in ANES:6052 (116:292). Same as NURS:6054 (096:294).

ANES:6055 (116:295) Rural Anesthesia 1 s.h.

Anesthesia experience in community hospitals; three one-month rotations at UI-affiliated clinical sites in rural Iowa. Requirements: for NURS:6055 (096:295) — anesthesia nursing program enrollment and grade of S (satisfactory) in NURS:6052 (096:292); for ANES:6055 (116:295) — anesthesia nursing courses, anesthesia nursing program enrollment, and grade of S (satisfactory) in ANES:6052 (116:292). Same as NURS:6055 (096:295).

Biochemistry

Chair

- Charles M. Brenner

Professors

- E. Dale Abel, Charles M. Brenner, John M. Dagle, Adrian H. Elcock, Pamela K. Geyer, David H. Price, Peter A. Rubenstein, Debra A. Schwinn, Madeline A. Shea, Lori L. Wallrath, Daniel L. Weeks, Ronald Weigel, Marc S. Wold

Associate professors

- Heather L. Bartlett, Kris A. DeMali, Andrew W. Norris, Maria Spies, M. Todd Washington

Assistant professors

- Sheila A. Baker, Brandon S.J. Davies, Ernesto J. Fuentes, Catherine A. Musselman, Miles A. Pufall, Michael J. Schnieders, M. Ashley Spies

Lecturer

- Elisabeth Swain

Adjunct professors

- Theresa Gioannini, S. Ramaswamy, Nancy C. Stellwagen, Joseph Walder, Liping Yu

Adjunct assistant professors

- Lokesh Gahkar, Meng Wu

Professors emeriti

- Arthur Arnone, Thomas W. Conway, John Donelson, Alice B. Fulton, Rex Montgomery, Bryce Plapp, Arthur A. Spector, Earle Stellwagen, Charles A. Swenson

Undergraduate major: biochemistry (B.A., B.S.)

Graduate degrees: M.S. in biochemistry; Ph.D. in biochemistry

Web site: <http://www.medicine.uiowa.edu/biochemistry/>

Biochemistry is the study of basic chemical processes that occur in and govern all living systems. Nearly all areas of the life sciences engage in biochemical research.

Biochemistry graduates with bachelor's degrees often work as research assistants in industry, government, education, or health services; teach in secondary schools; or go on to advanced study in medicine, dentistry, or other areas. Those with advanced degrees pursue careers as teachers, researchers, or administrators in universities and medical schools, government, research agencies, and varied industries.

The Department of Biochemistry offers an undergraduate major and graduate degree programs and determines the curricula for those programs. Undergraduates majoring in biochemistry receive their degrees (Bachelor of Arts or Bachelor of Science) from the College of Liberal Arts and Sciences, and their studies are governed by that college's undergraduate academic policies. Graduate degrees in biochemistry are conferred by the Graduate College.

Undergraduate Programs of Study

- Major in biochemistry (Bachelor of Arts, Bachelor of Science)

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts with a major in biochemistry requires a minimum of 120 s.h., including 57-58 s.h. of work for the major. The Bachelor of Science with a major in biochemistry requires a minimum of 120 s.h., including 69-70 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

The biochemistry major for the Bachelor of Arts degree provides a rigorous education in biochemical concepts and practice in the laboratory while giving students flexibility to specialize in additional disciplines or to obtain clinical volunteer experience. The B.A. program is intended for most students majoring in biochemistry, including those with pre-medicine, pre-pharmacy, pre-dental, and other pre-health professions interests. It also is appropriate for students earning more than one major.

The biochemistry major for the Bachelor of Science degree is intended primarily for students planning careers in research. The B.S. program prepares students to pursue graduate degrees, such as an M.S., Ph.D., or joint M.D./Ph.D., or to work as research technicians. The B.S. program requires 12 s.h. more credit in science and laboratory electives than the B.A. program does.

The first two years of the curriculum are the same for all students majoring in biochemistry. Students decide to earn a B.A. or a B.S. during the second semester of their sophomore year, in consultation with their biochemistry advisor. Transfer students select the B.A. or B.S. after completing one semester at The University of Iowa and meeting with their biochemistry advisor.

Qualified students in either degree program may graduate with honors in the biochemistry major; see "Honors in the Major" below.

The major in biochemistry (B.A. and B.S.) requires the following work.

Common Requirements (B.A. and B.S.)

All biochemistry majors complete the following course work during their first two years.

All of these:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
MATH:1850 (22M:025) & MATH:1860 (22M:026) Calculus I-II	8 s.h.

One of these:

CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
CHEM:2230 (004:123) Organic Chemistry I for Majors	3 s.h.

One of these:

CHEM:2220 (004:122) Organic Chemistry II	3 s.h.
CHEM:2240 (004:124) Organic Chemistry II for Majors	3 s.h.

One of these:

CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.
CHEM:2420 (004:142) Organic Chemistry Laboratory for Majors	3 s.h.

One of these:

PHYS:1511 (029:011) College Physics I	4 s.h.
PHYS:1611 (029:081) Introductory Physics I	4 s.h.

One of these:

PHYS:1512 (029:012) College Physics II	4 s.h.
PHYS:1612 (029:082) Introductory Physics II	3-4 s.h.

All of these:

BIOC:3120 (099:120) & BIOC:3130 (099:130) Biochemistry and Molecular Biology I-II	6 s.h.
BIOC:3140 (099:140) Experimental Biochemistry	2 s.h.

Additional Requirements for the B.A.

In addition to the common requirements listed above, biochemistry majors who elect to earn a Bachelor of Arts must complete the following work.

One of these:

BIOC:5241 (099:241) Biophysical Chemistry I	3 s.h.
BIOC:5242 (099:242) Biophysical Chemistry II	3 s.h.
CHEM:4431 (004:131) Physical Chemistry I	3 s.h.
CHEM:4432 (004:132) Physical Chemistry II	3 s.h.

And:

Advanced science electives approved by biochemistry advisor	6 s.h.
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Bachelor of Arts students intending to earn advanced degrees in the biological or health sciences are advised to earn at least 4 s.h. in BIOC:3115 (099:115) Undergraduate Independent Study or BIOC:4155 (099:155) Research, Independent Study. There are no prerequisites for BIOC:3115 (099:115). The course involves experience in an active biochemistry research lab, which must be arranged ahead of time with a supervising faculty member. Students may make arrangements directly with the faculty member, or they may request assistance from an undergraduate advisor. Credit earned in BIOC:3115 (099:115) does not count toward the major, but it does count toward the minimum of 120 s.h. required to graduate.

In order to register for BIOC:4155 (099:155) Research, Independent Study, students must have completed BIOC:3120 (099:120) Biochemistry and Molecular Biology I, BIOC:3130 (099:130) Biochemistry and Molecular Biology II, and BIOC:3140 (099:140) Experimental Biochemistry. They must have a grade average of B or higher in the three courses and a grade of B-minus or higher in each course. They also must have completed BIOC:3101 (099:101) Technical Communication in Biochemistry and should have prior research experience [e.g., BIOC:3115 (099:115) Undergraduate Independent Study or HONR:3200 (143:100) Honors Research Practicum] or consent of the instructor.

Additional Requirements for the B.S.

In addition to the common requirements listed above, biochemistry majors who elect to earn a Bachelor of Science must complete the following work.

Two of these:

BIOC:5241 (099:241) Biophysical Chemistry I	3 s.h.
BIOC:5242 (099:242) Biophysical Chemistry II	3 s.h.
CHEM:4431 (004:131) Physical Chemistry I	3 s.h.
CHEM:4432 (004:132) Physical Chemistry II	3 s.h.

All of these:

Advanced science electives approved by biochemistry advisor	9 s.h.
Advanced laboratory courses, including BIOC:4155 (099:155)	6 s.h.

Students are encouraged to begin research by taking BIOC:3115 (099:115) Undergraduate Independent Study, which has no prerequisites. The course involves experience in an active biochemistry research lab, which must be arranged ahead of time with a supervising faculty member. Students may make arrangements directly with the faculty member, or they may request assistance from an undergraduate advisor. Credit earned in BIOC:3115 (099:115) does not count toward the major, but it does count toward the minimum of 120 s.h. required to graduate.

In order to register for BIOC:4155 (099:155) Research, Independent Study, students must have completed BIOC:3120 (099:120) Biochemistry and Molecular Biology I, BIOC:3130 (099:130) Biochemistry and Molecular Biology II, and BIOC:3140 (099:140) Experimental Biochemistry. They must have a grade average of B or higher in the three courses and a grade of B-minus or higher in each course. They also must have completed BIOC:3101 (099:101) Technical Communication in Biochemistry and should have prior research experience [e.g., BIOC:3115 (099:115) Undergraduate Independent Study or HONR:3200 (143:100) Honors Research Practicum] or consent of the instructor.

B.A. or B.S. with Teacher Licensure

Biochemistry majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Education Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

Before the third semester begins: CHEM:1110 (004:011) Principles of Chemistry I, CHEM:1120 (004:012) Principles of Chemistry II, MATH:1850 (22M:025) Calculus I, and MATH:1860 (22M:026) Calculus II

Before the fifth semester begins: BIOL:1411 (002:031) Foundations of Biology, BIOL:1412 (002:032) Diversity of Form and Function, CHEM:2210 (004:121) Organic Chemistry I or CHEM:2230 (004:123) Organic Chemistry I for Majors, CHEM:2220 (004:122) Organic Chemistry II or CHEM:2240 (004:124) Organic Chemistry II for Majors, and CHEM:2410 (004:141) Organic Chemistry Laboratory or CHEM:2420 (004:142) Organic Chemistry Laboratory for Majors

Before the seventh semester begins: PHYS:1611 (029:081) Introductory Physics I or PHYS:1511 (029:011) College Physics I, PHYS:1612 (029:082) Introductory Physics II or PHYS:1512 (029:012) College Physics II, BIOC:3120 (099:120) Biochemistry and Molecular Biology I, BIOC:3130 (099:130) Biochemistry and Molecular Biology II, BIOC:3140 (099:140) Experimental Biochemistry, two science electives, and at least 90 s.h. earned toward the degree

Before the eighth semester begins: CHEM:4431 (004:131) Physical Chemistry I or CHEM:4432 (004:132) Physical Chemistry II or BIOC:5241 (099:241) Biophysical Chemistry I or BIOC:5242 (099:242) Biophysical Chemistry II, and a science elective

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Before the third semester begins: CHEM:1110 (004:011) Principles of Chemistry I, CHEM:1120 (004:012) Principles of Chemistry II, MATH:1850 (22M:025) Calculus I, and MATH:1860 (22M:026) Calculus II

Before the fifth semester begins: BIOL:1411 (002:031) Foundations of Biology, BIOL:1412 (002:032) Diversity of Form and Function, CHEM:2210 (004:121) Organic Chemistry I or CHEM:2230 (004:123) Organic Chemistry I for Majors, CHEM:2220 (004:122) Organic Chemistry II or CHEM:2240 (004:124) Organic Chemistry II for Majors, and CHEM:2410 (004:141) Organic Chemistry Laboratory or CHEM:2420 (004:142) Organic Chemistry Laboratory for Majors

Before the seventh semester begins: PHYS:1611 (029:081) Introductory Physics I or PHYS:1511 (029:011) College Physics I, PHYS:1612 (029:082) Introductory Physics II or PHYS:1512 (029:012) College Physics II, BIOC:3120 (099:120) Biochemistry and Molecular Biology I, BIOC:3130 (099:130) Biochemistry and Molecular Biology II, BIOC:3140 (099:140) Experimental Biochemistry, and two science electives; BIOC:3101 (099:101) for students planning to take BIOC:4155 (099:155); and at least 90 s.h. earned toward the degree

Before the eighth semester begins: CHEM:4431 (004:131) Physical Chemistry I or CHEM:4432 (004:132) Physical Chemistry II or BIOC:5241 (099:241) Biophysical Chemistry I or BIOC:5242 (099:242) Biophysical Chemistry II, a science elective, and at least 3 s.h. of BIOC:4155 (099:155) Research, Independent Study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in biochemistry have the opportunity to graduate with honors in the major. Departmental honors students must maintain a cumulative University of Iowa g.p.a. of at least 3.33. To graduate with honors in the biochemistry major, students must earn 6 s.h. in BIOC:4155 (099:155) Research, Independent Study. They must present their research results in a report written in the form of a journal article and in an oral report given at a special open departmental seminar.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Joint B.S./Ph.D.

The joint Bachelor of Science/Doctor of Philosophy program in biochemistry permits students to transition into the Ph.D. program during their senior year and to count 12 s.h. of credit toward both the B.S. and Ph.D. requirements. The joint program provides a research-intensive experience and shortens the training time for students interested in pursuing independent biochemistry research careers. Students in the program receive financial support during the second half of their senior year and throughout their Ph.D. study.

Students must apply to enter the joint B.S./Ph.D. program. They must be pursuing a Bachelor of Science with a major in biochemistry, and by the beginning of their senior year they must:

- have 108 s.h. of undergraduate credit;
- have a minimum grade-point average of 3.50;
- have completed four semesters of research experience (summer research counts as one semester); and
- have completed BIOC:3120 (099:120) Biochemistry and Molecular Biology I, BIOC:3130 (099:130) Biochemistry and Molecular Biology II, and BIOC:3140 (099:140) Experimental Biochemistry.

Students interested in the joint program should speak with their academic advisor and the biochemistry honors advisor during their first year or at the beginning of their sophomore year. They should apply to the program in spring of their junior year; applications are due April 1. Application materials must include a letter of application and statement of purpose; official scores on the Graduate Record Exam (GRE) General Test; and three letters of recommendation, including at least one from a research advisor.

Graduate Programs of Study

- Master of Science in biochemistry
- Doctor of Philosophy in biochemistry

Students admitted to graduate study in biochemistry usually pursue the Doctor of Philosophy. Qualified students interested in earning the Doctor of Medicine along with the

Ph.D. may apply to the Medical Scientist Training (p. 1086) Program, which offers a joint M.D./Ph.D. program.

Master of Science

The Master of Science program in biochemistry requires a minimum of 32 s.h. of graduate credit, thesis research, and a thesis. See "Doctor of Philosophy" for information about the graduate curriculum.

Doctor of Philosophy

The Doctor of Philosophy program in biochemistry requires a minimum of 72 s.h. of graduate credit. Students complete 34 s.h. of course work and earn 38 s.h. of credit for research. The focus of the graduate program is on the individual student, so students work with the director of the biochemistry graduate programs to tailor the curriculum to their educational goals.

The Ph.D. in biochemistry requires the following work.

BIOC:5261 (099:261) Research Techniques (first-year laboratory rotation)	1-5 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	0-1 s.h.
Biophysical chemistry (students typically earn 6 s.h.); see "Biophysical chemistry requirement" below	3 s.h.
Molecular or cellular biology (students typically earn 6-8 s.h.); see "Molecular and cell biology requirement" below	4 s.h.
Graduate seminar	3 s.h.
Additional courses offered by the Department of Biochemistry and by other UI departments, as appropriate for the student's program of study	13 s.h.
Research	38 s.h.

Biophysical chemistry requirement: the following courses may be used to fulfill the 3 s.h. requirement. Students choose courses to meet their individual educational goals, completing one 3 s.h. course or a combination of three 1 s.h. courses (modules).

BIOC:5241 (099:241) Biophysical Chemistry I	3 s.h.
BIOC:5242 (099:242) Biophysical Chemistry II	3 s.h.
BIOC:5243 (099:243) Protein Structure, Function, and Regulation: Biophysical Chemistry Module 1	1 s.h.
BIOC:5244 (099:244) Ligand Binding and X-Ray Crystallography: Biophysical Chemistry Module 4	1 s.h.
BIOC:5245 (099:245) Protein Structure, Stability, and Folding: Biophysical Chemistry Module 2	1 s.h.
BIOC:5246 (099:246) Enzyme Kinetics and Enzyme Mechanisms: Biophysical Chemistry Module 5	1 s.h.
BIOC:5247 (099:247) Biophysics of Macromolecular Interactions: Biophysical Chemistry Module 3	1 s.h.
BIOC:5248 (099:248) Nuclear Magnetic Resonance Spectroscopy: Biophysical Chemistry Module 6	1 s.h.

Molecular and cell biology requirement: the following courses are among those that students may use to fulfill the molecular and cell biology requirement.

MCB:6215 (142:215) Transcription and Multi-Functional Regulation by RNA	1 s.h.
MCB:6217 (142:217) Epigenetics, Cancer, and Mouse Models of Disease	1 s.h.
MCB:6225 (142:225) Growth Factor Receptor Signaling	1 s.h.
MCB:6226 (142:226) Cell Cycle Control	1 s.h.
MCB:6227 (142:227) Cell Fate Decisions	1 s.h.
BISC:5201 (156:201) Fundamentals of Gene Expression	1 s.h.
BISC:5203 (156:203) Fundamentals of Dynamic Cell Processes	1 s.h.
BISC:5204 (156:204) Biostatistics for Biomedical Research	1 s.h.
BISC:5205 (156:205) Practical Bioinformatics	1 s.h.
BISC:5265 (156:265) Biosciences Critical Thinking and Communication	2 s.h.

Students take the comprehensive examination before the end of June in their second year, after which they are admitted formally to degree candidacy and begin to concentrate on thesis research. The program culminates in successful defense of completed thesis work before an examining committee.

In addition to meeting these requirements and those of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for one semester.

Throughout the program, students are associated with faculty-directed research groups. They receive close personal attention from the biochemistry faculty members who serve as research advisors.

Admission

Most graduate students in biochemistry work toward a Doctor of Philosophy. Applicants who wish to earn a master's degree must contact the Department of Biochemistry before they apply.

The graduate program in biochemistry is flexible enough to accommodate students with bachelor's degrees in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year, college-level courses in organic and physical chemistry, biology, physics, and mathematics through calculus. Students are expected to have had one or more introductory courses in biochemistry.

Applicants must have an undergraduate g.p.a. of at least 3.00 and must submit acceptable verbal, quantitative, and analytical scores on the Graduate Record Examination (GRE) General Test. Applicants are encouraged to submit their scores on the GRE Subject Test in Chemistry; Biology; or Biochemistry, Cell, and Molecular Biology.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Financial Support

Students admitted to the Ph.D. program in biochemistry routinely receive a stipend and tuition support.

Faculty and Research

The department's faculty members supervise research in biochemistry; molecular, cellular, developmental, computational, and structural biology; and model system genetics. Their work is supported by grants from the National Institutes of Health, the National Science Foundation, the American Heart Association, the American Cancer Society, the Muscular Dystrophy Association, and other sources. To learn more about the department's faculty members and areas of research, visit the Department of Biochemistry web site.

Facilities

The Department of Biochemistry occupies 36,700 square feet on the fourth floor of the Bowen Science Building and 7,500 square feet on the third floor of the Medical Education Research Facility on the University's health sciences campus. It has a number of well-equipped research laboratories; other departmental facilities include the Biochemistry Stores, the Mattill Biochemistry Reading Room, and the Heath Conference Room.

The department makes available a number of shared instruments; among them are an Applied PhotoPhysics stopped flow spectrometer SX20 (2009); a Jasco spectropolarimeter, model J815 (2010); a Horiba fluorlog-3 spectrofluorometer (2010); and a Beckman Coulter ultra XLI analytical centrifuge (1996).

Faculty, staff, and students in the department have access to a variety of shared Carver College of Medicine resources, including X-ray crystallography, the DNA Facility, the Medical NMR Facility, the Proteomics Facility, the Flow Cytometry Facility, the Gene Transfer Vector Core Facility, the Small Animal Imaging Core Facility, and the Transgenic and Genome Manipulation Facility. The University also supports resources such as the Central Microscopy Research Facilities and the High Throughput Screening Facility.

Courses

Upper-Level Undergraduate and Graduate

BIOC:3101 (099:101) Technical Communication in Biochemistry 1 s.h.

Practical aspects of writing formal scientific papers and giving oral presentations on technical topics. Prerequisites: BIOC:3120 (099:120) or BIOC:3130 (099:130) or BIOC:3140 (099:140). Requirements: junior or senior biochemistry major pursuing a B.S. degree.

BIOC:3110 (099:110) Biochemistry 3 s.h.

Basic concepts in modern biochemistry and molecular biology; understanding of life processes in molecular terms. Requirements: one year each of college-level biology and chemistry. Recommendations: one semester of organic chemistry.

BIOC:3115 (099:115) Undergraduate Independent Study arr.

Experience in an active biochemistry research lab, learning and performing experiments relevant to the current projects in that lab; exploration of scientific literature on topic of interest; arranged in advance by student and faculty member. Requirements: first-year, sophomore, or junior standing.

BIOC:3120 (099:120) Biochemistry and Molecular Biology I 3 s.h.

Physical and chemical foundations of biochemistry, structure of biological molecules, catalysis, transport, and oxidative reactions in biology; first course of two-semester sequence that concludes with BIOC:3130 (099:130). Requirements: two semesters of general chemistry and one of organic chemistry. Recommendations: BIOL:1411 (002:031), BIOL:1412 (002:032), and an additional organic chemistry course.

BIOC:3130 (099:130) Biochemistry and Molecular Biology II 3 s.h.

Carbohydrate biosynthesis, lipid metabolism, hormone regulation and integration of metabolism, signal transduction, genes and chromosomes, DNA replication and repair, transcription, RNA processing, protein translation and regulation of gene expression. Prerequisites: BIOC:3120 (099:120).

BIOC:3140 (099:140) Experimental Biochemistry 2 s.h.

Use of modern instruments and techniques to fractionate, identify, and characterize constituents of biochemical systems. Prerequisites: BIOC:3120 (099:120). Requirements: grade of C or higher in BIOC:3120 (099:120), two semesters of general chemistry, and one semester of organic chemistry.

BIOC:4155 (099:155) Research, Independent Study arr.

Independent study and research in areas of interest to the student; arranged in advance by student and biochemistry honors advisor. Requirements: grades of B- or higher in BIOC:3120 (099:120), BIOC:3130 (099:130), and BIOC:3140 (099:140); average grade of B or higher for all three courses; and BIOC:3115 (099:115) or HONR:3200 (143:100) or prior research experience or lab practicum.

Graduate

BIOC:5215 (099:215) Directed Readings for Graduate Students arr.

Directed readings with course content arranged with professor.

BIOC:5226 (099:226) Enzyme Kinetics and Bioorganic Mechanisms 1-2 s.h.

Principles and applications of steady-state and transient enzyme kinetics; mechanisms of catalysis of biochemical reactions. Prerequisites: BIOC:3120 (099:120).

BIOC:5241 (099:241) Biophysical Chemistry I 3 s.h.

Principles and experimental approaches used to study structure and function of biological macromolecules; protein structure, stability, and dynamics; macromolecular interactions; common biophysical methods. Requirements: one year of biochemistry. Recommendations: physical chemistry course and one semester of calculus.

BIOC:5242 (099:242) Biophysical Chemistry II 3 s.h.

Principles and experimental approaches used to study structure and function of biological macromolecules; ligand binding and enzyme catalysis; X-ray crystallography; NMR spectroscopy. Requirements: one year of biochemistry. Recommendations: physical chemistry course and one semester of calculus.

BIOC:5243 (099:243) Protein Structure, Function, and Regulation: Biophysical Chemistry Module 1 1 s.h.

Overview of principles of protein structure, stability, folding, and dynamics; brief treatment of structural biology approaches to help students become critical users of models derived from X-ray crystallography and NMR; taken alone or as part of BIOC:5241 (099:241). Requirements: introductory course in biochemistry. Same as BISC:5206 (156:206).

BIOC:5244 (099:244) Ligand Binding and X-Ray Crystallography: Biophysical Chemistry Module 4 1 s.h.

In-depth examination of principles of ligand binding; experimental approaches to study interactions with small molecules, proteins, and nucleic acids; X-ray crystallography in determining structures of biological macromolecules; taken alone or as part of BIOC:5242 (099:242). Requirements: introductory course in biochemistry.

BIOC:5245 (099:245) Protein Structure, Stability, and Folding: Biophysical Chemistry Module 2 1 s.h.

In-depth examination of statistical thermodynamics and molecular forces in biological systems as related to protein structure, stability, and folding; nucleic acid structure and stability; taken alone or as part of BIOC:5241 (099:241). Requirements: introductory course in biochemistry.

BIOC:5246 (099:246) Enzyme Kinetics and Enzyme Mechanisms: Biophysical Chemistry Module 5 1 s.h.

Enzymes as unparalleled catalysts and representing a unique class of drug targets; organic chemistry of enzyme catalyzed reactions with emphasis on physical organic logic of sources of enzyme-catalytic power; enzyme inhibition by small molecules from a medicinal chemistry perspective; taken alone or as part of BIOC:5242 (099:242). Requirements: introductory course in biochemistry. Same as PHAR:5566 (046:266).

BIOC:5247 (099:247) Biophysics of Macromolecular Interactions: Biophysical Chemistry Module 3 1 s.h.

In-depth examination of protein-protein interactions and protein-nucleic acid interactions; implications in biological motility, transcription, and replication; taken alone or as part of BIOC:5241 (099:241). Requirements: introductory course in biochemistry.

BIOC:5248 (099:248) Nuclear Magnetic Resonance Spectroscopy: Biophysical Chemistry Module 6 1 s.h.

Basic principles of nuclear magnetic resonance (NMR) and applications important for understanding structure and function of biological macromolecules; emphasis on methodology and experimental design, interpretation of data, and critical reading of literature; intended for graduate students with an interest in applications of NMR to problems of structural biology; taken alone or as part of BIOC:5242 (099:242). Requirements: one year of biochemistry. Recommendations: basic knowledge of spectroscopy and some previous exposure to NMR from basic chemistry courses.

BIOC:5261 (099:261) Research Techniques 1-6 s.h.

Laboratory rotation for first-year graduate students in biochemistry.

BIOC:5282 (099:282) Seminar 0-1 s.h.

How to evaluate reports of scientific investigations critically; techniques for presenting scientific information.

BIOC:5875 (099:275) Perspectives in Biocatalysis 1-3 s.h.

Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Requirements: graduate standing in a participating department supported by the Predoctoral Training Program in Biotechnology. Same as CHEM:5875 (004:275), PHAR:5875 (046:275), CBE:5875 (052:275), CEE:5875 (053:275), MICR:5875 (061:275).

BIOC:7251 (099:251) Introduction to Protein Structures arr.

Basics of protein structures. Recommendations: first-year graduate standing in biosciences or physical sciences.

BIOC:7252 (099:252) Enzymes, Carbohydrates, Nucleic Acids, and Bioenergetics arr.

Basics of enzyme kinetics and enzyme mechanisms, carbohydrates, nucleic acids, and bioenergetics; module covers chapters 6, 7, 8, and 13 of Lehninger's *Principles of Biochemistry*. Recommendations: first-year graduate standing in biosciences or physical sciences.

BIOC:7253 (099:253) Metabolism I 1 s.h.

Basics of carbohydrate metabolism (glycolysis, gluconeogenesis, the pentose phosphate pathway), hormonal regulation of carbohydrate metabolism, the citric acid cycle, amino acid catabolism, oxidative phosphorylation; assignment of an advanced topic related to material, typically a recent research paper, extending inquiry beyond that presented in class and presented orally at end of five-week module. Requirements: undergraduate biochemistry course or background in enzyme function.

BIOC:7254 (099:254) Metabolism II 1 s.h.

Central carbon metabolism, carbohydrate biosynthesis in plants and bacteria, lipid structure/function, fatty acid catabolism, lipid biosynthesis, and biological membranes/transport; assignment of an advanced topic related to material, typically a recent research paper, extending inquiry beyond that presented in class and presented orally at end of five-week module. Prerequisites: BIOC:7253 (099:253).

BIOC:7255 (099:255) Metabolism III and Biosignaling arr.

Basics of membranes and transport, biosignaling, nitrogen metabolism, integration of metabolism, genes, and chromosomes; module covers chapters 11, 12, 22, 23, and 24 of Lehninger's *Principles of Biochemistry*. Requirements: undergraduate biochemistry course. Recommendations: first-year graduate standing in biosciences or physical sciences.

BIOC:7256 (099:256) Molecular Biology 1 s.h.

DNA, RNA, and protein metabolism, regulation of gene expression, and DNA-based information technologies.

BIOC:7292 (099:292) Research Biochemistry arr.

Thesis research.

BIOC:8101 (099:161) Biochemistry for Dental Students 3 s.h.

Biochemical concepts and application to clinical problems. Requirements: CHEM:2210 (004:121) and D.D.S. enrollment. Recommendations: CHEM:2220 (004:122).

BIOC:8102 (099:162) Biochemistry for Pharmacy Students 3 s.h.

Biochemical concepts and application to clinical problems. Requirements: CHEM:2210 (004:121) and Pharm.D. enrollment. Recommendations: CHEM:2220 (004:122).

BIOC:8204 (099:164) Biochemistry for Physician Assistant Students 3 s.h.

Aspects of general biochemistry necessary for understanding the biochemical basis of human disease; analysis of appropriate clinical cases. Requirements: enrollment in Physician Assistant Studies and Services.

Cardiothoracic Surgery

Chair

- Peter J. Gruber

Professors

- Peter Gruber, Mark Iannettoni

Associate professors

- Jay Bhama, Kalpaj Parekh

Assistant professors

- Mohammad Bashir, John Keech, Joseph Turek

Professors emeriti

- Douglas Behrendt, Wayne Richenbacher, Nicholas Rossi

Web site: <http://www.medicine.uiowa.edu/ctsurgery/>

The University of Iowa cardiothoracic surgery program is the third oldest program of its kind in the United States. Since its establishment in 1948 as the Division of Cardiothoracic Surgery, the program has advanced from providing operative interventions for patients with diseases of the chest to performing a broad range of the most current and innovative surgical procedures.

The Department of Cardiothoracic Surgery's facilities are located at University of Iowa Hospitals and Clinics. Each year cardiothoracic surgeons at the hospitals perform more than 500 adult and pediatric heart surgeries, including coronary bypasses, transplants, and placement of mechanical cardiac assist devices; minimally invasive procedures such as mitral valve replacement and epicardial lead placement; and more than 600 general thoracic surgeries with emphasis on esophageal and lung diseases. Preparations are under way for providing coronary artery bypass grafting using robotics.

M.D. Student Training

The department trains fourth-year M.D. students in two courses, CTS:8401 (193:232) Subinternship in Cardiothoracic Surgery and CTS:8497 (193:233) Research in Cardiothoracic Surgery.

Residency Program

Iowa's cardiothoracic surgery residency program was established in 1948 and is fully accredited by the Accreditation Council for Graduate Medical Education. It is the only cardiothoracic surgery training program in Iowa. Two residents are accepted into the two-year program each year.

Postbaccalaureate Training

The department plays a primary instructional role in University of Iowa Hospitals and Clinics' 20-month postbaccalaureate Perfusion Technology Program; see the department's perfusion technology courses listed under "Courses" later in this section. For more information about the Perfusion Technology Program, contact the Department of Cardiothoracic Surgery or visit the Perfusion Technology Program web site.

Research

University of Iowa cardiothoracic surgeons are leaders in clinical research, particularly in oncologic surgery, diseases of the esophagus, artificial organs, pediatric cardiac surgery, and transplantation. Research also is under way in the sequence of mutations and in localization of genes predisposed to cancer.

Facilities

The Department of Cardiothoracic Surgery has specialty laboratories in gastric motility, analytical chemistry, transplantation, tissue culture, surgical bacteriology, shock, and cardiac bypass. These facilities permit study of experimental procedures such as heart valve replacement in large animals and heterotopic heart transplantation in mice and rats.

The laboratories also are used for supervised teaching exercises in surgical technique for medical students and junior residents, and for refinement of technique for senior residents and faculty members.

Courses

Cardiothoracic Surgery

CTS:8401 (193:232) Subinternship in Cardiothoracic Surgery arr.

Participation in diagnosis, preoperative, operative, and postoperative care of thoracic and cardiac patients.

CTS:8497 (193:233) Research in Cardiothoracic Surgery arr.

Participation in diagnosis, preoperative, operative, and postoperative care of thoracic and cardiac patients.

Perfusion

PERF:4161 (193:161) Instrumentation in Perfusion Technology 3 s.h.

Electrical circuitry, filters, pressure transducers, thermistors, cardiac output computers, fluid dynamics, intra-aortic balloon pumps, blood gas analyzers. Requirements: Perfusion Technology Program enrollment.

PERF:4162 (193:162) Pathophysiology of Perfusion Technology 5 s.h.

Hemostasis, acid base physiology, gas transfer, heart anatomy, heart embryology, congenital cardiac defects. Requirements: Perfusion Technology Program enrollment.

PERF:4163 (193:163) Clinical Experience I 2 s.h.

Perfusion in operating room: patient workup, observation, and reporting on extracorporeal setup, surgical procedure. Requirements: Perfusion Technology Program enrollment.

PERF:4164 (193:164) Clinical Experience II 3 s.h.

Continuation of PERF:4163 (193:163); setup of extracorporeal circuit; ancillary duties of perfusionist. Prerequisites: PATH:8133 (069:133), PERF:4161 (193:161), PERF:4162 (193:162), and PERF:4163 (193:163).

PERF:4165 (193:165) Clinical Experience III 12 s.h.

Continuation of PERF:4164 (193:164); management of cardiopulmonary bypass system. Prerequisites: PCOL:4130 (071:130), PERF:4164 (193:164), PERF:4170 (193:170), and PERF:4171 (193:171).

PERF:4166 (193:166) Clinical Experience IV 12 s.h.

Continuation of PERF:4165 (193:165); emphasis on supply maintenance, perfusion department management. Prerequisites: PERF:4165 (193:165).

PERF:4167 (193:167) Perfusion Seminar 1 s.h.

Ethics in perfusion. Requirements: Perfusion Technology Program enrollment.

PERF:4168 (193:168) Research in Perfusion 1 s.h.

From topic selection to manuscript. Requirements: Perfusion Technology Program enrollment.

PERF:4169 (193:169) Clinical Experience V 12 s.h.

Continuation of PERF:4166 (193:166). Prerequisites: PERF:4166 (193:166).

PERF:4170 (193:170) Principle and Practice of Perfusion Technology 6 s.h.

Hypothermia, hemodilution, left heart bypass, dialysis, ultrafiltration, membrane and bubbler oxygenation. Prerequisites: PATH:8133 (069:133), PERF:4161 (193:161), PERF:4162 (193:162), and PERF:4163 (193:163).

PERF:4171 (193:171) Devices in Perfusion Technology 3 s.h.

Components of extracorporeal circuit; in vitro laboratory evaluation of components. Prerequisites: PATH:8133 (069:133), PERF:4161 (193:161), PERF:4162 (193:162), and PERF:4163 (193:163).

Dermatology

Chair

- Janet A. Fairley

Professors

- George J. Giudice, Kathi C. Madison, Mary S. Stone

Associate professors

- Vincent Liu, Brian L. Swick, Marta J. Van Beek

Assistant professors

- Heather M. Ciliberto, Paula Giudici, Hillary Johnson, Kelly A.N. Messingham, John C. Selby, Karolyn A. Wanat

Associate

- Nicole Candelario-Gonzalez

Adjunct professors

- Marc E. Boddicker, Roger I. Ceilley

Adjunct associate professors

- Dan A. Bovenmyer, Robert F. Godwin, Susan Wall

Adjunct assistant professors

- Timothy G. Abrahamson, Mark G. Cleveland, David A. Davis, Laura M. Myers, Gary Quinby

Professor emeritus

- Richard M. Caplan

Web site: <http://www.medicine.uiowa.edu/dermatology/>

The Department of Dermatology instructs M.D. students and trains dermatology residents in the care of patients with skin diseases. It also provides researchers with an opportunity to develop their skills in dermatology.

M.D. Student Training

The Department of Dermatology rotation is one of seven selective courses offered to third- and fourth-year medical students. Students spend two weeks in the clinic and attend around 10 one-hour lectures. They see a good cross-section of patients, including those receiving primary or tertiary care at University of Iowa Hospitals and Clinics and Iowa River Landing and a large number of patients referred from Student Health & Wellness. Additional patients are seen at the nearby Iowa City Veterans Affairs Medical Center.

Varied electives are open to fourth-year M.D. students, including further clinical experience, dermatologic research, and special studies.

Courses

DERM:8301 (062:001) Clinical Dermatology 2 s.h.
Basic dermatology; lectures, independent study, clinical experience. Requirements: third-year M.D. enrollment.

DERM:8401 (062:002) Dermatology Elective arr.
Advanced clinical experience, dermatologic surgery, special assignments. Requirements: fourth-year M.D. enrollment.

DERM:8497 (062:004) Research in Dermatology arr.

General principles of medical research; clinical or laboratory projects; individual study.

DERM:8499 (062:999) Dermatology Off Campus arr.

Arranged by student with departmental approval.

Dietetic Internship

Director

- Laurie Kroymann

Web site: <http://www.healthcare.uiowa.edu/fns/internship/internship.htm>

University of Iowa Hospitals and Clinics offers a Dietetic Internship Program that is fully accredited by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics. It qualifies graduates to take the exam for qualification as a Registered Dietitian (RD). Clinical dietitians and food service operation managers of the Department of Food and Nutrition Services at University of Iowa Hospitals and Clinics provide the teaching for the program. Graduate courses in the program are administered by the Carver College of Medicine and the College of Public Health. See "Associated Courses" below.

Students generally complete the program with 9 s.h. of graduate credit, which may be applied toward an advanced degree. Approximately half of the program's graduates go on to complete advanced degree programs, typically a master's degree in health promotion, public health, or business.

University of Iowa Hospitals and Clinics awards a certificate to the program's graduates.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. They also must complete a didactic program in dietetics that has approval of the ADA Commission on Accreditation for Dietetics Education.

Students enter the program in the fall semester. The postmark deadline for applications is February 15.

Associated Courses

For course descriptions, see "Nondepartmental Courses" in the Carver College of Medicine (p. 1038) section of the Catalog and "Courses" in the Epidemiology (p. 1208) section (College of Public Health).

DIET:9203 (050:203) Clinical Dietetics	1 s.h.
EPID:6330 (173:233) Global Nutrition Policy	1-3 s.h.
EPID:6350 (173:235) Nutritional Epidemiology	2 s.h.
EPID:6360 (173:236) Nutrition Intervention in Clinical Trials Research	2 s.h.
EPID:6370 (173:237) Nutrition Intervention in Research Lab	3 s.h.

Courses

DIET:9203 (050:203) Clinical Dietetics 1 s.h.
Nutritional aspects of health and disease, with emphasis on medical nutrition therapy; human nutrition in the clinical state as it relates to physiology and biochemistry.

Doctor of Medicine

Professional degree: M.D.

Web site: <http://www.medicine.uiowa.edu/md/>

Professional Program of Study

- Doctor of Medicine

The Doctor of Medicine is a professional degree awarded by the Carver College of Medicine. The college is accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges and meets the requirements of all state licensing boards. Its M.D. diploma admits the holder to all privileges granted to graduates of all medical colleges before such boards.

This catalog section provides information about the Doctor of Medicine curriculum, admission to the program, financial support, and academic rules and procedures.

Doctor of Medicine

The Doctor of Medicine is a four-year program that prepares students to practice primary care medicine and to pursue further education and training in specialized areas of medicine. The program admits 152 new students each year.

The M.D. curriculum is built on a triple-helix model whose three strands extend through all four years of medical school: the clinical and professional skills strand, the mechanisms of health and disease strand, and the medicine and society strand.

Clinical experiences begin during the first few weeks of medical school, and clinical clerkships start after just three semesters of preclinical instruction. By the end of the fifth semester, students have completed all of their core requirements and have the remaining three semesters to tailor their educational experience in preparation for their selected specialty.

Students complete in-depth clinical course work and serve clinical clerkships primarily at University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, and the Des Moines Area Medical Education Consortium. Students also may have opportunities to gain experience in private medical offices and community hospitals.

Graduates may pursue further training in the specialties of family medicine, internal medicine, surgery, and pediatrics at one of 10 University of Iowa-affiliated residency programs in six Iowa cities. They also have access to two transitional-year programs. For more information, contact the Office of Student Affairs and Curriculum and visit Information for Current Students on the Carver College of Medicine web site.

Preclinical Curriculum

The first three semesters of the M.D. program present an integrated core of sciences basic to the study of medicine. They also introduce students to the foundations of clinical practice.

Course work includes human anatomy, foundations of cellular life, a three-course series on clinical and professional skills, a three-course series on medicine and society, and a five-course series on multisystem

mechanisms of health and disease. Each of these courses is described below.

Some elective courses are available to students during the first and second years, normally for 1 or 2 s.h. of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Courses vary from year to year, but typical subject areas are global health issues, U.S. health care systems, and community health outreach.

The M.D. program's preclinical curriculum requires the following course work.

FIRST SEMESTER

ACB:8101 (060:103) Medical Gross Human Anatomy: complete dissection of the body with regional emphasis stressing relationships to the living system; clinically relevant areas of radiologic imaging, surface anatomy, embryology, and clinical correlations; anatomical knowledge through lectures, small group work, and independent activities.

MED:8121 (050:351) Clinical and Professional Skills I: introduction to concepts of clinical reasoning, communication, physical examination, and evidence-based clinical practice; principles of biomedical ethics; early clinical interactions and placement of classroom experiences into the context of patient care through the Longitudinal Clinical Mentor (LCM) Program; interactions with students from other health sciences colleges to explore the interprofessional approach to caring for patients.

MED:8122 (050:352) Medicine and Society I: delivery of individual disease prevention/health promotion services; introduction to social determinants of health; influence and impact of culture and the community on health care; community resources; students apply health and risk assessment to individual patients and to themselves.

MED:8123 (050:355) Foundations of Cellular Life: genetics, embryology, molecular biology, biochemistry, cell biology and histology; molecular events required for cellular life; how cells grow and interact to form basic tissues of the human body; framework necessary for exploring the mechanisms of health and disease.

MED:8124 (050:356) Mechanisms of Health and Disease I: normal and healthy processes within and among mechanisms of oxygenation, metabolism, and genetics/development.

SECOND SEMESTER

MED:8131 (050:353) Clinical and Professional Skills II: reinforcement of clinical reasoning concepts introduced in MED:8121 (050:351) and introduction of additional concepts; application of concepts through interactions with standardized patients and through Longitudinal Clinical Mentor clinical visits; varied experiences help students gain a deeper appreciation for issues in biomedical ethics; strengths and barriers involved in providing comprehensive interdisciplinary patient care.

MED:8132 (050:354) Medicine and Society II: knowledge and skills related to health promotion and disease prevention from a medicine and society perspective, including impact of behavior, environment, culture, and socioeconomic; identification of major public health problems associated with mechanisms of health and disease; focus on public health and epidemiology, with

attention to screening, global health, and environmental hazards.

MED:8133 (050:357) Mechanisms of Health and Disease II: normal and healthy processes within and among mechanisms of immunology/inflammation, locomotion/integument, and neuropsychiatry.

MED:8134 (050:358) Mechanisms of Health and Disease III: abnormalities or disruptions leading to disease within and among mechanisms of oxygenation, metabolism, and genetics/development.

THIRD SEMESTER

MED:8221 (050:359) Clinical and Professional Skills III: advanced clinical reasoning skills gained through focused patient encounters and interactions with special patient populations; emphasis on students' ability to integrate and use concepts from the M.D. curricular strands that are required for cost-conscious, patient-centered, interdisciplinary care.

MED:8222 (050:360) Medicine and Society III: health services organization and delivery, with emphasis on community dimensions of medical practice and patient safety.

MED:8223 (050:361) Mechanisms of Health and Disease IV: abnormalities or disruptions leading to disease within and among mechanisms of immunology/inflammation, locomotion/integument, and neuropsychiatry.

MED:8224 (050:362) Mechanisms of Health and Disease Keystone: transition from classroom instruction in MED:8124 (050:356), MED:8133 (050:357), MED:8134 (050:358), and MED:8223 (050:361) to clinical practice; foundational information from those courses approached from the perspective of common clinic encounters; diagnostic and management decisions about common important clinical problems using the foundational knowledge gained from those courses.

Clinical Curriculum

The second major component of the M.D. program begins with the fourth semester (January of the second year) and extends to graduation. It consists of more than two years of supervised, hands-on, bedside clinical training on inpatient units, in outpatient clinics, and in communities throughout the state. In contrast to the preclinical curriculum, the clinical curriculum provides a sequence of clerkships that students take according to their individual needs.

The fourth semester begins with the one-week skills training course MED:8300 (050:170) Clinical Beginnings, which helps students make the transition from the preclinical curriculum to the clinical curriculum. The course emphasizes the "four Cs": clinical reasoning and reflection; the core competencies (patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice); collaboration and teamwork; and clinical appraisal of the literature and lifelong learning.

After completing MED:8300 (050:170), students begin 42 weeks of core clerkships.

All M.D. students are required to pass Step 1 of the U.S. Medical Licensing Examination before they may be promoted to the third year of the M.D. program.

During the third and fourth years, students finish the 42 weeks of core clerkships. Then they complete a minimum of 20 weeks of selectives and 18 weeks of electives.

Primary venues for clinical training of medical students include University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, and the Des Moines Area Medical Education Consortium. Students also participate in the family practice preceptorship and the community-based primary care clerkship, which are off-campus rotations. Other courses may be assigned to off-campus sites, as well.

The M.D. program's clinical curriculum requires the following clerkships and selectives.

GENERALIST CORE

M.D. students complete the generalist core during the fourth and fifth semesters. It consists of the following 42 weeks of clerkships.

FAM:8301 (115:300) Preceptorship in Family Medicine (4 weeks)	4 s.h.
IM:8301 (078:101) Inpatient Internal Medicine (6 weeks)	6 s.h.
IM:8302 (078:102) Outpatient Internal Medicine (4 weeks)	4 s.h.
IM:8458 (078:204) Community-Based General Internal Medicine (4 weeks)	4 s.h.
NEUR:8301 (064:011) Clinical Neurology (2 weeks)	2 s.h.
OBG:8301 (066:004) Clinical Obstetrics and Gynecology (6 weeks)	6 s.h.
PEDS:8301 (070:002) Clinical Pediatrics (6 weeks)	6 s.h.
PSYC:8301 (073:005) Clinical Psychiatry (4 weeks)	4 s.h.
SURG:8301 (075:005) Clinical Surgery (6 weeks)	6 s.h.

SELECTIVES

After finishing the generalist core, M.D. students complete 14 weeks of selectives chosen from these.

ANES:8301 (116:006) Clinical Anesthesia (2 weeks)	2 s.h.
DERM:8301 (062:001) Clinical Dermatology (2 weeks)	2 s.h.
IM:8303 (078:304) Electrocardiography (1 week)	1 s.h.
OPHT:8301 (067:111) Clinical Ophthalmology (4 weeks)	4 s.h.
ORTH:8301 (076:002) Clinical Orthopaedics (2 weeks)	2 s.h.
OTO:8301 (068:003) Clinical Otolaryngology (2 weeks)	2 s.h.
PATH:8301 (069:240) Laboratory Medicine in Clinical Practice (1 week)	1 s.h.
RAD:8301 (074:006) Clinical Radiology (2 weeks)	2 s.h.
URO:8301 (079:104) Clinical Urology (2 weeks)	2 s.h.

OTHER REQUIRED CLERKSHIPS

M.D. students complete the following additional required clerkships and other work during the third and fourth years.

Emergency medicine or critical care medicine (4 weeks)

One subinternship (4 weeks during the fourth year)

Advanced electives (total of 18 weeks during the fourth year)

Joint M.D./Graduate Degrees

The Carver College of Medicine offers a joint M.D./Ph.D. program for students who are interested in a career that combines clinical and academic medicine with basic and clinical research; see Medical Scientist Training Program (p. 1086) in the Catalog.

The college also collaborates with other University of Iowa colleges to offer the joint M.D./M.B.A. program with the Tippie College of Business (p. 657); the joint M.D./J.D. program with the College of Law (p. 1005); and the joint M.D./M.P.H. program with the College of Public Health (p. 1191).

Students must be admitted to both of the individual degree programs before they may be admitted to the joint degree program. Those interested in joint M.D./graduate degree programs must make arrangements with the appropriate graduate department and with the Carver College of Medicine associate dean for student affairs and curriculum.

Admission

The Carver College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. AMCAS applications are available for completion in May of the year preceding the beginning of the class for which application is being made. Prospective students are urged to apply as early as possible. The deadline for AMCAS submission is November 1.

Secondary applications are forwarded to applicants whose AMCAS applications pass a review conducted by the college. A \$60 fee must accompany the secondary application from all applicants.

Admitted applicants must have an official transcript from each college they have attended sent to the University's Office of Admissions.

Technical Standards for Admission and Retention

The Carver College of Medicine seeks students who will serve the needs of society best, and it strives to graduate skilled and effective physicians. To achieve these goals, it applies the following principles and technical standards to candidates for admission and to continuing students.

PRINCIPLES

Technical standards refer to criteria that go beyond academic requirements for admission and are essential to meeting the academic requirements of the M.D. program.

Applicants to the Carver College of Medicine and students continuing in the college, with or without disabilities, are expected to meet the same requirements.

Matriculation and continuation in the college assume a certain level of cognitive and technical skill. Medical students with disabilities are held to the same fundamental standards as their nondisabled peers. Although not all students should be expected to gain the same level of proficiency with all technical skills, some skills are so essential that mastery must be achieved, with the assistance of reasonable accommodations where necessary.

Reasonable accommodations are provided to assist in learning, performing, and satisfying the technical standards.

Every reasonable attempt is made to facilitate the progress of students, providing that such efforts do not compromise collegiate standards or interfere with the rights of other students and patients.

TECHNICAL STANDARDS

Applicants for admission to the Carver College of Medicine and continuing students must possess the capability to complete the entire medical curriculum and be granted the degree. To this end, they must complete all courses in the curriculum successfully. In order to acquire the knowledge and skills to function in a broad variety of clinical situations and to provide a wide spectrum of patient care, M.D. students must have abilities and skills in six areas, including observation; communication; motor skills; intellectual, conceptual, integrative, and quantitative abilities; behavioral and social attributes; and cultural competence.

Technological compensation can be made for some disabilities in certain areas, but each student must meet the essential technical standards in such a way that he or she is able to perform in a reasonably independent manner. The use of a trained intermediary is not acceptable in many clinical situations, because it implies that the student's judgment must be mediated by someone else's power of selection and observation.

Observation: Students must have the functional ability to observe demonstrations and experiments in the basic sciences and must have sufficient use of the senses necessary to perform a physical examination.

Communication: Students must be able to relate reasonably to patients and establish sensitive, professional relationships with patients, colleagues, and staff. They are expected to communicate the results of the history and examination to the patient and to their colleagues with accuracy, clarity, and efficiency.

Motor: Students are expected to participate in basic diagnostic and therapeutic maneuvers and procedures. Those who cannot perform these activities independently should be able to understand and direct the methodology involved in such activities.

Intellectual, conceptual, integrative, and quantitative abilities: Students must be able to learn to analyze, synthesize, solve problems, and reach reasonable diagnostic and therapeutic judgments. Students are expected to be able to display good judgment in the assessment and treatment of patients. They must be able

to learn to respond with prompt and appropriate action in emergency situations.

Behavioral and social attributes: Students are expected to be able to accept criticism and respond with appropriate modification of their behavior. Students also are expected to possess the perseverance, diligence, and consistency necessary to complete the M.D. curriculum and enter the independent practice of medicine in a reasonable period of time. They must demonstrate professional and ethical demeanor and behavior in all dealings with peers, faculty, staff, and patients.

Cultural Competence: Medical students must be able to communicate with and care for persons whose culture, sexual orientation, or religious beliefs are different from their own. They must be able to perform a complete history and physical exam on any patient regardless of the student's or the patient's race, religion, ethnicity, socioeconomic status, gender, age, or sexual preference. Similarly, students must be able to interact professionally with colleagues and other health care professionals without regard to race, religion, ethnicity, socioeconomic status, gender, age, or sexual preference.

Applicants who may not meet these standards are encouraged to contact the college's admissions office.

Admission Requirements

Applicants for admission to the Carver College of Medicine must have a bachelor's degree, or they must be enrolled in a bachelor's degree program with the expectation of receiving their degree before enrolling in the Carver College of Medicine. Applicants must have earned college credit in the following courses.

Physics: a complete introductory course (one year), including lab instruction.

Mathematics: an advanced college mathematics course or a statistics course.

Chemistry: a minimum of two years of chemistry, which must include general and organic chemistry with labs, and biochemistry.

Biology: a complete introductory course in the principles of biology (one year), with the appropriate laboratories; and an advanced biology course (one semester or quarter); recommended advanced biology courses include molecular and cell biology, human physiology, genetics, and microbiology.

English: two courses, including composition and literature; the requirement may be waived if the applicant's school has an integrated writing requirement in courses across its curriculum.

Social and behavioral sciences, and humanities: four courses; because writing skills are important in the study and practice of medicine, prospective applicants are encouraged to fulfill this requirement with courses that include a writing component; recommended courses include behavioral psychology, foreign language, and other courses that encourage appreciation for diversity and cultural competency.

Applicants should have taken the required science courses for a grade rather than electing pass/fail grading.

Fulfillment of these requirements does not guarantee admission to the Carver College of Medicine. The college's admissions committee selects applicants who appear to be

best qualified to study and practice medicine. Preference is given to Iowa residents with high scholastic standing. Consideration also is given to outstanding nonresidents.

Applicants are required to take the Medical College Admission Test (MCAT) no earlier than five years before and no later than September of the year of application. To register for the test, see "Reserving a Seat" on the Medical College Admission Test web site.

Personal interviews are part of the admission process. Candidates invited for an interview are contacted by the admissions committee. An external criminal background check is performed for all admitted students at the time of admission.

All students who enter the Carver College of Medicine are required to comply with the pre-entrance and annual health screening program developed by the University's Student Health Service in cooperation with University of Iowa Hospitals and Clinics; see Requirements and Forms on the Student Health Service web site.

All registered Carver College of Medicine students are required to maintain health insurance (or an equivalent care plan) that satisfies minimum standards of coverage. Insurance coverage must be maintained continuously throughout each year of attendance at the University.

Financial Support

The Carver College of Medicine's philosophy is that no student should be denied a medical education due to a lack of financial resources. The college's financial aid staff actively seeks sources of aid so that every student interested in a medical education will be able to finance that education.

Financial assistance is provided by the Carver College of Medicine primarily on the basis of demonstrated financial need. Although a limited number of collegiate or institutional grants are available for the most economically disadvantaged students, most aid is in the form of loans. Examples of federal loan programs are the Federal Direct Unsubsidized Stafford/Ford Student Loan, the Federal Perkins Loan, and the Primary Care Loan (PCL). Students also may qualify for Federal Direct Grad PLUS Loans or private loans to supplement their financial aid package.

In addition, the college supports scholarship and loan programs through permanent endowments and/or contributions from alumni and friends of the Carver College of Medicine. These funds are administered by the college's financial aid office and are awarded as a part of a student's total financial aid package. Funds to support short-term emergency loans are available for students with immediate financial need.

A small number of Dean's Scholarships are awarded by the college's admissions office to highly qualified candidates on the basis of their academic excellence, leadership abilities, and their potential to enrich the college. Dean's Scholarships are included in the recipient's overall financial aid package.

To learn more about financial aid, contact the Carver College of Medicine Financial Services office.

Academic Rules and Procedures

Student Promotion

The Carver College of Medicine has established promotion policies and procedures to ensure that each of its graduates has adequate skills, knowledge, judgment, ethical standards, and personal integrity to assume the responsibilities of a medical doctor. The student promotions committee, made up of seven faculty members and two students, performs these duties with the cooperation, advice, and judgment of course directors, faculty members, students, and administrators.

The committee recommends specific actions to be taken when a student's skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. Possible recommendations include dismissal of the student from the college; suspension for a specified period of time; requiring the student to repeat all or any part of the curriculum on academic probation; and allowing the student to continue on academic probation with a full or partial course load. The committee's recommendations are forwarded for action to the executive dean of the Carver College of Medicine.

Medical students have the right to appeal a promotion decision. They must submit the appeal in writing to the Carver College of Medicine's executive dean within five days of notification of the decision. Appeals are considered by the Appeals Committee, made up of faculty representatives of the Medical Council and the Executive Committee, a medical student, a lay member, and the associate dean for student affairs (*ex officio*). Students may request an opportunity to appear before the Appeals Committee to make a statement and answer questions. The committee then makes its recommendation to the college's dean, who is the final authority.

Specific information about student promotion policies and procedures is available from the Office of Student Affairs and Curriculum and is online in the Student Handbook.

Leaves of Absence, Withdrawal, Reinstatement

The Carver College of Medicine has established policies regarding leaves of absence, dropping courses, withdrawal from the college, and reinstatement to the college. Information about each of these policies is available at the college's Office of Student Affairs and Curriculum and is published annually in the Student Handbook.

Disputes and Complaints

Student complaints concerning actions of faculty members or departments are pursued first through mechanisms established in the Carver College of Medicine. These procedures allow the greatest flexibility for all concerned in resolving a conflict. They are intended for situations such as grading disputes, alleged academic dishonesty, alleged dishonesty during a clinical rotation, alleged unethical or unprofessional conduct, and perceived discrimination or harassment.

Complaints regarding sexual harassment are handled confidentially in accordance with University policy and procedures; see the University's Policy on Sexual Harassment.

For information about the established informal mechanisms, contact the Office of Student Affairs and Curriculum or see the Student Handbook.

Emergency Medicine

Chair

- Andrew Nugent

Professors

- Mark Graber, Hans House, Andrew Nugent

Associate professors

- Azeem Ahmed, Gregory Bell, Chris Buresh, Carlyn Christensen-Szalanski, Charles Jennissen, Mike Miller, Mike Takacs, Jon Van Heukelom,

Assistant professors

- Agustin Aguilar, Olivia Bailey, Dana Collaguazo, Dan Miller, Sarah Miller, Nick Mohr, Bobby Peters, Dan Runde, Adam Schlichting, Matthew Spragg, Josh Stillely, Paul Van Heukelom, Natasha Wheaton

Assistant professor emeritus

- Harlo Hove

Web site: <http://www.medicine.uiowa.edu/emergencymedicine/>

The Department of Emergency Medicine prepares new physicians to recognize and treat a variety of urgent and emergent conditions. The program fosters basic science and clinical research relevant to emergency medicine and is dedicated to the education and training of Emergency Medical Services (EMS) personnel through the Emergency Medical Services Learning Resources Center (EMSLRC).

M.D. Student Training

Elective rotations for Doctor of Medicine students are available at University of Iowa Hospitals and Clinics and at several other sites throughout Iowa, including St. Luke's Hospital, Cedar Rapids; Great River Medical Center, Burlington; Covenant Medical Center, Waterloo; Broadlawns Medical Center, Des Moines; and Mercy Medical Center, Sioux City. Students also may arrange an off-service elective independently with established residency programs throughout the United States.

The program offers an annual introductory month to emergency medicine; advanced life support; and Wilderness Medicine, a rotation that includes a trip to wilderness areas such as the Colorado Rockies, Iowa's Lake Macbride, and the Ozarks.

Residency Program

The emergency medicine faculty directs the Iowa Emergency Medicine Residency, Iowa's only emergency medicine residency. The residency is a three-year program that prepares residents for careers in diverse areas of emergency medicine, from rural practice to academics. The program emphasizes critical care training and rotations in a wide variety of specialties. Part of the clinical component is spent at St. Luke's Hospital, Cedar Rapids.

Resources

The Emergency Department, located on the first floor of Roy Carver Pavilion, is a Level I Adult and Pediatric Trauma Center. It serves as a referral center for communities across Iowa.

Courses

EM:8401 (184:224) Introduction to Advanced Life Support Skills 4 s.h.

Experience managing acute threats to life, including trauma, respiratory failure, poisoning, sepsis, stupor/coma, and acute MI, using ACLS and PALS courses and clinical manikin work with EMS staff. Requirements: completion of M.D. third year.

EM:8402 (184:221) Emergency Medicine UIHC arr.

Preceptorship with residents and faculty; emphasis on principles of acute medicine; clinical shifts, case conferences, simulations, exams. Requirements: completion of surgery, pediatrics, and internal medicine or advanced practice management.

EM:8403 (184:225) Wilderness Medicine 4 s.h.

Didactic and scenario training in physiology, diagnosis, and emergency treatment of heat- and cold-related illnesses, high altitude disorders, wilderness trauma, envenomations, and immersion injuries. Taught in wilderness areas. Requirements: completion of M.D. third year.

EM:8404 (184:220) Emergency Medicine: St. Luke's, Cedar Rapids 4 s.h.

Preceptorship with full-time emergency department physicians; clinical shifts, case conferences, simulations, exams. Requirements: completion of M.D. third year.

EM:8405 (184:223) Rural Emergency Medicine at Burlington, Iowa 4 s.h.

In-depth clinical experience in a busy rural hospital emergency department under supervision of residency-trained emergency physicians; lectures, skill labs, projects. Requirements: completion of M.D. third year.

EM:8406 (184:402) Emergency Medicine Des Moines 4 s.h.

Participation in acute emergency care, management of acute illnesses, follow-up care when possible; Broadlawns Hospital, Des Moines. Requirements: completion of surgery, pediatrics, and internal medicine or advanced practice management.

EM:8407 (184:425) Emergency Medicine Waterloo 4 s.h.

Participation in acute emergency care, management of acute illnesses, follow-up care when possible; Covenant Medical Center, Waterloo. Requirements: completion of M.D. third year.

EM:8408 (184:430) Emergency Medicine Sioux City 4 s.h.

Experience with a routine cross section of emergency problems in a regional trauma center and with functions of area resource hospitals (St. Luke's Medical Center, Mercy Medical Center); option to accompany ambulance crews. Requirements: completion of surgery, pediatrics, and internal medicine or advanced practice management; and basic life support certification.

EM:8409 (184:226) Transition to Residency 2 s.h.

Intensive program providing basic training in life support skills, experience in procedures common to inpatient hospital environment, and practice with simulated critical care scenarios; lectures, small group discussions, procedure labs, high-fidelity simulations, and self-directed online learning; students become certified in Advanced Cardiac Life Support (ACLS). Requirements: completion of surgery, pediatrics, and IM or APM.

EM:8498 (184:998) Emergency Medicine arr.
On Campus

Clinical research experience with a mentor in the Emergency Treatment Center and the Department of Emergency Medicine; principles of design, methodology, basic statistics.

EM:8499 (184:222) Emergency Medicine arr.
Off Campus

Preceptorship with residents and faculty; emphasis on principles of acute medicine; Liaison Committee on Medical Education (LCME) accredited off-campus site. Requirements: completion of M.D. third year and approval from UIHC Emergency Medicine clerkship director.

Family Medicine

Chair

- Paul James

Professors

- George R. Bergus, Barry Carter, Richard Dobyns, John Ely, Daniel Fick, Mark Graber, Paul James, Gerald J. Jogerst, Clarence D. Kreiter, Barcey T. Levy, Marcy Rosenbaum, Steven Wolfe

Associate professors

- Alison Abreu, David Bedell, Jill Endres, Michael Ernst, Michael Maharry, Victoria Sharp, Kelly Skelly, Jason Wilbur, Catherine Woodman

Assistant professors

- Glenn Abernathy, Denise Adams, Rick Axelson, Anne Gaglioti, Adelaide Gurwell, Jody Harmsen, Katie Imborek, Matthew Lanternier, Rebecca Leidal, Britt Marcussen, Julia Matveeva, Sandra Rosenfeld, Wendy Shen, Brian Shian, Kate Thoma, Michelle Weckman

Associates

- Hussain Banu, Shalina Shaik

Adjunct professor

- John E. Sutherland

Adjunct associate professors

- Anthony Day, Robert Friedman, Scott Henderson, Michael Jung, Gerald Loos, Gerald McGowan, Kurt Rosenkrans, Larry Severidt, Anne Sullivan, Craig Whittenberg

Adjunct assistant professors

- Jon Ahrendsen, Andrew Andresen, John Ankeny, William Artherholt, William J. Bailey, Laurence Baker, Robert Beck, Robert L. Bender, Gena Lou Rose Benoit, Jason Booth, Douglas Boss, David Breitzkreuz, Dean A. Bunting, Jerald W. Bybee, John Carroll, Kenneth Cearlock, Christopher Champion, W. David Clark, James Cummings, Timothy Daniels, Stanton Danielson, Dana Danley, Cory Dietz, Daryl Doorenbos, Roy Doorenbos, William Durbin, Laine Dvorak, Matthew Fox, Corrine Ganske, Kirk R. Gieswein, Donal Gordon, Paul Gordon, David H. Hanson, Ronnie Hawkins, Greg Hayes, Jeffrey Hoffmann, Mark Hogenson, Kayleen Hornbrook, Marvin Huff, Charles Huss, Wenny Jean, Michael Jennings, Robert Johannesen, Leah Johnson, Duane Jolivette, Alex Jones, Richard Jongewaard, Frances Kane, Colleen Keating, Anish Keshwani, John Klein, Kurt Klise, David Kresnicka, John Lanaghan, Kimberly Lansing, Delwyn Lassen, Todd Lawrence, Robert A. Lee, Andrew Lobuznov, Kevin Locke, Patricia Magle, Mark Mahoney, Jami Maxson, Paul McCaughey, James McConville, Brian Meeker, Robert J. Merrick, Ann Metzger, Tracy Mixdorf, Marc Molis, Kenton Moss, Tony Myers, Stacey Neu, Richard Perry, Douglas Peters, Francis Pisney, James Pooch, Richard Posthuma, Kevin Rahner, Joshua Rehman, Larry W. Richard, Amy Rief-Elks, Richard Rinehart, David Rogan, John Roof, David Ruen, Subhash Sahai, Carlos Alarcon Schroder, Thomas Schroeder, Glenace Shank, Neal Sheeley, Robert Shires, Ronald Shirk, Larry Shostrom, Andrea Silvers, Anita Simison, Stephen Sladek, Anne Soenen, Steven Sohn, Lisa

Soldat, Thor Swanson, Yue Teng, Carol Tershak, David L. Thomas, J-Gregory Thomas, Niral Tilala, Matthew Ulven, Daniel T. Vanden Bosch, Rose Warhank, Jerrold White, James C. Widmer, Marc L. Wilkinson, Douglas Workman

Adjunct instructor

- Sarah Jolin

Adjunct associates

- Harriet Echternacht, Savita Hegde, Natalie Lanternier, Jason Powers, Katharine Saunders

Professors emeriti

- Arthur Hartz, Reuben B. Widmer, Glenys O. Williams

Web site: <http://www.medicine.uiowa.edu/familymedicine/>

M.D. Student Training

The Department of Family Medicine trains primary care physicians. The department offers course work that is included throughout the four-year M.D. program. Twenty-one elective senior rotations give students opportunities for exposure to various Iowa communities through work in affiliated hospitals or connected facilities, in the department's model office on the University of Iowa campus, and in preceptorships with selected family physicians throughout the state. Students also have the opportunity for independent study during the fourth year.

Residency Program

Family Medicine Residency

The Department of Family Medicine directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Medicine. The residency program trains physicians to provide continuous and comprehensive medical care to patients and their families. Residents are educated in all areas of family medicine—adult medicine, maternal and child health, behavioral science, surgical specialties, and community medicine. Training emphasizes the value of wellness and preventive medicine as well as curative medicine.

The program is organized as a progressive educational experience. It consists of formal teaching and clinical experiences on assigned rotations, structured conferences, and patient care in the Family Care Center. As residents develop clinical skills, medical judgment, and competence, their patient responsibilities increase. Some patients at the Family Care Center are assigned to residents, who provide medical care under faculty supervision. Each resident is responsible for his or her patients for the duration of the residency program.

Residents also learn the principles of practice management, including organizational and administrative decision making, patient record and bookkeeping procedures, and chart auditing methodologies.

Residents are expected to take responsibility for their learning environment, to avail themselves of the department's diverse resources, and to collaborate with the faculty in order to have the best possible learning experience.

Family Medicine-Psychiatry Residency

The Department of Family Medicine and the Department of Psychiatry cosponsor the combined Family Medicine-Psychiatry Residency program. The program's residents acquire broad-based training in both disciplines, including focused training in geriatrics and geriatric psychiatry, substance and alcohol abuse, diagnosis and treatment of depression, delirium, eating disorders, panic disorders, and neurotic and somatizing behavior. Graduates are eligible for certification by the American Board of Family Medicine and the American Board of Psychiatry and Neurology.

Facilities

The Department of Family Medicine is located on the University of Iowa health sciences campus. Faculty offices are close to the Family Care Center, where patients are seen by appointment. The department also has community-based clinics in southeast Iowa City and North Liberty, Iowa, and a rural satellite office located in Lone Tree, Iowa.

Courses

- FAM:8005 (115:203) Medical Education Community Orientation** 0 s.h.
Experience in a local health care delivery system away from the University setting, between first and second year of M.D. program.
- FAM:8301 (115:300) Preceptorship in Family Medicine** arr.
One-on-one experience with a practicing physician in his or her office; exposure to illnesses, conditions often seen in primary care; realistic background for evaluation of family medicine as a career alternative.
- FAM:8401 (115:405) Subinternship in Family Medicine, University of Iowa** arr.
Inpatient aspects of family medicine's key components; experience on the family medicine inpatient service.
- FAM:8402 (115:408) University of Iowa Family Medicine Clerkship** 2,4 s.h.
Work with family practice residents and staff in day-to-day delivery of primary medical care at Family Practice Center; experience in the Family Stress Clinic observing family-centered counseling; nursing home visits, work with departmental social worker and sports medicine specialist.
- FAM:8403 (115:404) Advanced Preceptorship in Family Medicine** 2,4 s.h.
Experience in community practice of family medicine.
- FAM:8404 (115:411) Rural Preceptorship in Family Medicine** 2,4 s.h.
- FAM:8405 (115:426) Geriatrics Elective** arr.
Experience in monitoring and evaluating health and functional status of patients age 65 and older in the UI Geriatric Assessment Clinic and community settings.
- FAM:8406 (115:415) Subinternship in Family Medicine—Cedar Rapids** 4 s.h.
- Experience as a junior resident in all areas of inpatient family medicine, including maternity care, child and adolescent health, adult medicine.
- FAM:8407 (115:416) Clerkship in Family Medicine—Cedar Rapids** 4 s.h.
Experience as a junior resident in all areas of family medicine, including maternity care, child and adolescent health, adult medicine.
- FAM:8408 (115:401) Family Medicine Clerkship, Broadlawns Hospital, Des Moines Family Health Center** 4 s.h.
Clinical experience in inpatient and outpatient care.
- FAM:8409 (115:406) Subinternship in Family Medicine, Iowa Lutheran** 4 s.h.
Patient-oriented interactive experience in an inpatient family practice environment. Requirements: fourth-year M.D. enrollment.
- FAM:8410 (115:407) Family Medicine, Iowa Lutheran** arr.
Requirements: fourth-year M.D. enrollment.
- FAM:8411 (115:419) Family Medicine Clerkship, Davenport** 4 s.h.
Assignment to problems commonly seen in family practice office; supervision by residents and faculty for history and physical evaluation and diagnostic workups and treatment of each specific problem; exposure to acutely ill patients in services of medicine, surgery, obstetrics, pediatrics.
- FAM:8412 (115:430) Sub-Internship in Family Medicine, Davenport** 4 s.h.
Experience in inpatient family medicine; assessing and managing hospitalized patients, evaluating and treating patients in the emergency room, participating in call coverage with family medicine residents.
- FAM:8413 (115:427) Family Medicine Geriatrics, Davenport** 4 s.h.
Geriatric, palliative, and end-of-life care issues; assessment of competency in evaluation and management of patients; interdisciplinary nature of geriatric and palliative care.
- FAM:8415 (115:429) Subinternship in Family Practice, Sioux City** 4 s.h.
Experience as a junior resident in all areas of family medicine. Requirements: fourth-year M.D. enrollment.
- FAM:8416 (115:420) Family Medicine Clerkship, Sioux City** 4 s.h.
Methods common in family practice medicine; participation in care of patients seen by family practice physicians and residents.
- FAM:8417 (115:423) Subinternship in Family Medicine, Waterloo** 4 s.h.
Experience working as a member of family practice inpatient team at Allen Memorial Hospital and Covenant Medical Center, following patients from admission through discharge.
- FAM:8418 (115:424) Family Medicine Clerkship, Waterloo** 4 s.h.

Rotation at the Northeast Iowa Family Practice Center; work with patients from outpatient care through hospitalization; basic concepts of family practice, team concept in medical care.

**FAM:8419 (115:403) Lone Tree Family
Medicine Clerkship** 2,4 s.h.

Experience providing patient care in a rural setting; continuity of care for patients of all ages. Requirements: fourth-year M.D. enrollment.

**FAM:8420 (115:409) Family Medicine,
Mason City** 4 s.h.

Work with family physicians on staff at Mercy or other affiliated community hospitals; management of all patients admitted by the family physicians, participation in care rendered by consultants; primary care experience in family practice office.

**FAM:8421 (115:431) Primary Care Sports
Medicine** 4 s.h.

Comprehensive, diverse, and educational experience in the field of sports medicine; clinical competence to diagnose and manage medical illnesses and injuries related to sports and exercise in varied patients, recreational and organized athletes, and teams. Requirements: M.D. enrollment.

**FAM:8422 (115:432) Family Medicine/
Psychiatry Elective** 2,4 s.h.

Integration of mental and physical health care across outpatient family medicine and outpatient psychiatry arenas. Requirements: M.D. enrollment.

**FAM:8450 (115:417) Continuity of Care—
Family Medicine** 4 s.h.

Longitudinal continuity of care experience for fourth-year M.D. students in an outpatient family medicine setting.

FAM:8496 (115:410) Independent Studies arr.

Work with departmental researcher on investigation in family medicine, community medicine, health care delivery, health maintenance, and other areas.

**FAM:8499 (115:999) Family Medicine Off
Campus** arr.

Clerkships; may include community hospitals.

Free Radical and Radiation Biology

Director

- Douglas R. Spitz

Affiliated faculty

- Mark E. Anderson (Radiation Oncology), Nukhet Aykin-Burns (Radiation Oncology), Kyle E. Brown (Radiation Oncology), John M. Buatti (Radiation Oncology), Garry R. Buettner (Radiation Oncology), Andrian L. Burnett (Radiation Oncology), A. Brent Carter (Radiation Oncology), Kristi E. Chang (Radiation Oncology), Gary E. Christensen (Electrical and Computer Engineering), Joseph J. Cullen (Radiation Oncology), Frederick E. Domann Jr. (Radiation Oncology), John F. Engelhardt (Anatomy and Cell Biology/Internal Medicine), Melissa Fitzgerald-Teoh (Radiation Oncology), Melissa E. Fath (Radiation Oncology), Gerry F. Funk (Radiation Oncology), Paloma H. Giangrande (Radiation Oncology), Apollina Goel (Radiation Oncology), Prabhat C. Goswami (Radiation Oncology), Michael M. Graham (Radiation Oncology), Richard D. Hichwa (Radiation Oncology), Henry T. Hoffman (Radiation Oncology), Kaikobad Irani (Internal Medicine), Mathews Jacob (Radiation Oncology), Geraldine M. Jacobson (Radiation Oncology), Aloysius J. Klingelutz (Radiation Oncology), C. Michael Knudson (Radiation Oncology), Kevin C. Kregel (Radiation Oncology), Michael L. McCormick (Radiation Oncology), Sanford Meeks (Radiation Oncology), Yusuf Menda (Radiation Oncology), Francis J. Miller (Radiation Oncology), Earl Nixon (Radiation Oncology), Edward C. Pennington (Radiation Oncology), Larry W. Robertson (Radiation Oncology), Timothy C. Ryken (Radiation Oncology), Ehab Sarsour (Radiation Oncology), Michael K. Schultz (Radiation Oncology), Milan Sonka (Radiation Oncology), Douglas R. Spitz (Radiation Oncology), John J. Sunderland (Radiation Oncology), Mindi J. Tennapel (Radiation Oncology), Timothy J. Tewson (Radiation Oncology), Aliye Uc (Radiation Oncology/Pediatrics), Douglas J. Van Dael (Radiation Oncology), Timothy J. Waldron (Radiation Oncology), M. Todd Washington (Radiation Oncology), Gordan L. Watkins (Radiation Oncology), Marc S. Wold (Radiation Oncology), Xiaodong Wu (Radiation Oncology), Weizhou Zhang (Pathology)

Graduate degrees: M.S. in free radical and radiation biology; Ph.D. in free radical and radiation biology

Web site: <http://frrbp.medicine.uiowa.edu/>

The Free Radical and Radiation Biology Program provides in-depth training and research experience in the physical, chemical, and biological effects of radiation. It also focuses on the metabolic production of free radicals for biology and medicine.

Free radicals are of interest to researchers and clinicians due to their role in a variety of diseases and pathological states, including degenerative diseases of aging and cancer. Manipulation of free radical reactions and redox biology hold great promise for the future development of new therapies for a variety of human diseases. The Free Radical and Radiation Biology Program stresses the

importance of these areas of research to basic science, clinical medicine, and public health.

Undergraduate Education

Four courses offered by the Free Radical and Radiation Biology Program are open to University of Iowa undergraduate students: FRRB:3130 (077:120) Radiation Safety and Radiobiology, FRRB:4000 (077:107) Special Topics: Advanced Undergraduates, FRRB:4001 (077:108) Special Topics: Advanced Undergraduates, and FRRB:5000 (077:103) Radiation Biology. Students looking for an overview of the biological effects of radiation, including the role of free radicals, will find FRRB:5000 (077:103) especially appropriate. All three courses are appropriate for students who plan to enter medicine, nuclear medicine technology, environmental health, or related programs.

Graduate Programs of Study

- Master of Science in free radical and radiation biology
- Doctor of Philosophy in free radical and radiation biology

The Carver College of Medicine administers graduate programs in free radical and radiation biology; graduate degrees are granted through the Graduate College. See Carver College of Medicine (p. 1038) and Graduate (p. 940) College in the Catalog for general information about study in medicine and graduate study at the University.

Master of Science, Doctor of Philosophy

The Master of Science in free radical and radiation biology requires a minimum of 30 s.h. of graduate credit; the Doctor of Philosophy requires a minimum of 72 s.h. of graduate credit.

The M.S. and Ph.D. programs are open to graduate students with a background in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering.

After completing the introductory course FRRB:5000 (077:103) Radiation Biology, students typically concentrate on a particular aspect of the field. Some students elect to focus on radiation and cancer biology, while others choose to emphasize free radical biology.

In addition to formal lectures and some structured laboratory exercises, plans of study for free radical and radiation biology students involve small-group conferences, discussions, and seminars. Ph.D. students are encouraged to spend at least one semester as teaching assistants, for which no registration is required and no academic credit is given.

Many of the department's graduate students elect to take FRRB:3130 (077:120) Radiation Safety and Radiobiology, a course that covers safe operation of radiation-producing equipment and handling of radioactive materials, regulations and regulatory agencies, formulas and techniques in radiation protection programs, radiation protection, and other topics.

Postgraduate Training

Postdoctoral training is available by arrangement with the program's director and individual faculty members. Contact the Free Radical and Radiation Biology Program.

Financial Support

Graduate students are supported as graduate assistants from funds available through research grants and contracts or from departmental funds. Individual postdoctoral awards also may be available; the candidate and his or her faculty sponsor apply for them jointly.

Facilities

The Free Radical and Radiation Biology Program is the home of the Radiation and Free Radical Research Core Lab (RFRRRC). The lab operates a 300 kVp orthovoltage X-ray generator and other radiation sources, including a 8,000-Curie Cs-137 irradiator. Students and staff have access to additional core lab support through RFRRRC, with services and expertise related to analytical chemistry (EPR services) and redoxbiology, biochemistry (AES services), and linear accelerators in the Department of Radiation Oncology.

The program has a number of radiation detectors and counters, including liquid scintillation counters. It also has ultraviolet/visible spectrophotometers; various types of equipment for densitometry, chromatography, and electrophoresis; molecular biology equipment, including thermal cyclers; an automatic cell counter and particle sizer; tissue culture facilities; Typhoon Phosphoimager; HPLC; Electron Spin Resonance Spectrometers; and nitric oxide analyzers. Visit Radiation and Free Radical Research Core on the program's web site to learn more.

Courses

FRRB:3110 (077:110) Medical Physics I 2-3 s.h.
Introduction to radiation used in clinical setting; fundamental physical units, measurements, principles, atomic structure and types of radiation; X-ray generating equipment, X-ray production, and its interaction with matter. Requirements: acceptance to radiation sciences therapy program, and maxillofacial or radiation oncology resident. Same as RSTH:3110 (672:110).

FRRB:3130 (077:120) Radiation Safety and Radiobiology 2 s.h.
Instruction on safe operation of radiation producing equipment and handling of radioactive materials; origin and/or derivation of certain formulae and techniques useful in radiation protection programs; regulatory agencies, regulations, and regulatory guides pertinent to student's field; emphasis on applied aspects of radiation protection; characteristics and biological effects of ionizing radiations, properties and uses of radioisotopes, medical applications, and biological basis for protection procedures. Requirements: enrollment in radiation sciences program. Same as RSP:3130 (680:130).

FRRB:3215 (077:121) Medical Physics II 2 s.h.
Treatment units used in external radiation therapy; beam calculations, isodose distributions, brachytherapy, quality assurance and quality management, protection and safety. Prerequisites: RSTH:3110 (672:110). Requirements: acceptance to radiation sciences therapy program. Same as RSTH:3215 (672:115).

FRRB:4000 (077:107) Special Topics: Advanced Undergraduates arr.
Readings and/or laboratory experience. Offered fall semesters.

FRRB:4001 (077:108) Special Topics: Advanced Undergraduates arr.
Readings and/or laboratory experience. Offered spring semesters.

FRRB:5000 (077:103) Radiation Biology 4 s.h.
Characteristics and biological effects of ionizing radiations. Offered fall semesters of odd years. Prerequisites: BIOC:3120 (099:120) and CHEM:2210 (004:121). Requirements: college-level physics.

FRRB:5001 (077:307) Research: Special Topics arr.

FRRB:5002 (077:308) Research: Special Topics arr.

FRRB:6000 (077:207) Seminar: Free Radical and Radiation Biology 1 s.h.

FRRB:6004 (077:305) Research: Free Radical and Radiation Biology arr.

FRRB:6006 (077:545) Topics in Free Radical Biology and Medicine 1 s.h.
New literature in area of free radicals.

FRRB:6008 (077:547) Topics in Radiation and Cancer Biology 1 s.h.
Emerging concepts in the biological effects of radiation and cancer biology; current topics in journal club format.

FRRB:7000 (077:222) Redox Biology and Medicine 4 s.h.
Chemistry of free radicals, related oxidants, and antioxidants; antioxidant (redox) enzymes—their structure, biochemical function, regulation, and function in redox biology; targets of oxidants—lipids, proteins, DNA; redox biology of health (infants to healthy aging) and disease (cancer, cardiovascular disease, diabetes, neurodegenerative diseases). Offered fall semesters of even years. Prerequisites: BIOC:3120 (099:120) or CHEM:2210 (004:121).

FRRB:7001 (077:288) Molecular and Cellular Biology of Cancer 3 s.h.
Fundamental aspects of oncology at the cellular and molecular levels; mechanisms of cancer initiation and progression, oncogene action, DNA damage and repair, carcinogenesis by radiation, chemicals, viruses; tumor immunology, anticancer therapies. Offered spring semesters of odd years. Requirements: strong basic science background. Same as PATH:7001 (069:288).

Internal Medicine

Interim chair

- Gary B. Rosenthal

Professors

- Francois M. Abboud, E. Dale Abel, Naurang Agrawal, Lee Ann Allen, Mark E. Anderson, Lisa M. Antes, Michael A. Apicella, Zuhair K. Ballas, Gwen Beck, Herbert A. Berger, Gail A. Bishop, Ann Broderick, Donald D. Brown, Kevin P. Campbell, A. Brent Carter, Mark W. Chapleau, Kanu Chatterjee, Alan J. Christensen, Gerald H. Clamon, Peter M. Cram, Beverly L. Davidson, Peter Densen, Daniel J. Diekema, Gregory C. Doelle, Kevin C. Doerschug, Jeffrey C. Dunkelberg, David E. Elliott, John F. Engelhardt, Frank M. Faraci, Mary Beth Fasano, Robert B. Felder, Kristi J. Ferguson, Elizabeth H. Field, F. Jeffrey Field, John F. Fiesemann, Laurence J. Fuortes, Lois J. Geist, Fredric E. Gerr, Christopher J. Goerdts, Ellen E.I. Gordon, Joel A. Gordon, Patrick G. Hartley, William G. Haynes, Donald D. Heistad, Loreen A. Herwaldt, Eric Hoffman, Raymond J. Hohl, Douglas B. Hornick, Lawrence G. Hunsicker, Frederick C. Johlin Jr., Peter J. Kaboli, Lauris C. Kaldjian, Lawrence P. Karniski, Richard E. Kerber, Michael G. Kienzle, Louis V. Kirchhoff, Joel N. Kline, Douglas R. LaBrecque, Richard F. LeBlond, Gloria Lee, Steven R. Lentz, Paul D. Lindower, Brian K. Link, Barry London, Donald E. Macfarlane, Margarida Magalhaes-Silverman, Allyn L. Mark, James B. Martins, Stephen E. McGowan, James A. Merchant, Francis J. Miller Jr., Rachel A. Miller, Martha Monick, Paul L. Mulhausen, Prakash M. Nadkarni, William M. Nauseef, Nicole L. Nisly, Thomas M. O'Dorisio, Eli Perencevich, Gary B. Rosenthal, James D. Rossen, Peter A. Rubenstein, Margo Schilling, Janet A. Schlechte, Gregory A. Schmidt, Warren N. Schmidt, Konrad S. Schulze, Curt D. Sigmund, William B. Silverman, William I. Sivitz, Richard J. Smith, Peter M. Snyder, Haraldine Stafford, Jack T. Stapleton, Karl Thomas, Christie P. Thomas, Guido Tricot, Scott A. Vogelgesang, Michael D. Voigt, Terry L. Wahls, Robert B. Wallace, George J. Weiner, Jerrold P. Weiss, Robert M. Weiss, Michael J. Welsh, Jeffrey S. Wilson, Mark C. Wilson, Mary E. Wilson, Scott R. Wilson, Patricia L. Winokur, Fred D. Wolinsky, Mark A. Yorek, Joseph L. Zabner, Nicholas Zavazava, Fenghuang Zhan, Craig S. Zwerling

Associate professors

- Christopher Adams, Antoine E. Azar, Reinhard R. Beichel, Christopher J. Benson, Daniel J. Berg, J. Andrew Bertolatus, Dale E. Bieber, Theresa M. Brennan, Kyle E. Brown, Todd L. Burstain, Linda M. Cadaret, Thomas L. Carlisle, Thomas H. Carter, William Clark, John D. Colgan, Elaine M. Demetroulis, Joseph S. Dillon, Bradley S. Dixon, Lakshmi Durairaj, Michele M. Fang, Mory Fraer, Brian Gehlbach, Henning Gerke, Paloma Giangrande, Michael C. Giudici, Thomas J. Gross, Isabella M. Grumbach, Rebecca L. Hegeman, Robert Hegeman, Denice M. Hodgson-Zingman, Phillip A. Horwitz, Jacob Ijdo, William L. Iverson, Birgir Johannsson, Frances L. Johnson, Krista Johnson, Melinda J. Johnson, Roberto S. Kalil, Mark W. Karwal, David A. Katz, Anne E. Kwitek, Kathryn G. Lamping, Petar Lenert, Alexander Mazur, Jeffery L. Meier, Mohammed Milhem, Craig T. Morita, Ali Naderi, Lynda Ostedgaard, Philip Polgreen, Jennifer G. Robinson, Susan L. Roeder,

Antonio Sanchez, Ron Schey, Amal Shibli-Rahhal, Gardar Sigurdsson, Christian M. Simon, Linda G. Snetselaar, Douglas L. Somers, Long S. Song, Mark Stamnes, Judy Streit, David A. Stoltz, Manish Suneja, Fayyaz S. Sutterwala, Joseph F. Szot, Kai Tan, Alexandra Thomas, Rebecca S. Tuetken, Daniel A. Vaena, Byron F. Vandenberg, Mark W. VanderWeg, Mary Vaughan-Sarrazin, R. Todd Wiblin, Chad L. Williams, Yuejin Wu, Charles Yeaman

Assistant professors

- Thad Abrams, Kimberly Baker, Botond Banfi, Jason H. Barker, Christopher Blosser, Anthony Brenneman, Brenda S. Buikema, Dwayne N. Campbell, Suzanne Cassel, Mayy Chahla, John S. Chase, Anil Chauhan, Alejandro Comellas, Vlad Cotarlan, Brian P. Daniel, Rebecca Davis, Ravneet Dhaliwal, Rachael Dirksen, Amy M. Dowden, Michael Eberlein, Rami El Abiad, Dawn M. Flaherty, Milena Gebaska, Alicia K. Gerke, Kevin A. Glenn, Jennifer Goerbig-Campbell, Dayna J. Groskreutz, Chad Grueter, Ambar Haleem, Duane Hall, Sif Hansdottir, Katherine Harris, Ihab Hassan, Taher B. Abu Hejleh, Adrian Holm, Sarah Holstein, Dilek Ince, Mirac Ince, Mei-Ling Joiner, Aparna Kamath, Vicki J. Kijewski, Julia Klesney-Tait, Sarat Kuppachi, Helena Laroche, Dana Lefasseur, KellyAnn Light-McGroary, James O. McNamara, Haider Mehdi, Hilary Mosher, David G. Motto, Carla M. Nester, Michael E. Ohl, Kantima Phisitkul, Steven F. Polyak, John W. Rachow, Kamal Rahmouni, Heather Reisinger, Edgar Rodriguez, Lori Rosenstein, Madhu V. Singh, Justin Smock, Kimberly Staffey, Faroug Suliman, Jabeen Taj, Timothy Thomsen, Ahmad Wehbe, Shawna J. Westermann, Xiaodong Zhu, Leonid Zingman

Associates

- Chaitanya Are, Rachel R. Butler, Eunjin Chung, Dominic Cirillo, Jae Wook Dong, Hardik Doshi, Ramzi El Accaoui, Jayasheel O. Eshcol, Ali Gardezi, Saket Girotra, Heather L. Heaford, Tara M. Hochwalt, Musab S. Hommos, Muhammad A. Hussain, Hamza Ismail, Omar Jaffer, Hassan Kaleem, Abhishek Kumar, Steven Kunkel, Michael Kwofie, Bret McFarlin, Scott Miller, Varun Monga, Kalyan Nadiminti, Raphael Ngengwe, Masaru Niki, Cristina Ogrin, Evelena P. Ontiveros, Rachna Raman, Jane Rowat, Yogesh Kiranraj Sanghvi, Syed Shah, Nancy Sharma, Mahmoud Soubra, Rizwan Tahir, Rudhir Tandon, Sathvika Velur, Prashanth Vennalaganti, Regina Won

Adjunct professors

- Edgar Carvalho, Steven R. Craig, Howard Dittrich, Michael T. Flood, Patrick H. Henry, Selma Jeronimo, Nathan Josephson, Udaya M. Kabadi, Louis Katz, Thomas J. McIntosh, Barbara A. Muller, William J. Yost

Adjunct associate professors

- Russell Adams, Bradley J. Archer, Craig Bainbridge, Oscar C. Beasley, Mark M. Belz, Anuj Bhargava, Robert H. Caplan, M. Craig Champion, Prem K.G. Chandran, Craig B. Clark, Susan L. Espeland, Gregory A. Hicklin, Martin Izakovic, David W. Kabel, Masaki Kashiwada, Karl Larsen, Peter Mohler, Thomas R. Nicknisch, Mark W. Purtle, Deanna Questad, Craig A. Shadur, Nicholas W. Shammass, Richard B. Trimble, Lisa A. Veach, Yi Xing

Adjunct assistant professors

- Daniel P. Allen, Eduardo S. Antezano, David A. Basel, Hriden N. Basu, Walter W. Bate, Byron T. Beasley, Susan K. Beebout, Robert J. Behrens, Luis Beltran-Garcia, John P. Bennett, Leyla Best, Prakash Bontu, Edward M. Bottei, Ailey Brehmer, Leslie M. Brettell, Michael S. Brooks, Thomas M. Brown Jr., Mark Burdt, Katherine Burns, Katrina Cannon, Paul Casella, Michael Cassaday, Charles R. Caughlan, Angela Collins, Steven Craig, Sanjiv Dahal, Nile S. Dusdieker, Amerion L. Enriquez, John Even, Steven Eyanson, James E. Feeley, Matthew A. Flemming, Michael Fraizer, Brian Freeman, Neil Freund, Sarah Garner, Brent F. Gerleman, Magdi G.H. Ghali, Krishna Ghimire, Angie R. Goodson, David F. Gordon, Carrie Grafft, Katrina A. Guest, Philip A. Habak, Joel E. Hade, Douglas L. Hanson, Nidal H. Harb, Timothy J. Hart, Roger L. Harvey, Frank Haugland, Lisa M. Hazelton, Steven P. Hedding, Lynda L. Hemann, Alan D. Hilgerson, Matthew L. Hill, John D. Hines, Valerie F. Hoffman, Deana Hoganson, Eric N. Holm, Robert H. Hoyt, Timothy Ihrig, Susan M. Jacobi, Nancy Kane-Johnson, Natraj Katta, Abul N. Khan, Tech Khoo, Sudhir Kumar, James A. Kwirant, Charles C. Larson, Allan P. Latcham, David R. Laughrun, Robert H. Leisy, David K. Lemon, Roshan Lewis, Yue Li, Charles Link, Randy N. Maigaard, Anton P. McCaffrey, Mark D. McGaughey, Joe Moonjely, Bharat Motwani, Roscoe Morton, Pamela L. Nerheim, David J. Nordstrom, Michael O'Conner, Muhammad A. Pathan, Donald E. Paynter, Arvind Perathur, James G. Piro, Cory B. Pittman, Mary A. Radia, Ronald Reider, Ramon Reyes, Heather Roberts, Christopher J. Ronkar, Jay A. Rosenberger, George Sakoulas, Johann P. Schmolck, Mahesh Shetty, Michael J. Slavin, Hayden Smith, Melinda A. Smith, Craig A. Stark, Daniel Sullivan, Christina L. Taylor, Yuvaraj Thangara, Joseph D. Thoreson, Dirk A. VerSteeg, Julie Vogel, Devendra G. Wadwekar, Robert F. Weis, Edward R. Winga, Mohammed Yousufuddin, Gholam R. Zadeii

Adjunct instructors

- Philip A. Bear, Alan L. Braun, Cam F. Campbell, Christopher M. Covert, Wilson L. Davis Jr., R. Joe Ewing, Ethel F. Faust, Michael J. Finan, Jonathan L. Fudge, Joseph O. Gilg, Thomas B. Hakes, Kristin L. Harts, Janie C. Hendricks, Shelly A. Jones, Najeeb Khan, Marta M. Little, Jack M. Lockart, James P. Lovell, Lawrence J. Rettenmaier, Mark P. Runde, Tyler Schwiesow, Diana Wright, Thomas L. Zurbriggen

Professors emeriti

- Robert F. Ashman, Robert S. Bar, C. Patrick Burns, James Christensen, John S. Cowdery, Richard L. DeGowin, Gerald F. DiBona, Michael J. Flanigan, William B. Galbraith, Roger D. Gingrich, Nancy E. Goeken, Daryl Granner, Charles M. Helms, Kenneth A. Hubel, John E. Kasik, Ulla C. Kopp, Victoria S. Lim, Brian Olshansky, Hal B. Richerson, Phillip C. Schmid Jr., Helmut G. Schrott, Paul M. Seebohm, D. Michael Shasby, Arthur A. Spector, Robert W. Summers, John M. Weiler, Donald C. Zavala

Associate professors emeriti

- Henri A. Cuddihy, James R. Flanagan, William J. Lawton, Jeanne M. Smith

Web site: <http://www.medicine.uiowa.edu/internalmedicine/>

Internal medicine is concerned with the diagnosis, prevention, and treatment of diseases of adults. The Department of Internal Medicine's educational, patient care, and research activities cover all facets of the discipline, including general internal medicine and primary care as well as the specialized areas of allergy and immunology, cardiology, clinical pharmacology, endocrinology and metabolism, gastroenterology and hepatology, hematology, oncology, blood and marrow transplant, infectious diseases, nephrology, pulmonary, critical care, occupational medicine, and rheumatology.

The department is committed to the complete spectrum of medical education, from didactic and clinical education of M.D. students to resident and fellowship training.

M.D. Student Training

Department of Internal Medicine faculty members bear a major share of teaching first- and second-year M.D. students. During the first year, faculty members participate in MED:8102 (050:120) Medical Cell Biology, MED:8112 (050:240) Human Organ Systems, and IMMU:8113 (148:251) Principles of Medical Immunology. During the second year, they participate in PCOL:8203 (071:105) Pharmacology for Health Sciences: Medical and MICR:8202 (061:103) Principles of Infectious Diseases. They are key participants in MED:8121 (050:351) Clinical and Professional Skills I, MED:8131 (050:353) Clinical and Professional Skills II, MED:8122 (050:352) Medicine and Society I, and MED:8132 (050:354) Medicine and Society II.

During the third year, the department's faculty members teach students for six focus weeks in IM:8301 (078:101) Inpatient Internal Medicine and for four weeks in IM:8302 (078:102) Outpatient Internal Medicine at University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, or hospitals of the Des Moines Area Medical Education Consortium. Students actively participate as members of an inpatient ward team and/or specialty consult services in IM:8301 (078:101), and in IM:8302 (078:102) they participate in the evaluation and management of patients at outpatient internal medicine clinics.

During the fourth year, M.D. students may select a clinical experience to fit their own career goals from courses offered in general medicine, subspecialties, intensive care, and a subinternship program.

Residency Program, Postgraduate Work

The department offers a three-year residency training program in internal medicine. In addition, most of the department's specialty divisions offer two- and three-year clinical and research fellowships, in which fellows develop special knowledge and skills relevant to their specialties. Fellows who hold doctoral degrees may be accepted to programs whose major focus is laboratory research.

Facilities

Teaching in the Department of Internal Medicine takes place in the medical services and laboratories of University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center, and in Des Moines at the Veterans Affairs Central Iowa Health Care System and Iowa Methodist Medical Center.

Courses

- IM:8301 (078:101) Inpatient Internal Medicine** arr.
Development of knowledge, diagnostic and management skills vital to care of hospitalized patients; clinical responsibilities, educational conferences, independent study.
- IM:8302 (078:102) Outpatient Internal Medicine** 3-4 s.h.
Development of knowledge, diagnostic and management skills in the outpatient clinical setting; clinical activities, discussion of problems, independent study.
- IM:8303 (078:304) Electrocardiography** arr.
Scalar electrocardiography with option of viewing exercise studies including treadmill testing; initial interpretation of current tracings and daily staff conferences.
- IM:8401 (078:202) Subinternship in Internal Medicine** 4 s.h.
Student responsibility for evaluating, treating, and following patients admitted to inpatient general medicine services. Requirements: fourth-year M.D. enrollment.
- IM:8410 (078:250) Clinical Allergy Immunology** arr.
Pathogenesis, diagnosis, and management of asthma and allergic and immunologic diseases; conducting and interpreting relevant specialized clinical and laboratory tests; emphasis on outpatients; formal and informal teaching sessions.
- IM:8412 (078:300) Clinical Cardiology** arr.
Development of breadth and depth in diagnostic and therapeutic problems encountered in clinical cardiology; participation in evaluation and decisions regarding patients seen sometimes in the cardiovascular clinic, inpatient cardiology wards, and electrophysiology service.
- IM:8414 (078:400) Clinical Endocrinology** arr.
New patient evaluation, inpatient referral; returning patients in diabetes, endocrine clinics; complete patient evaluations, charts; participation in clinical conferences.
- IM:8416 (078:450) Clinical Gastroenterology** arr.
Work in consultation service at University Hospitals and Clinics or Veterans Affairs Iowa City Health Care System; assistance in diagnostic procedures for patients examined as part of consultation service; participation in patient follow-up through weekly return clinic.
- IM:8418 (078:501) Hematology Oncology** arr.
Diagnostic skills in hematology and oncology.
- IM:8422 (078:550) Clinical Infectious Disease** arr.
Diagnosis, treatment, follow-up, study of patients with infectious diseases, under staff guidance; techniques of diagnostic microbiology; participation in conferences, teaching activities.
- IM:8424 (078:602) Medical Intensive Care Unit** arr.
- IM:8426 (078:600) Pulmonary Disease** arr.
Breadth, depth in diagnostic, therapeutic problems encountered in clinical pulmonary disease; evaluation of outpatients and inpatients under staff supervision; interpretation of special studies carried out in pulmonary function laboratory, fiberoptic bronchoscopy and brush biopsy of lung; exposure to diagnosis and management of acute respiratory failure in intensive care units at University of Iowa Hospitals and Clinics, Veterans Affairs Iowa City Health Care System.
- IM:8428 (078:650) Nephrology** arr.
Evaluation of patients from University of Iowa Hospitals and Clinics inpatient service, Veterans Affairs Iowa City Health Care System, clinics; emphasis on early kidney disease, all varieties of hypertension.
- IM:8434 (078:700) Clinical Rheumatology** arr.
Clinical features of rheumatic diseases, their differential diagnosis, principles of management; patients from arthritis clinic, inpatient consultation service of University of Iowa Hospitals and Clinics, Veterans Affairs Iowa City Health Care System.
- IM:8435 (078:503) Palliative Care** 2,4 s.h.
Requirements: M.D. enrollment.
- IM:8437 (078:504) Multidisciplinary Cancer Care** 2 s.h.
Basic concepts of cancer care; role of multidisciplinary team in care of cancer patients; development of attitudes, knowledge, and skills useful for entering a specialty that encounters patients with cancer. Requirements: M.D. enrollment.
- IM:8445 (078:217) Integrated Topics in Infectious Diseases** 4 s.h.
Questions in host-parasite interactions; monthly case study followed by journals club discussions.
- IM:8450 (078:205) Continuity of Care in Outpatient Internal Medicine** 4 s.h.
Experience with longitudinal continuity of care for patients in the outpatient setting; clinical and didactic exposure to broad spectrum of general internal medicine problems. Requirements: fourth-year M.D. enrollment.
- IM:8451 (078:220) Subinternship in General Internal Medicine and ICU, Des Moines** arr.
Four-week rotation at Des Moines Medical Education Consortium; experience as a subintern in general internal medicine and the ICU. Requirements: fourth-year M.D. enrollment.
- IM:8452 (078:219) Subinternship in Internal Medicine at VAMC, Des Moines** arr.
Rotation at the Veterans Affairs Central Iowa Health Care System; subinternship on general internal medicine ward. Requirements: fourth-year M.D. enrollment.
- IM:8453 (078:218) Critical Care Rotation, IMMC, ICU, DM** 4 s.h.

Subinternship on medical critical care team, with daily rounds, teaching. Requirements: fourth-year M.D. enrollment.

IM:8454 (078:225) General Medicine Consult Service, IMMC arr.

Principles of consultative medicine provided by general internists to non-internal medicine patients; how to assess perioperative risk for patients evaluated before surgery.

IM:8455 (078:221) Public Health Medicine arr.

Participation in ongoing projects related to public health issues of acute disease; training and career opportunities in public health practice.

IM:8456 (078:325) Clinical Cardiology Coronary Care Experience, Iowa Methodist, Des Moines arr.

IM:8457 (078:652) Clinical Nephrology, Iowa Methodist, Des Moines 2,4 s.h.

Exposure to common nephrology problems, including acute renal failure, chronic renal failure, acid-base disorders, common electrolyte disorders.

IM:8458 (078:204) Community-Based General Internal Medicine 4 s.h.

Primary care internal medicine in a community setting. Requirements: fourth-year M.D. enrollment.

IM:8495 (078:333) Internal Medicine ICU Off Campus arr.

Experience as subintern in the ICU/MICU; daily rounds and teaching with medical critical care staff.

IM:8498 (078:998) Internal Medicine On Campus arr.

IM:8499 (078:999) Internal Medicine Off Campus arr.

Medical Education Program

Director

- Kristi J. Ferguson

Affiliated faculty

- Kristi J. Ferguson (Community and Behavioral Health/Internal Medicine), Clarence Kreiter (Family Medicine), Jeff Pettit, Marcy Rosenbaum (Family Medicine)

Graduate degree: M.M.E.

Graduate certificate: medical education

Web site: <http://www.healthcare.uiowa.edu/ocrme/masters/programoverview.htm>

The Medical Education Program is dedicated to providing medical faculty members with formal training in medical education. The program is coordinated through the Office of Consultation and Research in Medical Education.

Graduate Programs of Study

- Master in Medical Education
- Certificate in Medical Education

Application requirements are the same for both programs; see "Admission" below.

Master in Medical Education

The Master in Medical Education requires a minimum of 30 s.h. of graduate credit. The program is designed to prepare medical faculty members to educate health professionals. It is intended for Carver College of Medicine faculty members and professional staff as well as for University of Iowa resident physicians and fellows.

The program gives participants the opportunity to specialize in theory and practice of curriculum design, effective teaching, assessment, and other aspects of medical education. Graduates of the program should be able to:

- design evidence-based education programs and materials with appropriate scope, sequence, and focus for intended learners;
- deliver effective instruction to individuals and small or large groups in classroom, laboratory, or clinical settings;
- evaluate the effectiveness of educational instruction, using formative and summative methods;
- understand basic principles of educational measurement and be able to apply them to medical education;
- use assessments to promote learning and to assess learning progress and status; and
- understand basic principles of, and be able to interpret and use, educational research.

The M.M.E. may be completed in as few as two years or as many as five. Students may begin the program in fall semester, spring semester, or summer session. Some of the required courses are offered online, and required on-campus courses have evening meeting times.

The curriculum includes 24 s.h. of required courses and 6-9 s.h. of electives. Students must register for at least one course each academic year in order to maintain satisfactory progress toward the degree. The

program's faculty provides substantial student advising and consultation.

During their first semester, students file a plan of study. Each student's plan must include a description of the student's goals, intended graduation date, and a list of courses the student plans to take each semester he or she is working toward the degree. The study plan must incorporate all of the courses required for the degree and must include any requests for transfer credit. The plan must be approved by the director of the M.M.E. program and by the student's advisor. Subsequent revisions of the plan must have the advisor's approval.

The Master in Medical Education requires the following course work.

MED:9701 (050:701) Instructional Design and Technology	3 s.h.
MED:9702 (050:702) Clinical Teaching in Medical Education	3 s.h.
MED:9703 (050:703) Educational Research and Evaluation	3 s.h.
MED:9711 (050:711) Teaching Methods in Medical Education	3 s.h.
MED:9712 (050:712) Introduction to Educational Measurement in Medical Education	3 s.h.
MED:9713 (050:713) Assessment in Medical Education	3 s.h.
MED:9714 (050:714) Current Issues in Medical Education	3 s.h.
MED:9720 (050:720) Portfolio Project	3 s.h.
Electives	6-9 s.h.

Students who do not do clinical teaching may substitute another course for MED:9702 (050:702) Clinical Teaching in Medical Education.

Students must have completed at least 18 s.h. before enrolling in MED:9720 (050:720) Portfolio Project. In the portfolio, students integrate the materials they have developed over the course of the program into a document. Three faculty members review the project and evaluate the student's participation in the program.

Electives require approval of the student's advisor. They may include courses in the M.M.E. program as well as those offered by relevant departments and programs (e.g., College of Education, Tippie College of Business). Students should check with their advisors to determine which courses are graduate level.

Certificate

The Certificate in Medical Education requires a minimum of 12 s.h. of graduate credit. The certificate program is designed to help participants find new ways to enhance their scholarship and skills in teaching, curriculum design, and education assessment. It is intended for Carver College of Medicine faculty and professional staff as well as for University of Iowa resident physicians and fellows.

Required course work for the certificate is taken from the Master of Medical Education program. Individuals who complete the certificate and then decide they would like to earn the master's degree may count their certificate course work toward the M.M.E.

The Certificate in Medical Education requires the following course work.

Methods—one of these:

MED:9701 (050:701) Instructional Design and Technology	3 s.h.
MED:9702 (050:702) Clinical Teaching in Medical Education	3 s.h.
MED:9711 (050:711) Teaching Methods in Medical Education	3 s.h.

Research and measurement—one of these:

MED:9703 (050:703) Educational Research and Evaluation	3 s.h.
MED:9712 (050:712) Introduction to Educational Measurement in Medical Education	3 s.h.

And:

Additional courses chosen from M.M.E. requirements	6 s.h.
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Admission

Application requirements are the same for the M.M.E. degree and the certificate program. Applicants should hold an M.D. degree and must have performed satisfactorily on the Medical College Admission Test (MCAT). Basic sciences applicants without an M.D. must hold an equivalent degree and must have performed satisfactorily on an admission test equivalent to the MCAT.

Applicants whose first language is not English and who do not hold a baccalaureate or advanced degree from an accredited university in the United States, English-speaking Africa, Australia, Canada (except Quebec), New Zealand, or the United Kingdom must submit scores on the Test of English as a Foreign Language (TOEFL).

Application materials must include an official transcript showing medical course work and medical degree, or equivalent for basic sciences applicants (current and former University of Iowa students do not need to request a UI transcript or transcripts previously submitted to the University); a letter of reference from the applicant's department head and one additional letter of reference; and a 300-500 word essay describing the applicant's interest in medical education and in the Master in Medical Education program or the Certificate in Medical Education program.

To apply to the M.M.E. program, see Master's in Medical Education/Admissions and Application on the program's web site; to apply to the certificate program, see Applying as a Nondegree Graduate Student on the University of Iowa Office of Admissions web site. Application materials should be submitted to the Office of Admissions.

Application deadlines are July 15 for fall semester entry, November 15 for spring semester entry, and April 15 for summer session entry.

Medical Laboratory Science

Site coordinator

- Norma Ward (Pathology)

Undergraduate major: medical laboratory science (B.S.)

Web site: <http://www.medicine.uiowa.edu/pathology/education/mlsp/mlsp/>

Medical laboratory scientists and medical technologists perform the laboratory tests that provide physicians with information vital for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and government laboratories; clinics; physicians' offices; and industrial, pharmaceutical, biological, and environmental research laboratories. Medical laboratory scientists and medical technologists are highly skilled health team members who use a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

Undergraduate Program of Study

- Major in medical laboratory science (Bachelor of Science)

The Carver College of Medicine partners with Allen College in Waterloo, Iowa, to offer the major in medical laboratory science. The program is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences. All graduates are eligible for national certification examinations in medical laboratory science.

The Medical Laboratory Science Program offers a bachelor's degree; it does not offer a certificate.

Undergraduate study in medical laboratory science is guided by the academic rules and procedures outlined under "Undergraduate Programs" in the Carver College of Medicine (p. 1038) section of the Catalog.

Bachelor of Science

The Bachelor of Science with a major in medical laboratory science requires a minimum of 124 s.h., including 84 s.h. of preparatory study and the professional (clinical) program, which consists of 11 months of didactic and practical instruction and clinical rotations. Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all University of Iowa courses. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Bachelor of Science students who have completed all preparatory study (years one through three) begin the fourth-year professional program in late August with online didactic lectures. They attend three separate days of laboratory skills instruction on the Allen College campus, and in mid-November they begin clinical rotations in the laboratories of University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center. Students who successfully complete the 11-month professional program graduate with a Bachelor of Science from The University of Iowa and a Bachelor of Health Science from Allen College.

Professional program requirements are listed below, under "Fourth Year: Professional Program." To learn more about

the professional program, visit Medical Laboratory Science (MLS) on the Allen College web site.

As part of their preparatory study, students must complete specific courses that are prerequisites for admission to the major.

PREPARATORY STUDY: PREREQUISITES FOR ADMISSION TO THE MAJOR

Students must complete the following course work before they may be admitted to the major in medical laboratory science. Students must earn a grade of C-minus or higher in all prerequisite courses.

All of these:

BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
CHEM:2210 (004:121) Organic Chemistry I	3 s.h.
HHP:3500 (027:130) & HHP:1310 (027:051) Human Physiology - Human Physiology Laboratory	4 s.h.
MICR:2157 (061:157) General Microbiology	5 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.
RHET:1030 (010:003) Rhetoric	4-5 s.h.
SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.

One of these:

BIOC:3110 (099:110) Biochemistry	3 s.h.
CHEM:2220 (004:122) Organic Chemistry II	3 s.h.

One of these:

MATH:1005 (22M:008) College Algebra	4 s.h.
MATH:1020 (22M:009) Elementary Functions	4 s.h.
MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.

One of these:

STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

PREPARATORY STUDY: RECOMMENDED COURSES

In addition to the required prerequisites listed above, the following courses are recommended as preparation for entering the major.

Recommended—both of these:

BIOL:2512 (002:128) Fundamental Genetics	4 s.h.
MICR:3147 (061:147) Survey of Immunology	3 s.h.

Recommended—one of these:

ACB:3110 (060:110) Principles of Human Anatomy	3 s.h.
HHP:1100 (027:053) Human Anatomy	3 s.h.

FOURTH YEAR: PROFESSIONAL PROGRAM

Students complete the following professional program requirements through Allen College.

All of these:

PATH:4150 (069:150) Advanced Laboratory Practice	2 s.h.
PATH:4151 (069:151) MLS Program Registration	0 s.h.
PATH:4152 (069:152) MLS Theory, Application, and Correlation	3 s.h.
PATH:4154 (069:154) Clinical Chemistry I	4 s.h.
PATH:4155 (069:155) Clinical Chemistry II	3 s.h.
PATH:4156 (069:156) Clinical Hematology I	4 s.h.
PATH:4157 (069:157) Clinical Hematology II	3 s.h.
PATH:4158 (069:158) Clinical Microbiology I	4 s.h.
PATH:4159 (069:159) Clinical Microbiology II	4 s.h.
PATH:4160 (069:160) Clinical Immunology	1 s.h.
PATH:4162 (069:162) Clinical Immunohematology I	3 s.h.
PATH:4163 (069:163) Clinical Immunohematology II	3 s.h.
PATH:4164 (069:164) Phlebotomy for Clinical Laboratory Science	1 s.h.
PATH:4166 (069:166) Urine and Body Fluid Analysis	2 s.h.
PATH:4170 (069:170) Clinical Laboratory Management I	2 s.h.
PATH:4171 (069:171) Clinical Laboratory Management II	2 s.h.
PATH:4172 (069:172) Molecular Biology Methods	1 s.h.

Admission

Admission to the medical laboratory science professional program (fourth year) is competitive; enrollment may be limited. Applications are reviewed twice a year in October and February. Applicant review and admission will continue on a monthly basis until the program is full. Students must apply to Allen College. Most students apply during fall of their third year and begin the professional program the following August. Applications are accepted until the class is filled.

Before beginning the professional program, students must complete all prerequisites, including the College of Liberal Arts and Sciences General Education Program (p. 323) requirements, and must earn at least 84 s.h. of college credit. They satisfy the English and public speaking prerequisite requirements by fulfilling the General Education Program's Rhetoric requirements. Applicants must have a cumulative g.p.a. of at least 2.70 both overall and in science course work. They must satisfy any English as a Second Language requirements specified by The University of Iowa before beginning the professional program.

Students should consult with a Medical Laboratory Science Program advisor as early as possible to plan preclinical studies that meet all requirements.

Expenses

Students are responsible for buying textbooks and paying tuition and student fees. The Medical Laboratory Science Program provides laboratory coats for professional program students.

Medical Scientist Training Program

Directors

- Pamela Geyer (Biochemistry/Obstetrics and Gynecology), Steven R. Lentz (Internal Medicine)

Web site: <http://www.healthcare.uiowa.edu/mstp/>

Professional/Graduate Program of Study

- Joint Doctor of Medicine/Doctor of Philosophy

The Iowa Medical Scientist Training Program (MSTP) prepares trainees for careers in academic medicine, with emphasis on basic and clinical research.

Joint M.D./Ph.D.

The joint Doctor of Medicine/Doctor of Philosophy normally requires seven to eight years of continuous study. It provides an effective and efficient means to integrate graduate and clinical training, combining the scientific approach with clinical medicine.

During the first three semesters of the program, trainees take course work in the core sciences basic to the study of medicine and complete experiences that introduce the foundation of clinical practice; see the Doctor of Medicine (p. 1066) section of the Catalog. This early training provides broad exposure to the language and organizing concepts that form the foundation for a career as a physician scientist. Trainees also begin the research component of the graduate phase of the program during this time, through summer laboratory rotations, enrollment in MSTP:8513 (050:213) Analyzing and Presenting Medical Research, research presentations by MSTP faculty and students, and a student-sponsored seminar series. Trainees participate in Conversations in Research, in which MSTP faculty members discuss their research and career interests, and they attend MSTP Grand Rounds, a forum for patient-based discussions that emphasizes how science and medicine intersect.

During the fourth semester, students enroll in basic core clinical clerkships, in which they gain broad exposure to the spectrum of human disease and experience direct patient care before they enter the graduate phase of training. At the end of the fourth semester, all trainees take Step 1 of the U.S. Medical Licensing Examination.

At the beginning of the third year, trainees select a Ph.D. thesis mentor and enroll in a graduate department or interdisciplinary graduate program to begin their scientific training.

The focus of the graduate years of study is engagement in academic and research experiences that promote the trainees' development into independent investigators. Clinical contact is maintained during this phase of training through participation in seminar programs, MSTP Grand Rounds, and MSTP:8512 (050:212) MSTP Clinical Connections, a course that provides the opportunity for mentored clinical experiences.

Upon completing the Ph.D. dissertation, trainees return to the Carver College of Medicine's M.D. curriculum to

complete the clinical clerkship requirements for the joint M.D./Ph.D. program. During this phase, trainees bring a sophistication in the scientific approach to problem solving that they apply to human disease. They renew and develop clinical skills acquired in their early training and reinforce their understanding of the scientific basis of disease through continued participation in MSTP Grand Rounds. Upon completion of the clinical curriculum, trainees are awarded the M.D. and Ph.D.

Most graduates of the program elect to enter residency programs in clinical medicine and embark on careers as medical school faculty members in clinical disciplines with opportunities for basic and applied research. Other graduates accept academic appointments in basic science departments and spend a major part of their professional activity in biomedical research and teaching.

Admission

Applicants must meet requirements for admission to the M.D. program in the Carver College of Medicine; see "Admission to the M.D. Program" under Doctor of Medicine (p. 1066) in the Catalog. They also must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants should have completed requirements for a bachelor's degree at an accredited academic institution. In addition to outstanding academic credentials, including strength in biological, physical, and mathematical sciences, they must demonstrate aptitude for and commitment to scientific research through productive research experience during their undergraduate years or after. Admission normally is made for entry to the first year of the program, but applicants already enrolled in the Carver College of Medicine may request admission with advanced standing.

Application

The Carver College of Medicine participates in the American Medical College Application Service (AMCAS). Program applicants should select M.D./Ph.D. Program-Type on their AMCAS application and instruct AMCAS to forward their credentials to the Carver College of Medicine (IA131). Applications should be submitted as early as possible to allow careful review by the admissions committees of the Medical Scientist Training Program and the Carver College of Medicine.

All candidates must take the Medical College Admission Test (MCAT), according to Carver College of Medicine requirements. The Graduate Record Exam (GRE) is not required for admission.

Application to the Graduate College is not required before acceptance to the MSTP. Trainees admitted to the program receive assistance with Graduate College enrollment.

Financial Support

Trainees receive stipend and full tuition support from a National Institutes of Health MSTP training grant to The University of Iowa, supplemented by other institutional and individual awards. Students in the graduate phase of training receive support from their graduate departments or interdisciplinary programs and their research advisors. The program office also helps selected trainees apply for

competitive national awards for outstanding academic and research achievement.

Courses

MSTP:8511 (050:211) MSTP Research arr.

Research experience. Requirements: Medical Scientist Training Program enrollment.

MSTP:8512 (050:212) MSTP Clinical Connections arr.

Experience with physician-scientist preceptor in medical interviewing, physical examination, patient presentation through direct patient interaction. Requirements: Medical Scientist Training Program graduate phase enrollment.

MSTP:8513 (050:213) Analyzing and Presenting Medical Research 1 s.h.

How to read, interpret, and present medical and scientific literature; students read and present representative papers from scientific and medical literature.

Microbiology

Chair

- Patrick M. Schlievert

Professors

- Lee-Ann H. Allen (Internal Medicine/Microbiology), Gail A. Bishop (Microbiology/Internal Medicine), Steven Clegg, John T. Harty (Microbiology/Pathology), Bradley D. Jones, John R. Kirby, David M. Lubaroff (Urology/Microbiology), Wendy J. Maury, Linda L. McCarter, Paul B. McCray Jr. (Stead Family Department of Pediatrics/Microbiology/Internal Medicine), William M. Nauseef (Internal Medicine/Microbiology), Stanley Perlman (Microbiology/Stead Family Department of Pediatrics), Richard J. Roller, Patrick M. Schlievert (Microbiology/Internal Medicine), Jack T. Stapleton (Internal Medicine/Microbiology), Jerrold P. Weiss (Internal Medicine/Microbiology), Mary E. Wilson (Microbiology/Internal Medicine/Internal Programs/Epidemiology), Timothy L. Yahr

Associate professors

- Craig D. Ellermeier, Alexander R. Horswill, Jon C.D. Houtman (Microbiology/Internal Medicine), Aloysius J. Klingelhut (Microbiology/Radiation Oncology), Kevin L. Legge (Pathology/Microbiology), Steven M. Varga (Microbiology/Pathology), David S. Weiss, Hai-Hui Xue

Assistant professors

- Blaise R. Boles, Hillel Haim, Keith W. Jarosinski, Chioma M. Okeoma

Lecturers

- Marcia L. Cordts, Linda M. Knudtson

Professors emeriti

- Michael A. Apicella, Robert F. Ashman, John E. Butler, Charles D. Cox, Michael G. Feiss, Louis G. Hoffmann, William Johnson, Erich W. Six, Donald P. Stahly, George V. Stauffer, Mark F. Stinski, C. Martin Stoltzfus

Associate professor emeritus

- Jose E. Rodriguez

Undergraduate major: microbiology (B.S.)

Undergraduate minor: microbiology

Graduate degrees: M.S. in microbiology; Ph.D. in microbiology

Web site: <http://www.medicine.uiowa.edu/microbiology/>

Study in the Department of Microbiology is dedicated to the branch of biological sciences that deals with the smallest living things: bacteria, archaea, fungi, algae, protozoa, and viruses. It is coupled with immunology, the study of the response of higher organisms to foreign substances.

Microbiology and immunology are at the forefront of the modern biological revolution. Microbes are often the experimental subjects of choice for examining basic genetic and biological phenomena because of their small size, rapid growth rate, and relative simplicity. A significant portion of contemporary biochemical research employs microbiological and immunological methods.

Current research is making theoretical and practical advances concerning microbial species and viruses

that infect animals, including man, plants, and other microbes; the use of comparative genomics, gene expression profiling, and recombinant DNA methods to analyze basic biological processes and generate valuable products; the nature and occurrence of microbial life in extreme or unusual environments; microbial synthesis and modification of antibiotics and other natural products; the role of microbes in stabilization of the biosphere by recycling and detoxifying waste products; the genetics and regulation of metabolic processes; and the genetics and regulation of the immune response, including characterization of mechanisms used by bacteria to signal one another and characterization of interactions between different types of immune cells and their targets.

The Department of Microbiology offers an undergraduate major, an undergraduate minor, and graduate degree programs and determines the curricula for those programs. Undergraduates majoring in microbiology receive their degrees (Bachelor of Science) from the College of Liberal Arts and Sciences and are governed by that college's undergraduate academic policies. Graduate degrees in microbiology are conferred by the Graduate College.

Undergraduate Programs of Study

- Major in microbiology (Bachelor of Science)
- Minor in microbiology

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an important and interesting branch of biological sciences. Graduates find employment opportunities in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and biotechnology companies). Those who pursue advanced degrees have more advanced career opportunities in these same areas as well as in college and university teaching.

Bachelor of Science

The Bachelor of Science with a major in microbiology requires a minimum of 120 s.h., including 63-64 s.h. of work for the major (21 s.h. in microbiology and 42-43 s.h. in supporting course work). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program (p. 323).

Students must complete at least 12 s.h. of the required 21 s.h. in microbiology courses at The University of Iowa.

The major in microbiology requires the following course work.

MICROBIOLOGY COURSES

Students earn 21 s.h. in microbiology courses, as follows.

MICR:2157 (061:157) General Microbiology (with a grade of C or higher)	5 s.h.
MICR:4163 (061:163) Seminar: Microbiology (taken during the last two semesters before graduation)	2 s.h.

Additional microbiology courses, with at least 14 s.h. in courses numbered MICR:3147 (061:147) or above, excluding MICR:3164 (061:164) and MICR:5220 (061:220) 14 s.h.

Students must earn a grade of C or higher in MICR:2157 (061:157) in order to take more advanced microbiology courses.

Students must take MICR:4163 (061:163) once for credit during their last two semesters before graduation. They may apply a maximum of 2 s.h. earned in the course toward the major, but they are encouraged to take it for 0 s.h. during other semesters after they have completed MICR:2157 (061:157).

A maximum of 4 s.h. earned in MICR:4161 (061:161) Undergraduate Research in Microbiology may be counted toward the major. However, honors students must complete 23 s.h. of microbiology courses for the major and may count 6 s.h. earned in MICR:4171 (061:171) Honors Undergraduate Research in Microbiology; see "Honors in the Major" below.

SUPPORTING COURSE WORK

In addition to the required 21 s.h. in microbiology, the major requires the supporting course work listed below. These courses may not be taken pass/nonpass.

All of these:

BIOC:3120 (099:120) Biochemistry and Molecular Biology I	3 s.h.
BIOC:3130 (099:130) Biochemistry and Molecular Biology II	3 s.h.
BIOL:1411 (002:031)-BIOL:1412 (002:032) Foundations of Biology - Diversity of Form and Function	8 s.h.
CHEM:1110 (004:011)-CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
CHEM:2210 (004:121)-CHEM:2220 (004:122) Organic Chemistry I-II	6 s.h.
CHEM:2410 (004:141) Organic Chemistry Laboratory	3 s.h.

One of these sequences:

PHYS:1511 (029:011)-PHYS:1512 (029:012) College Physics I-II	8 s.h.
PHYS:1611 (029:081)-PHYS:1612 (029:082) Introductory Physics I-II	8 s.h.

One of these:

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
MATH:1460 (22M:016) Calculus for the Biological Sciences	4 s.h.
MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus	4 s.h.
MATH:1850 (22M:025) Calculus I	4 s.h.
STAT:3510 (22S:101) Biostatistics	3 s.h.

In addition, the following course may be recommended for some students.

CNW:2680 (08N:080) The Art and Craft of Creative Nonfiction	3 s.h.
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Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

(Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins: BIOL:1411 (002:031) Foundations of Biology, CHEM:1110 (004:011) Principles of Chemistry I, CHEM:1120 (004:012) Principles of Chemistry II, and an approved calculus or biostatistics course

Before the fifth semester begins: BIOL:1412 (002:032) Diversity of Form and Function, CHEM:2210 (004:121) Organic Chemistry I, CHEM:2220 (004:122) Organic Chemistry II, CHEM:2410 (004:141) Organic Chemistry Laboratory, and MICR:2157 (061:157) General Microbiology

Before the seventh semester begins: five more courses in the major and at least 90 s.h. earned toward the degree

Before the eighth semester begins: another 10-12 s.h. of course work

During the eighth semester: enrollment in all remaining course work in the major, all remaining required General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in microbiology have the opportunity to graduate with honors in the major. Departmental honors students must maintain a g.p.a. of at least 3.33, both cumulative and in microbiology courses. To graduate with honors in the microbiology major, students must complete 23 s.h. of course work in microbiology, including 6 s.h. in MICR:4171 (061:171) Honors Undergraduate Research in Microbiology, which introduces them to experimental research. At the end of the research, they must successfully present written and oral reports.

In addition to honors in their majors, undergraduate students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Joint B.S./Ph.D.

Students majoring in microbiology who are interested in earning a doctoral degree may apply to the joint Bachelor of Science/Doctor of Philosophy program in microbiology. The joint program permits students to count 12 s.h. of credit toward both the B.S. and Ph.D. degree requirements before they have been granted the B.S. degree. Contact the Department of Microbiology for more information.

Minor

The minor in microbiology requires a minimum of 15 s.h. in microbiology courses, including 12 s.h. in courses considered advanced for the minor taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Courses numbered MICR:3147 (061:147) Survey

of Immunology and above are considered advanced for the minor, except MICR:3164 (061:164) Nursing Microbiology.

Students may count a maximum of 2 s.h. earned in MICR:4161 (061:161) Undergraduate Research in Microbiology or MICR:4171 (061:171) Honors Undergraduate Research in Microbiology and a maximum of 2 s.h. earned in MICR:4163 (061:163) Seminar: Microbiology toward the minor. They may count MICR:5218 (061:218) Microscopy for Biomedical Research toward the minor but not MICR:5220 (061:220) Advanced Microscopy for Biomedical Research.

Graduate Programs of Study

- Master of Science in microbiology
- Doctor of Philosophy in microbiology

Graduate study in microbiology is designed to help students become highly qualified in microbiology research and teaching. Admitted graduate students usually pursue the Ph.D.

Graduate study is offered in six subdisciplines: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, animal virology, and bioinformatics. Several areas involve interdisciplinary training both within and outside the department, so students gain broad experience during their course of study. Students also may pursue interdisciplinary Ph.D. programs in genetics (p. 965), immunology (p. 970), and molecular and cellular biology (p. 986).

During their first year, students rotate in up to three laboratories of their choice and are advised by the Graduate Student Advisory Committee. At the end of March of the first year, they choose a research supervisor who chairs their advisory committee. The committee provides intellectual and research guidance for the student's training.

The Department of Microbiology cooperates with other University of Iowa departments to give students ample access to diverse course offerings, seminars, and research programs. For example, microbiology students may participate in courses and seminars in immunology, genetics, molecular and cellular biology, biocatalysis/biotechnology, and electron microscopy.

All students admitted to advanced degree programs are expected to assist in departmental teaching.

Master of Science

The Master of Science program in microbiology requires a minimum of 30 s.h. of graduate credit. M.S. students are required to earn a minimum of 12 s.h. in microbiology courses chosen from three of the department's six subdisciplines. They may substitute a course they have already taken (at The University of Iowa or elsewhere) for a course requirement, with the M.S. advisory committee's approval. Additional course requirements depend on students' interests and the advice of the examining committee.

Students must write a thesis based on their own research and defend it satisfactorily in an oral examination. No more than 9 s.h. of credit for thesis research may be counted toward the 30 s.h. required for the Master of Science.

Doctor of Philosophy

The Doctor of Philosophy program in microbiology requires a minimum of 72 s.h. of graduate credit. Ph.D. students are required to earn approximately 10 s.h. of credit in graduate-level microbiology courses. They may substitute a course they have already taken (at The University of Iowa or elsewhere) for a course requirement, with the Ph.D. advisory committee's approval.

Students must pass a comprehensive examination before the end of their fourth semester in the program and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. They should have a cumulative g.p.a. of at least 3.00 and must have completed courses in biology, chemistry (inorganic and organic), mathematics including calculus, and physics. Those admitted with deficiencies must complete the relevant course work during their first year of graduate study. Admission is determined through a review and formal vote by the faculty. Preference is given to students applying for the Ph.D. program.

Facilities

The Department of Microbiology is situated on the University of Iowa health sciences campus, where it shares the Bowen Science Building with the Departments of Anatomy and Cell Biology, Biochemistry, Molecular Physiology and Biophysics, and Pharmacology. Laboratory space and modern equipment are available for teaching and research.

Courses

Lower-Level Undergraduate

MICR:2157 (061:157) General Microbiology 5 s.h.
Principles of bacterial and viral diversity, structure, genetics, physiology and metabolism; in contexts of molecular biology, immunology, infectious disease, and environmental microbiology; laboratory emphasis on basic techniques. Prerequisites: BIOL:1411 (002:031).

Upper-Level Undergraduate and Graduate

MICR:3112 (061:112) Pharmacy Microbiology 4 s.h.
Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Requirements: pre-pharmacy standing.

MICR:3147 (061:147) Survey of Immunology 3 s.h.
Important principles and key concepts in immunology; overview of innate and adaptive immune systems and their functions at cellular and molecular levels. Prerequisites: MICR:2157 (061:157).

- MICR:3159 (061:159) Pathogenic Bacteriology** 5 s.h.
Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria. Requirements: grade of C or higher in MICR:2157 (061:157).
- MICR:3160 (061:160) Microbial Physiology** 3 s.h.
Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation. Requirements: biochemistry course and grade of C or higher in MICR:2157 (061:157).
- MICR:3164 (061:164) Nursing Microbiology** 4 s.h.
Overview of bacteria, viruses, and eukaryotic microorganisms that cause human disease; microbial structure, growth control and reproduction; immunology in the context of host defense mechanisms. Corequisites: BIOL:1140 (002:021) or BIOL:1141 (002:002) or BIOL:1411 (002:031), if not taken as a prerequisite. Requirements: pre-nursing standing.
- MICR:3168 (061:168) Introduction to Animal Viruses** 3 s.h.
Basic physical, chemical, and biological properties of animal viruses; association with human disease. Requirements: grade of C or higher in MICR:2157 (061:157).
- MICR:3170 (061:170) Microbial Genetics** 3 s.h.
Genetics of bacteria, bacteriophages. Requirements: grade of C or higher in BIOL:2512 (002:128) or MICR:2157 (061:157).
- MICR:3175 (061:175) Microbial Genetics Laboratory** 3 s.h.
Introductory research experience in bacterial genetics providing exposure to a broad range of genetic methods; what it actually means to do science; student project to generate and interpret data, make hypotheses, design experiments, read primary literature, and write a scientific manuscript on findings. Prerequisites: MICR:3170 (061:170).
- MICR:3178 (061:178) Animal Viruses Laboratory** 2 s.h.
Basic techniques and approaches in animal virology, including virus detection, virus growth measurement, and virus genetics. Corequisites: MICR:3168 (061:168). Requirements: grade of C or higher in MICR:2157 (061:157).
- MICR:3179 (061:179) Bacterial Diversity** 3 s.h.
Analysis of bacteria from varied habitats; emphasis on the physiological basis and molecular characteristics of diversity. Prerequisites: MICR:2157 (061:157). Corequisites: MICR:3170 (061:170). Recommendations: BIOC:3120 (099:120).
- MICR:3189 (061:189) Bacterial Diversity Laboratory** 2 s.h.
- Culture, identification, and examination of complex and dynamic microorganisms found in soil; focus on *Bacillus* and *Myxobacteria* species; hunt for members of the 99% (those microorganisms that are so far uncultured in the laboratory); classic and cutting-edge microbiological and molecular assays to identify and characterize microorganisms; genetic techniques to investigate underlying basis of physiological mechanisms (e.g., biofilm formation and motility). Prerequisites: MICR:2157 (061:157).
- MICR:3190 (061:190) Web-Based Nursing Microbiology** 4 s.h.
Nursing microbiology, principles of immunology; web-based instruction. Prerequisites: BIOL:1140 (002:021) or BIOL:1141 (002:002) or BIOL:1411 (002:031). Requirements: pre-nursing standing.
- MICR:4161 (061:161) Undergraduate Research in Microbiology** arr.
Experimental research under faculty supervision. Prerequisites: BIOL:1411 (002:031).
- MICR:4163 (061:163) Seminar: Microbiology** 2 s.h.
Current topics in microbiology, immunology. Requirements: senior standing and grades of C or higher in at least two of these — MICR:3147 (061:147), MICR:3159 (061:159), MICR:3160 (061:160), MICR:3168 (061:168), MICR:3170 (061:170), MICR:3179 (061:179).
- MICR:4169 (061:169) Topics in Viral Biology and Pathogenesis** 1 s.h.
Topics include viral life cycles, immune response, antiviral treatments, potential for vaccine, animal models; lectures introducing subject matter; discussion of literature relevant to each week's topic. Prerequisites: MICR:3168 (061:168).
- MICR:4171 (061:171) Honors Undergraduate Research in Microbiology** arr.
Experimental research under faculty supervision. Prerequisites: BIOL:1411 (002:031). Requirements: microbiology major, junior or senior standing, 3.33 overall g.p.a., and 3.33 g.p.a. in microbiology courses.
- ## Graduate
- MICR:5218 (061:218) Microscopy for Biomedical Research** arr.
Basic microscopy methods for research including optics, preparation, and analysis of biomedical specimens; light, fluorescence, confocal, transmitting electron, scanning electron, atomic force microscopes, elemental analysis; immunochemistry and stereology techniques; individualized laboratory instruction. Prerequisites: BIOL:2723 (002:114). Same as ACB:5218 (060:218), BIOL:5218 (002:218).
- MICR:5220 (061:220) Advanced Microscopy for Biomedical Research** arr.

- Technically advanced microscopy and instrumentation for research; individualized laboratory experience with opportunity to explore applications of microscopy methods. Requirements: for ACB:5220 (060:220) — an introductory microscopy course; for BIOL:5220 (002:220) — ACB:4156 (060:156) or ACB:5218 (060:218) or CBE:4156 (052:156) or EES:4156 (012:156) or MICR:5218 (061:218); for MICR:5220 (061:220) — an introductory EM course. Same as BIOL:5220 (002:220), ACB:5220 (060:220).
- MICR:5264 (061:264) Directed Study in Microbiology** arr.
- MICR:5875 (061:275) Perspectives in Biocatalysis** 1-3 s.h.
Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Requirements: graduate standing in a participating department supported by the Predoctoral Training Program in Biotechnology. Same as CHEM:5875 (004:275), PHAR:5875 (046:275), CBE:5875 (052:275), CEE:5875 (053:275), BIOC:5875 (099:275).
- MICR:6201 (061:201) Graduate Immunology** 3 s.h.
Ontogeny, activation, and function of T lymphocytes and B lymphocytes; innate immune effector mechanisms; major histocompatibility complex; antigen presentation; thymocyte positive and negative selection; signaling of T lymphocytes, B lymphocytes; emphasis on experimental methods for analysis of these processes. Requirements: for IMMU:6201 (148:201) — college biology, general chemistry, and introductory immunology courses; for MICR:6201 (061:201) — courses in college biology, genetics, general chemistry, and introductory immunology. Recommendations: for IMMU:6201 (148:201) — courses in biochemistry and genetics; for MICR:6201 (061:201) — biochemistry course. Same as IMMU:6201 (148:201).
- MICR:6247 (061:247) Graduate Survey of Immunology** 3 s.h.
Important principles and key concepts in immunology; overview of innate and adaptive immune systems and their functions at cellular and molecular levels. Same as IMMU:6247 (148:247).
- MICR:6250 (061:299) Mechanisms of Parasitism Journal Club** 1 s.h.
Reviews of recent publications in molecular parasitology research and thesis research by training grant or journal club students. Same as MCB:6250 (142:299).
- MICR:6259 (061:259) Graduate Pathogenic Bacteriology** 3 s.h.
Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification.
- MICR:6260 (061:260) Graduate Microbial Physiology** 3 s.h.
Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation.
- MICR:6267 (061:267) Graduate Introduction to Animal Viruses** 3 s.h.
Basic physical, chemical, biological properties of animal viruses, their association with human diseases; discussion topics in the primary literature.
- MICR:6268 (061:268) Biology and Pathogenesis of Viruses** 2 s.h.
Molecular biology of animal DNA and RNA viruses, interaction of these viruses with eucaryotic cells; mechanisms of viral latency, persistence, cellular transformation, oncogenesis; virology literature. Prerequisites: MICR:3168 (061:168) or MICR:6267 (061:267).
- MICR:6270 (061:270) Graduate Microbial Genetics** 3 s.h.
Genetics of bacteria, bacteriophages.
- MICR:6279 (061:279) Graduate Bacterial Diversity** 3 s.h.
Analysis of bacteria from varied habitats; emphasis on the physiological basis and molecular characteristics of diversity.
- MICR:7207 (061:207) Advanced Topics in Immunology** 3 s.h.
In-depth analysis of selected areas. Prerequisites: for IMMU:7221 (148:221) — IMMU:6201 (148:201); for MICR:7207 (061:207) — MICR:6201 (061:201) or IMMU:6201 (148:201). Same as IMMU:7221 (148:221).
- MICR:7217 (061:217) Integrated Topics in Infectious Diseases** 1 s.h.
Clinical cases used to raise questions in host-parasite interactions; case/scientific exposés followed by related journal club discussions at next class session. Same as IMMU:7217 (148:217).
- MICR:7221 (061:221) Advanced Topics in Prokaryotic Biology Module 1** 1-2 s.h.
Cell division and sporulation; development of critical thinking, experimental approach and design, writing, and oral presentation skills through primary literature and course specific assignments (proposal writing, writing manuscript reviews, oral presentations, small group discussions). Requirements: graduate standing in microbiology.
- MICR:7222 (061:222) Advanced Topics in Prokaryotic Biology Module 2** 1-2 s.h.
Subversion of innate immune response by Gram-positive and Gram-negative bacteria; development of critical thinking, experimental approach and design, writing, and oral presentation skills through exposure to primary literature and assignments (proposal writing, writing manuscript reviews, oral presentations, small group discussions). Requirements: graduate standing in microbiology.
- MICR:7223 (061:223) Advanced Topics in Prokaryotic Biology Module 3** 1-2 s.h.

Development of critical thinking, experimental approach and design, writing, and oral presentation skills through exposure to selected topics in microbiology and assignments (proposal, writing manuscript reviews, oral presentations, small group discussions). Requirements: graduate standing in microbiology.

MICR:7224 (061:224) Advanced Topics in Prokaryotic Biology Module 4 1-2 s.h.

Development of critical thinking, experimental approach and design, writing, and oral presentation skills through exposure to selected topics in microbiology and assignments (proposal, writing manuscript reviews, oral presentations, small group discussions). Requirements: graduate standing in microbiology.

MICR:7225 (061:225) Advanced Topics in Prokaryotic Biology Module 5 1-2 s.h.

Development of critical thinking, experimental approach and design, writing, and oral presentation skills through exposure to selected topics in microbiology and assignments (proposal, writing manuscript reviews, oral presentations, small group discussions). Requirements: graduate standing in microbiology.

MICR:7226 (061:226) Advanced Topics in Prokaryotic Biology Module 6 1-2 s.h.

Development of critical thinking, experimental approach and design, writing, and oral presentation skills through exposure to selected topics in microbiology and assignments (proposal, writing manuscript reviews, oral presentations, small group discussions). Requirements: graduate standing in microbiology.

MICR:7227 (061:227) Advanced Topics in Microbiology 1 s.h.

Presentations by graduate students on selected research topics in microbiology; different topics each semester. Offered fall and spring semesters. Requirements: graduate standing in microbiology.

MICR:7261 (061:261) Graduate Research in Microbiology arr.

Requirements: microbiology graduate standing.

MICR:7263 (061:263) Graduate Student Research Seminar 1 s.h.

Presentation of thesis work in progress. Requirements: microbiology graduate standing.

MICR:7265 (061:265) Topics in Virology Literature 1 s.h.

Papers of current interest in primary virology literature.

MICR:7269 (061:269) Graduate Topics in Viral Biology and Pathogenesis 1 s.h.

Topics include viral life cycles, immune response, antiviral treatments, potential for vaccine, animal models; lectures introducing subject matter; discussion of literature relevant to each week's topic. Prerequisites: MICR:6267 (061:267).

MICR:8202 (061:103) Principles of Infectious Diseases 5 s.h.

Principles and methods essential to study of microorganisms, their isolation and identification; microorganisms in infectious diseases; current immunology concepts. Requirements: M.D. enrollment.

MICR:8230 (061:113) Dental Microbiology 3 s.h.

Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Requirements: D.D.S. enrollment.

Molecular Physiology and Biophysics

Chair

- Kevin P. Campbell

Executive associate chair

- W. Scott Moye-Rowley

Professors

- François M. Abboud (Internal Medicine/Molecular Physiology and Biophysics), Mark Anderson (Radiation Oncology/Internal Medicine/Molecular Physiology and Biophysics), Nikolai Artemyev, Kevin P. Campbell, Mark Chapleau (Internal Medicine/Molecular Physiology and Biophysics), Beverly Davidson (Molecular Physiology and Biophysics/Internal Medicine/Neurology), Wayne Johnson, W. Scott Moye-Rowley, George Richerson (Molecular Physiology and Biophysics/Neurology), Robert Piper, Andrew Russo, Thomas J. Schmidt, Deborah Segaloff, Michael Shy (Neurology/Molecular Physiology and Biophysics), Curt Sigmund (Pharmacology/Internal Medicine/Molecular Physiology and Biophysics), Richard Smith (Internal Medicine/Molecular Physiology and Biophysics/Otolaryngology—Head and Neck Surgery), Peter Snyder (Internal Medicine/Molecular Physiology and Biophysics), Michael J. Welsh (Internal Medicine/Molecular Physiology and Biophysics/Neurosurgery), John Wemmie (Molecular Physiology and Biophysics/Psychiatry/Neurosurgery)

Associate professors

- Christopher Adams (Internal Medicine/Molecular Physiology and Biophysics), Christopher Ahern, Michael Anderson, Michael Henry, Amy Lee, Robert Mullins (Ophthalmology and Visual Sciences/Molecular Physiology and Biophysics), Andrew Pieper (Psychiatry/Neurology/Molecular Physiology and Biophysics), Erwin F. Shibata, Mark Stamnes, Christopher Stipp (Biology/Molecular Physiology and Biophysics)

Assistant professors

- N. Charles Harata, Janice Robertson, Rajan Sah (Internal Medicine/Molecular Physiology and Biophysics), Julien Sebag, Michael Wright

Professors emeriti

- Gerald DiBona, Robert E. Fellows, G. Edgar Folk Jr., Daryl Granner, Charles C. Wunder

Graduate degrees: M.S. in molecular physiology and biophysics; Ph.D. in molecular physiology and biophysics
Web site: <http://www.physiology.uiowa.edu/>

The Department of Molecular Physiology and Biophysics offers graduate study leading to the Master of Science and Doctor of Philosophy degrees. It participates in interdisciplinary graduate programs, including the Medical Scientist Training (p. 1086) Program, a joint M.D./Ph.D. program offered by the Graduate College and the Carver College of Medicine, and it provides instruction in molecular physiology and biophysics for M.D., D.D.S., and other health professions students. The department also conducts a co-op exchange, a vigorous training program that gives undergraduate students the opportunity to

develop as independent researchers in preparation for graduate studies.

The department's principal research areas include cell biology, genetics, endocrinology, neuroscience, and membrane physiology and biophysics. The unifying theme is the understanding of signal transduction mechanisms involved in regulating function at the cellular and molecular levels.

Graduate Programs of Study

- Master of Science in molecular physiology and biophysics (with or without thesis)
- Doctor of Philosophy in molecular physiology and biophysics

Graduate study in molecular physiology and biophysics provides students with fundamental knowledge of life processes at molecular, cellular, and integrative levels of biological function. It also imparts knowledge of modern research skills applicable to contemporary problems.

Students may enter the graduate program through the Biosciences (p. 951) Program (Graduate College) or directly through the Department of Molecular Physiology and Biophysics. Those who enter directly are advised by the department's director of graduate studies, who guides them in planning required course work and introduces them to research activities of the department's faculty members.

All degree candidates have experience as classroom instructors, under faculty supervision, as part of their training.

Master of Science

The Master of Science program in molecular physiology and biophysics requires a minimum of 30 s.h. beyond the bachelor's degree and is offered with and without thesis. Thesis students complete laboratory research and write a thesis that fulfills the requirements of the Graduate College (see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog). Nonthesis students complete a library research report and take a written examination on the research report area and the graduate program in physiology.

University of Iowa research assistants may pursue an M.S. in molecular physics and biophysics while continuing to work in their research laboratories. Research assistants interested in the M.S. program must submit a letter of support from their supervisor.

Doctor of Philosophy

The Doctor of Philosophy program in molecular physiology and biophysics requires a minimum of 72 s.h. beyond the bachelor's degree. The core curriculum includes graduate-level courses in cell biology, molecular biology, human physiology, and neurophysiology. Advanced electives, offered by the Department of Molecular Physiology and Biophysics and other departments, cover a wide range of topics, including receptors and signal transduction, and developmental neurophysiology.

After successful completion of required course work and the comprehensive examination, students devote full time

to thesis research, which culminates in preparation of a doctoral dissertation and its defense in a final oral exam.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. They must have a bachelor's degree from an accredited institution, with an undergraduate major in one of the biological, chemical, physical, mathematical, or engineering sciences; one or more years of course work in biology, physics, biochemistry, and calculus; and a cumulative science g.p.a. of at least 3.00. They also must submit acceptable verbal, quantitative, and analytical scores on the Graduate Record Examination (GRE) General Test.

Financial Support

All full-time students receive financial aid in the form of tuition and stipend support from the Department of Molecular Physiology and Biophysics. Support is renewed annually based on satisfactory progress in meeting degree requirements.

Research

Faculty research interests in the Department of Molecular Physiology and Biophysics encompass molecular and cellular endocrinology, cellular and developmental neurophysiology, and membrane structure and function. Within these, there are multiple areas of interest, including hormone receptors, reproductive endocrinology, signal transduction, regulation of gene expression, synaptic transmission, neuronal differentiation, membrane ion channels, regulation of excitability, and cardiovascular electrophysiology and regulation. Experimental models currently being investigated include rodents, yeast, *Drosophila*, and cultured cell lines from a variety of species.

Facilities

Two floors of the Bowen Science Building are devoted to research and teaching in the Department of Molecular Physiology and Biophysics. Department faculty members also occupy laboratory facilities in the Eckstein Medical Research Building and the Carver Biomedical Research Building. In addition to specialized equipment in faculty research laboratories, the department provides equipment for fluorescence microscopy, isotope analysis, cell culture, and molecular biology. It also has access to the University network and the multimedia education facilities. Additional resources are available at the Hardin Library for the Health Sciences.

Courses

MPB:4199 (072:199) Research, Independent Study arr.
Recommendations: closed to molecular physiology and biophysics graduate students.

MPB:4753 (072:184) Developmental Neurobiology 3 s.h.

Neural induction and nervous system patterning; neurogenesis, axon and dendrite outgrowth and targeting; synapse formation, specificity, refinement; mechanisms of neuronal cell death; myelination; neural stem cells; introduction to cellular, molecular, and genetic techniques in studies of neural development. Prerequisites: BIOL:2753 (002:145). Corequisites: BIOL:3253 (002:180). Requirements: grade of B- or higher in BIOL:2753 (002:145) or graduate standing. Same as BIOL:4753 (002:184), NSCI:4753 (132:184).

MPB:5153 (072:153) Graduate Physiology 4 s.h.
Principles of human physiology, organ systems, cell function. Offered fall semesters. Requirements: grades of C- or higher in BIOL:1411 (002:031), CHEM:2210 (004:121), and CHEM:2220 (004:122); and graduate standing.

MPB:5180 (072:180) How the Brain Works 1 s.h.
Brief, integrated look at how the brain works, based on recent neuroscience research; how the brain's biochemistry, anatomy, and physiology change constantly due to interaction with physical, emotional, and social environments; does the world we see around us exist outside the brain; does the mind exist; is emotion necessary for learning and memory; are we born with pre-existing circuits and codes in the brain for language, recognition of faces, and other complex behaviors; can aging of the brain be delayed; approach relevant for sciences, humanities.

MPB:5200 (072:200) Medical Physiology Online 4 s.h.
Fundamental principles of cellular membranes, muscle, sensory organs, motor neurological systems, autonomic nervous systems, cardiovascular, pulmonary, renal, gastrointestinal, endocrine, and reproductive systems; interdependence of organ systems to maintain a normal physiological state using clinical correlates as applied to humans; basic physiological principles that establish a solid foundation for future pathophysiological and pharmacological concepts. Recommendations: medical, dental, physician assistant, nurse anesthesia, physical therapy, or graduate standing.

MPB:5211 (072:211) Biophysics of Excitable Membranes 3 s.h.
Selected electrophysiological and biophysical topics from published research. Prerequisites: HHP:3500 (027:130).

MPB:5240 (072:240) Physiology Workshop 1 s.h.
Presentations by faculty, postdoctoral fellows, graduate students, and scientists. Requirements: graduate standing.

MPB:5342 (072:342) Biosciences Critical Thinking and Communication 2 s.h.
Selected papers and oral and written presentations tied to students' research rotations; introductory seminar. Same as BISC:5265 (156:265), BIOL:5270 (002:270).

MPB:6209 (072:209) Steroid Receptor Signaling 1 s.h.

Structure-function relationship and genomic and nongenomic actions of the steroid hormone receptor family; basis for actions of novel new ligands on these receptors. Offered spring semesters. Same as PCOL:6209 (071:209), NSCI:6209 (132:209).

MPB:6220 (072:220) Mechanisms of Cellular Organization 3 s.h.

Current understanding of basic cell biological processes; key experiments that led to guiding insights; mechanisms that cells use for compartmentalization and how those mechanisms are regulated; biogenesis of major organelles (e.g., mitochondria, peroxisomes, nucleus, secretory/endocytic membrane system); functions of cytoskeleton in cell motility, organelle motility, and cell division. Prerequisites: BIOC:3130 (099:130). Same as MCB:6220 (142:220), ACB:6220 (060:216).

MPB:6225 (072:225) Growth Factor Receptor Signaling 1 s.h.

Mechanisms of signaling by growth factors; cytokines and related molecules that regulate cell proliferation, development, differentiation, and survival; emphasis on molecular mechanisms of signaling, relevance of these signaling processes to various human diseases. Recommendations: BISC:5201 (156:201) and BISC:5203 (156:203). Same as MCB:6225 (142:225), ACB:6225 (060:225).

MPB:6226 (072:226) Cell Cycle Control 1 s.h.

Cell cycle regulation, DNA damage-dependent cell cycle regulation, redox-dependent cell cycle regulation, cellular senescence. Recommendations: BISC:5201 (156:201) and BISC:5203 (156:203). Same as MCB:6226 (142:226), ACB:6226 (060:226).

MPB:6227 (072:227) Cell Fate Decisions 1 s.h.

Cellular fate decisions, including signal integration, terminal differentiation in development, mechanisms of embryonic stem cell gene regulation/cellular reprogramming, cell death paradigms, and cell death in development and cancer. Recommendations: BISC:5201 (156:201) and BISC:5203 (156:203). Same as MCB:6227 (142:227), ACB:6227 (060:223).

MPB:6265 (072:265) Neuroscience Seminar 0-1 s.h.

Research presentations. Offered fall and spring semesters. Same as PSY:6265 (031:265), ACB:6265 (060:265), NSCI:6265 (132:265), BIOL:6265 (002:265).

MPB:6302 (072:302) Research Physiology and Biophysics arr.

Requirements: molecular physiology and biophysics graduate standing.

MPB:7402 (072:402) Thesis arr.

Requirements: molecular physiology and biophysics Ph.D. candidacy.

MPB:8115 (072:152) Human Physiology for Dental Students 4 s.h.

Principles of human physiology, organ systems, cell function. Offered fall semesters. Requirements: grades of C- or higher in BIOL:1411 (002:031), CHEM:2210 (004:121), and CHEM:2220 (004:122); and D.D.S. enrollment.

Neurology

Chair

- George Richerson

Professors

- Harold P. Adams Jr., Daniel J. Bonthius (Stead Family Department of Pediatrics/Neurology), Kevin P. Campbell (Internal Medicine/Molecular Physiology and Biophysics/Neurology), Mark E. Dyken, Mark A. Granner, Laurie Gutmann, Lud Gutmann, Matthew A. Howard (Otolaryngology—Head and Neck Surgery/Neurosurgery/Neurology), Wayne A. Johnson (Molecular Physiology and Biophysics/Neurology), Robert D. Jones, Satoshi Kitazaki, Jane S. Paulsen (Psychiatry/Psychology/Neurology), George Richerson (Neurology/Molecular Physiology and Biophysics), Matthew Rizzo, Andrew F. Russo (Molecular Physiology and Biophysics/Neurology), E. Torage Shivapour, Michael Shy, Wendy R. Smoker (Radiology/Neurosurgery/Neurology), William T. Talman, Jon M. Tippin, Daniel T. Tranel (Psychology/Neurology), Michael Wall (Ophthalmology and Visual Sciences/Neurology), Mary Ann Werz, Thoru Yamada

Associate professors

- Steven W. Anderson, Joseph Barrash, Alexander G. Bassuk (Stead Family Department of Pediatrics/Neurology), Deema Fattal, David Hasan (Otolaryngology—Head and Neck Surgery/Neurosurgery/Neurology), Charuta N. Joshi (Stead Family Department of Pediatrics/Neurology), Amy Lee (Molecular Physiology and Biophysics/Otolaryngology—Head and Neck Surgery/Biomedical Engineering/Neurology), Gloria Lee (Internal Medicine/Neurology), Enrique C. Leira, A. LeBron Paige, Connie Chen Pieper, Thomas Schnell (Industrial Engineering/Occupational and Environmental Health/Electrical and Computer Engineering/Neurology), Teri Thomsen, Ergun Y. Uc, Malcolm H. Yeh, Asgar Zaheer

Assistant professors

- Edward Aul, Natalie L. Denburg, Melissa C. Duff (Communication Sciences and Disorders/Neurology), Matthew Gillum, Minako Hayakawa (Radiology/Neurology), Kevin Im, Nivedita Jerath, Nandakumar Nagaraja, Nandakumar Narayanan, Santiago Ortega-Gutierrez, Ana Recober-Montilla, Hyungsub Shim, Steven Stasheff (Ophthalmology and Visual Science/Electrical and Computer Engineering/Stead Family Department of Pediatrics/Biomedical Engineering/Neurology), Andrea Swenson, Matthew J. Thurtell (Ophthalmology and Visual Sciences/Neurology)

Associate

- Eric Waldron

Adjunct professors

- Ralph Adolphs, Antonio R. Damasio, Hanna C. Damasio, Thomas J. Grabowski, Henry Paulson, Charles Rockland, Kathleen Rockland

Adjunct associate professor

- Antoine Bechara

Professors emeriti

- Adel Afifi, William E. Bell, Jun Kimura, Ramon Lim, Robert Rodnitzky

Associate professor emeritus

- James Worrell

Web site: <http://www.medicine.uiowa.edu/neurology/>

Neurology is the branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle.

The Department of Neurology's hallmark is its history of carefully integrating patient care, scientific investigation, and the education of medical, postdoctoral, and graduate students.

M.D. Student Training, Graduate Education

The department provides clinical and clinical research training to third- and fourth-year M.D. students. It also offers research opportunities in various fields of neuroscience, including neuropsychology, neuroimaging, and neuroanatomy, to Ph.D. students in neuroscience and psychology.

Residency Program

The Department of Neurology offers an active, four-year approved residency program that qualifies physician trainees for board certification in neurology. Experience in clinical electrophysiology, pediatric neurology, psychiatry, and neuropathology is part of this training.

Research

The faculty's investigative interests center on cognitive neuroscience, degenerative diseases, cerebrovascular disease, neurogenetics, neuromuscular diseases, electrophysiological correlates of central and peripheral nervous system disease, growth factors in the nervous system, control and regulation of autonomic functions, neuro-ophthalmology, movement disorders, epilepsy, and pain management. For more information see the Department of Neurology web site.

Courses

NEUR:5365 (064:365) Seminar: Neuropsychology and Neuroscience arr.

Clinical neuropsychology and cognitive neuroscience: cutting-edge research from scientific journals, case presentations in clinical neuropsychology, and current research. Same as PSY:5365 (031:365), NSCI:5365 (132:365).

NEUR:6240 (064:240) Topics in Cognitive Neuroscience 3 s.h.

Key topics in the neural basis of human cognition; research literature. Recommendations: graduate courses in basic neuroscience, cognitive psychology. Same as NSCI:6240 (132:240).

NEUR:7238 (064:238) Introduction to Neuropsychological Assessment arr.

Standard neuropsychological and behavioral assessment procedures; selection, administration, and scoring of neuropsychological tests under staff supervision; involvement in case presentation.

NEUR:7239 (064:239) Advanced Neuropsychological Assessment arr.

Continuation of NEUR:7238 (064:238); preparation of integrated reports on collected data; case presentations.

NEUR:8301 (064:011) Clinical Neurology 2,4 s.h.

Experience in clinical neurology through ward work and case-based conferences linked to required reading; focus on neurologic examination, diagnosis of neurologic problems.

NEUR:8401 (064:302) Advanced Inpatient Neurology 2,4 s.h.

Experience and management of patients with seizure disorders, headache, cerebrovascular diseases; conferences, clinical rounds; two weeks on each inpatient service for a total of four weeks. Prerequisites: NEUR:8301 (064:011).

NEUR:8402 (064:303) Advanced Outpatient Neurology 2,4 s.h.

Experience in evaluation, management of patients with various neurologic diseases; four weeks in clinic patient care. Prerequisites: NEUR:8301 (064:011).

NEUR:8403 (064:310) Cerebrovascular Disease arr.

Experience in evaluation, management of patients with cerebrovascular diseases; conferences, clinical rounds. Prerequisites: NEUR:8301 (064:011).

NEUR:8404 (064:400) Neurology Subinternship 4 s.h.

Care of patients with acute and serious neurological diseases, management of patients with varied cerebrovascular diseases; treatment of acute brain disease, comorbid medical diseases, medical and neurological complications that occur among patients with stroke; clinical assessments of patients, writing orders and clinical notes, contribution to rounds; close communication with patients, families, and colleagues; assignment to evening calls for emergency visits and consultations.

NEUR:8498 (064:998) Neurology On Campus arr.

NEUR:8499 (064:999) Neurology Off Campus arr.

Neurosurgery

Chair

- Matthew A. Howard III

Professors

- Patrick W. Hitchon, Matthew A. Howard III, Arnold H. Menezes

Associate professors

- Jeremy Greenlee, David Hasan, Hiroto Kawasaki, Hiroyuki Oya

Assistant professors

- Chandan Reddy, Saul Wilson

Web site: <http://www.medicine.uiowa.edu/neurosurgery/>

The Department of Neurosurgery provides an experience oriented toward patient care and basic research concerning diseases and physiology of the nervous system. Students develop awareness of neurosurgery's role in treating head and spine trauma, vascular disorders, brain and spinal cord tumors, pain and peripheral nerve abnormalities, degenerative spine pathology, and surgical treatment of epilepsy and movement disorders.

Clinical courses are designed around patient-centered discussions interwoven with operating room experiences. Lectures and conferences are scheduled on specific topics.

M.D. Student Training

The department provides fourth-year M.D. students with access to special expertise in selected topics of investigation regarding the central nervous system and to a clinical course through special arrangements with the faculty.

Faculty

Neurosurgery faculty strengths are centered in physiology of spinal cord trauma, epilepsy, auditory brain function and pain, primary brain tumor genetics, central nervous system tissue culture, spinal column biomechanics, and movement disorders. The department has expertise in clinical management across the spectrum of central nervous system diseases.

Facilities

Multiple, fully equipped laboratory space is available to support scientific research of the central nervous system. Faculty and technical assistance is available in all laboratories.

Courses

Neurosurgery courses are open only to M.D. and qualified associated health sciences students.

NSG:8401 (183:227) Subinternship in Neurosurgery 4 s.h.

Advanced clinical clerkship in neurological surgery; emphasis on diagnosis and operative management of surgical neurological disease.

NSG:8497 (183:228) Research in Neurological Surgery arr.

Laboratory investigation of spinal cord injury, spinal column biomechanics and instrumentation, electrophysiology of pain, epilepsy and hearing, molecular genetics and physiology of brain tumors.

NSG:8499 (183:999) Neurosurgery Off Campus arr.

Arranged by student with department approval.

Nuclear Medicine Technology

Director

- Anthony W. Knight

Medical director

- Michael M. Graham

Technical director

- John A. Bricker

Affiliated faculty

- David L. Bushnell (Radiology), Michael M. Graham (Radiology/Radiation Oncology), Daniel Kahn (Radiology), Anthony W. Knight (Radiology), Mark T. Madsen (Radiology/Physics and Astronomy), Yusef Menda (Radiology/Radiation Oncology), James A. Ponto (Pharmacy)

Undergraduate major: nuclear medicine technology (B.S.)

Web site: <http://www.medicine.uiowa.edu/NMT/>

Nuclear medicine technologists are professionals in a medical specialty that uses radioactive tracers for diagnostic, therapeutic, and research purposes. Technologists generally are employed in hospitals and clinics. They work hand-in-hand with nuclear medicine physicians, health physicists, radiopharmacists, and radiochemists as an integral part of a highly trained specialty team.

In addition to using sophisticated detectors and computers to trace the movement and localization of radioactive tracers in the human body, nuclear medicine technologists have responsibilities that include radiation safety, quality control testing, radiopharmaceutical preparation and administration, and general patient care.

The Nuclear Medicine Technology Program is fully accredited by the Joint Review Committee on Educational Programs in Nuclear Medical Technology (JRCNMT). Nuclear medicine technology is one of two undergraduate majors in the field of medical imaging offered by the Carver College of Medicine. Students interested in radiologic technology, computed tomography, magnetic resonance imaging, cardiovascular interventional, diagnostic medical sonography, or radiation therapy may complete the major in radiation sciences; see Radiation Sciences (p. 1136) in the Catalog.

The Carver College of Medicine is located on the University of Iowa health sciences campus, which includes University of Iowa Hospitals and Clinics, one of the nation's largest university-owned teaching hospitals. For information about the college's academic programs and resources, see Carver College of Medicine (p. 1038) in the Catalog.

Undergraduate Program of Study

- Major in nuclear medicine technology (Bachelor of Science)

Undergraduate study in nuclear medicine technology is guided by the academic rules and procedures outlined under "Undergraduate Programs" in the Carver College of Medicine (p. 1038) section of the Catalog.

Bachelor of Science

The Bachelor of Science with a major in nuclear medicine technology requires a minimum of 120 s.h. of credit. Work for the degree includes a set of courses that are prerequisite to entering the major, 60 s.h. of course work in the major, and elective course work sufficient to complete the minimum of 120 s.h. required for graduation.

Students who plan to complete all requirements for the degree at The University of Iowa enter the University as students in the College of Liberal Arts and Sciences (CLAS) with a nuclear medicine technology interest. As CLAS students, they complete the course work that is prerequisite to entering the major.

Admission to the major is competitive; the program accepts a maximum of 8 students per year. Students must apply to the major by January 15 of the year in which they wish to enter it. Personal interviews with qualified applicants are scheduled in February, and the class is selected by March 15. The program begins the following fall semester and lasts two years.

Students who are admitted to the major become Carver College of Medicine students. Upon completing the program successfully, they are granted a Bachelor of Science degree and a certificate of training. Graduates are eligible for national certification as nuclear medicine technologists.

The program strongly advises students entering the University to pursue a course of study that is applicable to another major, most commonly biology, chemistry, biochemistry, or microbiology, so that if they are not admitted to the Nuclear Medicine Technology Program, they still may complete a major and receive a bachelor's degree.

The Bachelor of Science with a major in nuclear medicine technology requires the following work.

PREREQUISITES TO THE NUCLEAR MEDICINE TECHNOLOGY MAJOR

Students must complete the following prerequisite courses and must have earned 60 s.h. of college credit with a cumulative g.p.a. of at least 2.50 before they may enter the nuclear medicine technology major. In addition to providing a foundation for the major, the prerequisite courses are good preparation for other majors.

Rhetoric:

RHET:1030 (010:003) Rhetoric	4 s.h.
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Culture, society, and the arts—3 s.h. in each of two of these (total of 6 s.h.):

Historical Perspectives approved course work	3 s.h.
International and Global Issues approved course work	3 s.h.
Literary, Visual, and Performing Arts approved course work	3 s.h.
Values, Society, and Diversity approved course work	3 s.h.

See General Education Program (p. 323) (College of Liberal Arts and Sciences) in the Catalog for approved courses in the culture, society, and the arts areas.

Mathematics—one of these:

MATH:1020 (22M:009) Elementary Functions 4 s.h.
 MATH:1440 (22M:015) Mathematics for the Biological Sciences 4 s.h.

A more advanced mathematics course

Introductory chemistry with laboratory:

CHEM:1110 (004:011) Principles of Chemistry I 4 s.h.

Introductory physics—one of these:

PHYS:1400 (029:008) Basic Physics 3 s.h.

PHYS:1511 (029:011) College Physics I 4 s.h.

Psychology:

PSY:1001 (031:001) Elementary Psychology 3 s.h.

Medical terminology:

CLSA:3750 (20E:103) Medical and Technical Terminology 2 s.h.

Anatomy and physiology—students must complete one of the three options below.

Option 1 (one course, 4 s.h.):

ACB:1199 (060:099) Human Anatomy and Basic Physiology for Radiation Science 4 s.h.

Option 2 (two courses, 6-7 s.h.)—one of these:

ACB:3110 (060:110) Principles of Human Anatomy 3 s.h.

ACB:3113 (060:113) Human Anatomy Online 4 s.h.

And one of these:

HHP:1300 (027:050) Fundamentals of Human Physiology 3 s.h.

HHP:3500 (027:130) Human Physiology 3 s.h.

Option 3 (three courses, 7 s.h.)—both of these:

HHP:1100 (027:053) Human Anatomy 3 s.h.

HHP:1110 (027:054) Human Anatomy Laboratory 1 s.h.

And one of these:

HHP:1300 (027:050) Fundamentals of Human Physiology 3 s.h.

HHP:3500 (027:130) Human Physiology 3 s.h.

RECOMMENDED PRE-MAJOR COURSES

The Nuclear Medicine Technology Program strongly recommends that students who intend to apply to the major take the following course work in addition to the required prerequisite courses listed above.

Both of these:

CHEM:1120 (004:012) Principles of Chemistry II 4 s.h.

RSP:1100 (680:010) Introduction to the Radiation Sciences 1 s.h.

One of these:

BIOL:1140 (002:021) Human Biology 4 s.h.

BIOL:1411 (002:031) Foundations of Biology 4 s.h.

One of these:

STAT:1020 (22S:025) Elementary Statistics and Inference 3 s.h.

STAT:3510 (22S:101) Biostatistics 3 s.h.

STAT:4143 (22S:102) Introduction to Statistical Methods 3 s.h.

One of these:

CS:1020 (22C:001) Principles of Computing 3 s.h.

CS:1110 (22C:005) Introduction to Computer Science 3 s.h.

Prospective students are encouraged to consult the Nuclear Medicine Technology Program office to plan an appropriate pre-major program of study.

COURSE WORK IN THE MAJOR

Students admitted to the nuclear medicine technology major spend two years in a clinical curriculum that is organized in accordance with the JRCNMT Essentials of an Accredited Educational Program in Nuclear Medicine Technology. They complete course work in the following areas: radiopharmacy, radiation safety and radiobiology, patient care, nuclear medicine and positron emission tomography (PET) procedures, radiation physics and instrumentation, administration and management, medical and professional ethics, and principles of computed tomography (CT). Practical clinical rotations focus on nuclear medicine, PET and CT imaging, nuclear medicine therapy, clinical radiopharmacy, nuclear medicine computer applications, and quantification of radioactivity in vivo and in vitro.

Courses

RSNM:3120 (107:111) Fundamentals of Nuclear Medicine and PET 6 s.h.

Introduction to medical specialty of nuclear medicine and molecular imaging; basic theories of radiation protection, radiation physics and nuclear medicine instrumentation, radiopharmacy, nuclear medicine and positron emission tomography (PET) clinical procedures, professional standards of nuclear medicine technologist. Requirements: Nuclear Medicine Technology Program enrollment.

RSNM:3121 (107:121) Nuclear Medicine Technology Clinical Internship I 3 s.h.

Hands-on clinical experience working with patients and performing routine nuclear medicine diagnostic imaging procedures under direct supervision of qualified clinical instructors. Requirements: Nuclear Medicine Technology Program enrollment.

RSNM:3131 (107:115) Radiopharmaceuticals 3 s.h.

Introduction to radiopharmaceuticals; emphasis on physical, chemical, and biologic properties and their clinical use; fundamental aspects of radiopharmaceuticals including characteristics, preparation, quality control, and clinical use. Requirements: Nuclear Medicine Technology Program enrollment.

- RSNM:3195 (074:191) Health Informatics I** 3 s.h.
Technological tools that support health care administration, management, and decision making. Requirements: graduate standing. Same as MED:5300 (050:283), SLIS:5900 (021:275), HMP:5370 (174:226), BME:5250 (051:187), IE:5860 (056:186), IGPI:5200 (200:110).
- RSNM:3220 (107:112) Nuclear Medicine and PET Clinical Procedures** 4 s.h.
Proper execution of nuclear medicine and PET procedures from a technical point of view; published protocols and procedures specific to the University of Iowa Hospitals and Clinics; routine set up, common errors, artifact identification, computer processing protocols, and patient care concerns identified for each procedure; review of human anatomy, physiology, and pathology germane to understanding and proper execution of nuclear medicine procedures. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:3221 (107:122) Nuclear Medicine Technology Clinical Internship II** 3 s.h.
Progressive responsibility working with patients and performing nuclear medicine and PET clinical procedures under direct supervision of qualified clinical instructors. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:3231 (107:116) Nuclear Medicine Instrumentation** 4 s.h.
Instruments used in medical imaging to generate and detect ionizing radiation (i.e., SPECT/CT and PET/CT scanners, dose calibrators, well counters, survey meters); focus on instrument quality control testing. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:3321 (107:123) Nuclear Medicine Technology Clinical Internship III** 6 s.h.
Progressive responsibility working with patients and performing nuclear medicine and PET clinical procedures under direct supervision of qualified clinical instructors. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:4110 (107:101) Principles of Nuclear Medicine I** 0,6 s.h.
Didactic and laboratory work in radiopharmacy, patient care, radiation protection, math and statistics, radiation physics, anatomy and physiology, radiochemistry and tracer techniques, medical terminology, computer applications. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:4111 (107:102) Introductory Clinical Nuclear Medicine** 0,6 s.h.
Experience in preparing radiopharmaceuticals, performing routine nuclear imaging and in vitro procedures; work with clinical instructors. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:4121 (107:124) Nuclear Medicine Technology Clinical Internship IV** 4 s.h.
Progressive responsibility working with patients and performing nuclear medicine and PET clinical procedures under direct supervision of qualified clinical instructors. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:4210 (107:103) Principles of Nuclear Medicine II** 0,3 s.h.
Didactic and laboratory work in nuclear medicine instrumentation, radiobiology, professional ethics, administration and management, computer applications. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:4211 (107:104) Intermediate Clinical Nuclear Medicine** 0,9 s.h.
Progressive responsibility in radiopharmacy, nuclear and PET imaging, cardiac stress testing. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:4221 (107:125) Nuclear Medicine Technology Clinical Internship V** 4 s.h.
Progressive responsibility working with patients and performing nuclear medicine and PET clinical procedures under direct supervision of qualified clinical instructors. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:4222 (107:150) NMT Capstone and Certification Exam Preparation** 4 s.h.
Students in final semester of program work together to organize and deliver capstone and certification exam preparation course; review of specific topics and oral presentations by each student; preparation and distribution of detailed written outlines of exam content; series of content-specific quizzes, midterm, and final "Mock Board" exam to evaluate student learning and preparedness for taking the NMTCB and ARRT national certification exams; preparation and submission of capstone portfolios that provide evidence of scholarly and professional progress. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:4310 (107:105) Advanced Clinical Nuclear Medicine** 0,6 s.h.
Proficiency in performance, quality assurance of all radiopharmacy and nuclear medicine procedures; opportunities for independent study, research. Requirements: Nuclear Medicine Technology Program enrollment.
- RSNM:5301 (074:192) Health Informatics II** 3 s.h.
Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as BME:5252 (051:189), IE:5870 (056:287), SLIS:5910 (021:280), IGPI:5210 (200:120).

Obstetrics and Gynecology

Chair

- Kimberly Leslie

Professors

- Noelle C. Bowdler, Marygrace Elson, Rene Genadry, Steven K. Hunter, Susan R. Johnson, Kimberly Leslie, Susan Lutgendorf (Psychology/Obstetrics and Gynecology), Jennifer R. Niebyl, Asha Rijhsinghani, Elaine Smith (Preventive and Community Dentistry/Epidemiology/Obstetrics and Gynecology), Craig H. Syrop, Bradley Van Voorhis

Associate professors

- David Bender, Catherine Bradley, Donghai Dai, Thomas Gellhaus, Lynne Himmelreich, Rachel Maassen, Gregory Skopec, Colleen Stockdale, Kelly Ward, Baoli Yang

Assistant professors

- Holly-Marie Bolger, Elizabeth Cook, Eric Devor, Eyup Duran, Michael Goodheart, Abbey Hardy-Fairbanks, Veronika Kolder, Jessica Kresowik, Jennifer Krupp, Xiangbing Meng, Merida Miller, Elizabeth Potter, Ginny Ryan, Donna Santillan, Mark Santillan, Divya Shah, Christina Shutters, Shujie Yang

Associates

- Rachel Mejia, Henry Reyes

Adjunct professor

- Charles Schaubeger

Adjunct associate professors

- Lloyd Holm, Jill Meadows, Grant Paulsen, Rebecca Shaw

Adjunct assistant professors

- Brandon Bourgeois, Jill Davidson, Bassel Eid, Roy Hart, Mary Kuffel, Kathy Kyser, Larry Lindell, Neil Mandsager, Kenneth Merkitich, Hind Moussa, Publio Ortiz, Paul Pickering, Linda Railsback, Rick Renwick, Jason Rexroth, Deborah Turner, Donald Young

Web site: <https://www.medicine.uiowa.edu/obgyn/>

M.D. Student Training

Courses in the Department of Obstetrics and Gynecology are designed to give M.D. students a comprehensive survey of reproductive medicine. This is done through a series of didactic lectures, inpatient and outpatient assignments, ward rounds, teaching seminars, and special elective courses.

The third-year clerkship OBG:8301 (066:004) Clinical Obstetrics and Gynecology gives students the core knowledge, skills, and attitudes needed to provide primary health care to female patients.

The department offers fourth-year medical students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology. In addition to clerkships at University of Iowa Hospitals and Clinics, these electives include arranged off-campus courses.

Residency Program

The department offers a four-year residency. Upon completion, graduates are eligible for the written and oral examinations leading to certification by the American Board of Obstetrics and Gynecology.

Residents are assigned to the divisions and clinical services of the department; they care for both hospital inpatients and outpatients. Training is provided in normal and abnormal obstetrics, gynecologic surgery, office gynecology, ultrasound, reproductive endocrinology, gynecologic oncology, urogynecology, family planning, and endoscopic procedures.

Courses

OBG:8301 (066:004) Clinical Obstetrics and Gynecology arr.

Proficiency in evaluation and management of core women's health care relating to the reproductive tract; special history taking, physical examination, laboratory and imaging assessment of obstetric and/or gynecological patients, application of current concepts to well women's health care and to management of diseases and pathologies; outpatient and inpatient obstetrics and gynecology; family planning, screening and early detection of cancer and other diseases.

OBG:8401 (066:006) High Risk Antepartum Obstetrics Subinternship arr.

Experience in evaluating new patients in a high-risk obstetric clinic; continuing antepartum care; doing work-up, ordering diagnostic studies, and following course of complicated patients admitted to obstetric ward; assisting in diagnostic, therapeutic procedures such as fetal heart rate testing, amniocentesis, ultrasonography, intrauterine fetal transfusion.

OBG:8402 (066:010) Gynecologic Oncology Subinternship arr.

Experience on a gynecologic oncology service, including operating room, inpatient and outpatient care; team management approach to gynecologic cancer patients, treatment and follow-up of invasive gynecologic malignancies, etiology and risk factors for gynecologic neoplasias, pre- and postoperative evaluation and treatment of surgical management of gynecologic neoplasia; research project encouraged.

OBG:8403 (066:013) Reproductive Endocrinology Senior Elective arr.

Experience evaluating new and returning patients in the Reproductive Endocrinology and Infertility Clinic; participation in preoperative, operative, and inpatient postoperative care; advanced gynecologic ultrasonography, in vitro fertilization services.

OBG:8405 (066:015) Urogynecology Advanced Elective 4 s.h.

Experience as active member of urogynecology clinical team, participating in clinical care activities including outpatient clinic, outpatient procedures, inpatient surgery, hospital care; presentation to team on topic chosen by student.

OBG:8406 (066:018) Community-Based Ob/Gyn, Washington 4 s.h.

Varied out-patient and in-patient obstetric and gynecologic patients in the Washington County Hospital and Clinic; perform and master OB/GYN histories and examinations; frequent supervised active participation of procedures where appropriate.

OBG:8407 (066:019) Family Planning 2,4 s.h.

Participation as active member of the Family Planning Services team; clinical activities, including clinic and outpatient procedures. Requirements: M.D. enrollment.

OBG:8408 (066:020) Non-Interventional Birth Elective 2 s.h.

Experience with normal physiologic birth; participation in intrapartum and postpartum care of low-risk women. Requirements: M.D. enrollment.

OBG:8450 (066:017) Continuity of Care in Outpatient Gynecology 4 s.h.

M4 students work with experienced gynecologist in longitudinal clinical experience for the academic year; students paired with faculty member to see patients in weekly clinic and provide clinical care to defined patient population.

OBG:8498 (066:998) Ob/Gyn On Campus arr.

OBG:8499 (066:999) Ob/Gyn Off Campus arr.

Ophthalmology and Visual Sciences

Chair

- Keith D. Carter

Professors

- Michael D. Abramoff, Wallace L.M. Alward, Nikolai O. Artemyev (Molecular Physiology and Biophysics/Ophthalmology and Visual Sciences), H. Culver Boldt, Keith D. Carter, Thomas L. Casavant (Electrical and Computer Engineering/Biomedical Engineering/Ophthalmology and Visual Sciences), James C. Folk, Kenneth M. Goins, A. Tim Johnson, Chris A. Johnson, Randy H. Kardon, Patricia A. Kirby (Pathology/Ophthalmology and Visual Sciences), Young H. Kwon, Thomas A. Oetting, Steven R. Russell, Val C. Sheffield (Stead Family Department of Pediatrics/Ophthalmology and Visual Sciences), Milan Sonka (Radiation Oncology/Ophthalmology and Visual Sciences/Electrical and Computer Engineering), Edwin M. Stone, Michael D. Wagoner, Michael Wall (Neurology/Ophthalmology and Visual Sciences), Mark E. Wilkinson

Associate professors

- Richard C. Allen, Michael G. Anderson (Molecular Physiology and Biophysics/Ophthalmology and Visual Sciences), Terry A. Braun (Electrical and Computer Engineering/Biomedical Engineering/Ophthalmology and Visual Sciences), Arlene V. Drack, John H. Fingert, Karen M. Gehrs, Markus H. Kuehn, Scott A. Larson, Robert F. Mullins, Richard J. Olson, Todd E. Scheetz, Christine W. Sindt, Nasreen A. Syed

Assistant professors

- Sheila A. Baker, Mark A. Greiner, Matthew M. Harper, Brian R. Kirschling, Anna S. Kitzmann, Tressa L. Larson, Reid A. Longmuir, Susannah Q. Longmuir, Vinit B. Mahajan, Seongjin Seo, Khadija S. Shahid, Erin M. Shriver, Elliott H. Sohn, Stewart Thompson, Matthew J. Thurtell, Budd A. Tucker

Professors emeriti

- Sohan S. Hayreh, G. Frank Judisch, Karl C. Ossoinig, Edward S. Perkins, William E. Scott, H. Stanley Thompson, Thomas A. Weingeist

Professional certificate: orthoptics

Web site: <http://www.medicine.uiowa.edu/eye/>

Ophthalmology is a medical and surgical specialty concerned with the diagnosis and treatment of diseases of the eye and its adnexa. The Department of Ophthalmology and Visual Sciences combines postgraduate training with research and patient care in all aspects of the visual sciences. Subspecialties represented in the department include cataract surgery, comprehensive ophthalmology, cornea and external diseases, contact lens and refraction services, genetics and molecular biology, glaucoma, laser refractive surgery, neuro-ophthalmology, oculoplastic surgery, ocular echography, ocular pathology, ocular vascular diseases, optometric services, pediatric ophthalmology and adult strabismus, vitreoretinal disorders, and vision rehabilitation.

M.D. Student Training, Graduate Education

The department offers clinical and research training to M.D. students and limited graduate studies for Ph.D. students in Anatomy and Cell Biology (p. 1048), Molecular and Cellular Biology (p. 986), and Genetics (p. 965). A three-year residency program with clinical experience in the ophthalmic subspecialties is offered to physician trainees. Graduates qualify for the written and oral examinations leading to certification by the American Board of Ophthalmology. Postgraduate fellowships of one to two years are available for qualified ophthalmologists in most subspecialty areas.

Professional Program of Study

- Certificate in Orthoptics

Contact the Department of Ophthalmology and Visual Sciences for information about the professional Certificate in Orthoptics.

Continuing Education

The department sponsors clinical conferences open to community ophthalmologists in Iowa and surrounding states where physicians can earn continuing medical education credits. The department also sponsors an annual alumni meeting with participation by nationally and internationally recognized ophthalmologists and vision scientists.

Facilities

The department maintains research laboratories for cell biology, biochemistry, morphology, tumor diagnosis, pathology, electrophysiology, pupillography, molecular biology, and vascular disease. Clinical facilities in ophthalmology are available at University of Iowa Hospitals and Clinics in the Pomerantz Family Pavilion and at the Iowa City Veterans Affairs Medical Center and the Veterans Affairs Central Iowa Health Care System in Des Moines. The department also manages an eye clinic at the Broadlawns Medical Center in Des Moines as well as outreach programs in other communities. The John and Marcia Carver Nonprofit Genetic Testing Laboratory, dedicated to providing affordable testing for rare eye diseases, is associated with the department.

Courses

OPHT:8301 (067:111) Clinical Ophthalmology 2,4 s.h.

All aspects of clinical ophthalmology; patient rounds, lectures, case presentations; clinical duties with staff, residents, faculty in UIHC and VAMC ophthalmology clinics. Requirements: M.D. enrollment.

OPHT:8401 (067:101) Elective in External Eye Disease 4 s.h.

Common diseases of eyelid, conjunctiva, cornea.

OPHT:8402 (067:102) Elective in Neuro-Ophthalmology arr.

Visual, ocular motor dysfunction due to neurologic disease; patient work-up, readings, neuro-ophthalmology rounds.

OPHT:8403 (067:109) Molecular Ophthalmology arr.

Use of recombinant DNA, tissue culture, protein electrophoresis in study of inherited eye diseases.

OPHT:8404 (067:100) Elective in Ocular Pathology 4 s.h.

Pathophysiology of eye disease; emphasis on use of Socratic method, self-study.

OPHT:8498 (067:998) Ophthalmology On Campus arr.

OPHT:8499 (067:999) Ophthalmology Off Campus arr.

Orthopaedics and Rehabilitation

Chair

- J. Lawrence Marsh

Professors

- Brian D. Adams, John P. Albright, Annunziato Amendola, Thomas D. Brown, Joseph A. Buckwalter, John J. Callaghan, Charles R. Clark, Frederick R. Dietz, George Y. El-Khoury, Nicole Grosland, Richard C. Johnston, J. Lawrence Marsh, Jose Morcuende, James V. Nepola, Richard K. Shields, Timothy A. Thomsen, Stuart L. Weinstein

Associate professors

- Donald Anderson, Joseph J. Chen, John E. Femino, Ernest M. Found, Sergio A. Mendoza, Douglas Pedersen, Phinit Phitiskul, Neil Segal, Brian Wolf

Assistant professors

- Eric Aschenbrenner, Heather Bingham, Matthew Bollier, Jessica Goetz, Mederic Hall, Carolyn Hettrich, Ryan Ilgenfritz, Matt Karam, Ericka A. Lawler, James A. Martin, Benjamin Miller, Nicolas Noiseux, Apurva Shah, Melissa Willenborg, Glenn Williams

Adjunct associate professors

- Devon D. Goetz, Yuki Tochigi

Adjunct assistant professor

- Mark C. Mysnyk

Professor emeritus

- Reginald R. Cooper

Web site: <http://uiortho.com/>

The Department of Orthopaedics and Rehabilitation offers training for residents and provides education for undergraduate students.

Undergraduate Education

The Department of Orthopaedics and Rehabilitation participates in the Bachelor of Science with a major in athletic training, which is offered by the Department of Health and Human Physiology (p. 359) (College of Liberal Arts and Sciences). Members of the orthopaedics and rehabilitation sports medicine faculty teach ORTH:4187 (076:187) Practicum in Athletic Training IV, a two-semester advanced clinical sequence (8 s.h.). Students who complete the program are eligible to apply for national certification in athletic training and to pursue employment opportunities as health care professionals in sports medicine clinics, hospitals, and academic settings.

Residency Programs

The department offers two programs for postgraduate trainees. The first is a five-year integrated clinical program, in which interns and residents participate simultaneously in inpatient and outpatient care, surgery, and sciences related to the neuromusculoskeletal system. The second provides the same training as the first but includes an additional one to two years of research.

Clinical Residency

Trainees enter this program directly from medical school through the National Internship Matching Plan.

During the first year, trainees gain experience not only in clinical orthopaedics but also in medicine, pediatrics, surgical specialties, intensive care, anesthesiology, and other services.

During years two through five, residents gain experience in trauma, musculoskeletal oncology, children's orthopaedics, adult orthopaedics, neuromuscular disorders, rehabilitation, prosthetics and orthotics, rheumatology, and basic science related to orthopaedics. They take specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology.

Weekly seminars cover biomechanics, kinesiology, and selected clinical subjects.

Residency with Research

In addition to the training described for the clinical program, this program includes an additional one to two years of research in a field that interests the resident and is related to the musculoskeletal system. The research may be done in one of the orthopaedic laboratories.

Laboratories

The orthopaedics laboratories deal with problems in these major subject areas.

Biochemistry: the biochemistry of proteoglycans, collagens, and matrix proteins, both normal and altered in musculoskeletal disorders

Biomechanics: problems of the upper extremity; biomechanics of the spine, hip, and gait; total joint replacements (in conjunction with the College of Engineering (p. 852))

Cell and molecular biology: studies of normal bone, cartilage, tendon, muscle, and tissues altered by experiment and disease

Bone healing: research toward better ways to heal bones

Facilities

The Department of Orthopaedics and Rehabilitation is housed in the John Pappajohn Pavilion of University of Iowa Hospitals and Clinics and has an active service in the Iowa City Veterans Affairs Medical Center. The department's facilities include 48 orthopaedic beds, five outpatient clinics, inpatient and outpatient operating rooms, a specialty library, a specialty radiology unit, and physical therapy and rehabilitation facilities. Its specialty clinics deal with disorders such as scoliosis, club feet, congenital dislocated hip, neuromuscular disease, metabolic disease, amputation, neoplasm, trauma, and neck, back, hip, foot, knee, and hand problems. Physicians in the outpatient clinic see approximately 175 patients per day. Approximately 5,000 major operations are performed each year under the auspices of the department.

The department's Institute for Orthopaedics, Sports Medicine, and Rehabilitation is located on the University of Iowa's Hawkeye Campus. The institute provides MRI, X-ray, and physical therapy services.

The department also provides consulting service to the University's Center for Disabilities and Development and

its Child Health Specialty Clinics and to two State of Iowa programs that serve people who are mentally challenged.

Courses

ORTH:4187 (076:187) Practicum in Athletic Training IV 4 s.h.

Clinical experience arranged through the athletic training program and the Department of Orthopaedic Surgery for athletic training majors; development of global proficiency in clinical skills. Requirements: athletic training major, and grades of C or higher in ATEP:3030 (027:186) and ATEP:3040 (027:183) .

ORTH:8301 (076:002) Clinical Orthopaedics arr.

ORTH:8401 (076:201) Advanced Clinical Orthopaedics 2,4 s.h.

Requirements: fourth-year M.D. enrollment.

ORTH:8402 (076:202) Musculoskeletal Trauma arr.

Requirements: fourth-year M.D. enrollment.

ORTH:8403 (076:203) Subinternship in Orthopaedics 4 s.h.

Opportunity to enhance clinical skills by taking intern-level responsibility for management of a limited number of orthopaedic patients; proficiency in perioperative patient assessment and management, including assisting in procedures and using laboratory diagnosis and radiologic studies pertinent to one faculty member's clinical practice.

ORTH:8404 (076:204) Introduction to Physical Medicine and Rehabilitation 2 s.h.

Management of a wide range of common acute and chronic neuro-musculoskeletal pain conditions (shoulder, back, knee pain) to more devastating neuromuscular injuries (spinal cord injuries, brain injury, strokes, amputations). Requirements: M.D. enrollment.

ORTH:8405 (076:205) Advanced Physical Medicine and Rehabilitation 4 s.h.

Management of a wide range of common acute and chronic neuro-musculoskeletal pain conditions (shoulder, back, or knee pain) to more devastating neuromuscular injuries (spinal cord injuries, brain injury, strokes, amputations); students work-up individual patients in outpatient clinics and perform inpatient consultations at subintern level. Requirements: M.D. enrollment.

ORTH:8498 (076:998) Orthopaedics On Campus arr.

Requirements: fourth-year M.D. enrollment.

ORTH:8499 (076:999) Orthopaedics Off Campus arr.

Requirements: fourth-year M.D. enrollment.

Otolaryngology—Head and Neck Surgery

Head

- Bruce J. Gantz

Professors

- Paul J. Abbas, John Buatti, Keith D. Carter, Gerry F. Funk, Bruce J. Gantz, Scott M. Graham, Marlan R. Hansen, Henry T. Hoffman, Michael P. Karnell, Richard J.H. Smith, Richard S. Tyler

Associate professors

- Carolyn J. Brown, Kristi E. Chang, Eileen M. Finnegan, Jeremy D. Greenlee (Otolaryngology—Head and Neck Surgery/Neurosurgery), José M. Manaligod, Douglas Van Daele

Assistant professors

- Rodrigo Bayon, Eugene Chang, Doug Henstrom, Deb Kacmarynski, Nitin A. Pagedar

Adjunct associate professor

- Steven R. Herwig

Adjunct assistant professors

- Matthew R. Brown, Robert T. Brown, Timothy Dettmer, Brenton Koch, Phillip C. Lee, Donald A. Maschka, Richard J. Rinehart

Web site: <http://www.medicine.uiowa.edu/oto/>

The Department of Otolaryngology—Head and Neck Surgery is one of the most comprehensive otolaryngology departments in the world. Founded in 1922, it is among the oldest in the United States. *U.S. News & World Report* has consistently ranked the department's program among the top 10 in the nation.

The department's chief focus areas are education and training, patient care, and research. M.D. students in the Carver College of Medicine, residents, and fellows benefit from a faculty dedicated to providing thorough training in all aspects of otolaryngology and patient care. Patients in the otolaryngology clinic enjoy access to comprehensive care in any of five subspecialties: pediatric otolaryngology, otology/neurotology, general otolaryngology and rhinology, head and neck oncology, and facial plastic and reconstructive surgery. University of Iowa faculty members from ophthalmology and radiation oncology hold joint appointments in otolaryngology, adding depth to the department's resources.

The department is home to prominent research programs in cleft palate and other craniofacial defects, head and neck oncology, cochlear implants, and molecular genetics. It also offers fellowships in otology/neurotology, pediatric otolaryngology, and head and neck oncology.

The department is located at University of Iowa Hospitals and Clinics.

Residency Program

The Department of Otolaryngology—Head and Neck Surgery offers a residency program accredited by the Accreditation Council for Graduate Medical Education.

The program has two tracks: a five-year clinical track and a seven-year research track. Five applicants are accepted each year, three to the clinical track and two to the research track.

The clinical track provides five years of concentrated clinical study and application in all aspects of otolaryngology. Residents begin their training with a five-week intensive basic science course divided into an anatomy component and a 100-hour lecture series. The anatomy component includes a supervised cadaver dissection, and the lecture series details the study of otolaryngology and related disciplines. Each resident also completes two research rotations in order to explore research areas that interest him or her.

The research track is a combined clinical-research program designed for residents interested in an otolaryngology research career. After an internship year, residents complete two years of research followed by four years of clinical training. The interaction of clinicians and basic scientists from several departments affords residents the opportunity for involvement in a wide spectrum of current research in areas such as electrophysiology of the auditory system, the genetics of head and neck cancer, and gene therapy.

Fellowships

The Department of Otolaryngology—Head and Neck Surgery offers two one-year fellowships in head and neck oncology and in pediatric otolaryngology, which are accredited by the Accreditation Council for Graduate Medical Education. It also offers a two-year fellowship in otology/neurology accredited by the Advanced Training Council of the American Head and Neck Society.

The otology/neurotology fellowship program accepts one applicant every two years. Otolaryngology fellows spend a minimum of 20 months on the clinical service. They attend all otology/neurotology clinics and neurotology cases in the operating room and are responsible for inpatient service. They also have one day of dedicated research time each week.

The head and neck surgery fellowship program accepts one applicant each year. Fellows spend a year on the clinical service, where they have the opportunity to train with all pediatric otolaryngology faculty members.

One applicant is accepted as a head and neck oncology fellow each year. Training is largely clinical, allowing fellows the opportunity to participate in a variety of procedures, ranging from skull base resection to laryngeal rehabilitation. Fellows routinely perform 35 to 45 free-tissue transfers during one year of training. They also complete a clinical and/or basic science research project relating to head and neck oncology.

Courses

OTO:8199 (068:199) Basic Otolaryngologic Science arr.

Supervised cadaver head and neck dissection, with 14 areas in detail. Two weeks.

OTO:8301 (068:003) Clinical Otolaryngology 2 s.h.

OTO:8401 (068:100) Sub-Internship in Otolaryngology arr.

OTO:8498 (068:998) Otolaryngology On Campus arr.

OTO:8499 (068:999) Otolaryngology Off Campus arr.

Arranged by student with department approval.

Pathology

Chair

- Nitin J. Karandikar

Director, clinical functions

- Roseanne Meyer

Professors

- Gary L. Baumbach, Leslie A. Bruch, Daniel Diekema (Pathology/Internal Medicine), Frederick Domann (Pathology/Radiation Oncology/Surgery), John Harty (Pathology/Microbiology), Siegfried Janz, Chris Jensen, Nitin J. Karandikar, John D. Kemp, Patricia Kirby (Ophthalmology and Visual Sciences/Pathology), Charles F. Lynch (Epidemiology/Pathology), Steven Moore, Marcus Nashelsky, Robert A. Robinson (Pathology/Oral Pathology, Radiology, and Medicine), Nancy Rosenthal, Mary Stone (Dermatology/Pathology), Stefan Strack (Pathology/Pharmacology), Lubomir P. Turek, Steven Vincent (Oral Pathology, Radiology, and Medicine/Pathology), Thomas Waldschmidt

Associate professors

- Vladimir Badovinac, Andrew Bellizzi, Aaron Bossler, Laila Dahmouh (Urology/Pathology), Adam Dupay (Anatomy and Cell Biology/Pathology), Hasem Habelhah, Thomas H. Haugen, Michael Henry (Molecular Physiology and Biophysics/Pathology), Carol Holman, Michael Icardi, Marina Ivanovic, Michael Knudson, Matthew Krasowski, Kevin Legge (Microbiology/Pathology), Vincent Liu (Pathology/Dermatology), David Meyerholz, Dawn Quelle (Pathology/Pharmacology), Annette Schlueter, Brian Swick (Pathology/Dermatology), Nasreen Syed (Ophthalmology and Visual Sciences/Pathology), Sergei Syrbu, Robert D. Tucker (Biomedical Engineering/Pathology), Steve Varga (Pathology/Microbiology)

Assistant professors

- Amani Bashir, John Blau, Dennis Firchau, Bradley Ford, Katherine Gibson-Corley, Apollina Goel (Pathology/Radiation Oncology), Leana Guerin, Danniele Holanda, Stacey Klutts, Deqin Ma, Megan Samuelson, Andrean Simons-Burnett (Radiation Oncology/Pathology), Sushmita Sinha, Anthony Snow, Munir Tanas, Weizhou Zhang (Radiation Oncology/Pathology), Chen Zhao

Adjunct associate professors

- Julia C. Goodin, Karen Honeycutt

Adjunct assistant professors

- Michelle Catellier, Timothy Drevankyo, Yasuko Erickson, Dennis Klein, Jonathan Thompson, Jamie Weydert

Professors emeriti

- Jo Ann Benda, Michael Cohen, Robert T. Cook, Fred Dee, Gary Doern, James A. Goeken, George F. Johnson, Thomas Kent, Frank Mitros, Michael Pfaller, Charles E. Platz, Ronald G. Strauss

Associate professors emeriti

- Morris O. Dailey, Ronald Feld, Theodore Koerner

Graduate degree: M.S. in pathology

Web site: <http://www.medicine.uiowa.edu/pathology/>

The Department of Pathology offers education and training for a broad range of students, from undergraduates through postgraduate fellows and researchers. It provides basic pathology courses to health sciences students; a clinical training program for clinical laboratory scientists; a Master of Science program in pathology; residency training programs leading to American Board of Pathology certification in anatomic pathology, clinical pathology, and neuropathology; fellowship training in pathology subspecialties; and postdoctoral research training in cellular and molecular pathology.

Undergraduate Education

Pathology courses are a major component of the University's Medical Laboratory Science Program, a Bachelor of Science program that trains medical laboratory scientists; see Medical Laboratory Science (p. 1084) in the Catalog.

M.D. Student Training

The department provides seven 12-month fellowships for M.D. students: the Emory Warner Fellowship, a full-time research position in a facet of experimental pathology; and six pathology externships, for students interested in careers as pathologists. It also offers clerkships for M.D. students in all areas of anatomical and clinical pathology.

Residency Program

The department offers 20 residency positions in pathology, which provide up to four years of training. Patients at University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center are integral to the residency programs.

Residents gain experience in systematic rotation through the varied laboratory services, including surgical pathology, autopsy pathology, neuropathology, dermatopathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, molecular pathology, and transfusion medicine. They also have the opportunity to pursue one or two years of additional fellowship training in many pathology subspecialties. To learn more, see Education on the Department of Pathology web site.

Graduate Program of Study

- Master of Science in pathology

Master of Science

The Master of Science program in pathology requires a minimum of 30 s.h. of graduate credit, including 21 s.h. of classroom work and 9 s.h. earned for research. The program trains graduate students in cell and molecular biology. Graduates work as research scientists in a range of academic and commercial laboratories, including those in the rapidly expanding biotechnology sector. Others advance to doctoral-level study.

M.S. students take a core curriculum in cell and molecular biology as well as electives suited to their individual interests. They acquire contemporary research skills by pursuing a laboratory thesis project under the guidance of a faculty member. Currently, there are active research programs in immunology, microbiology, neuroscience,

signaling and apoptosis, inflammation and vascular biology, tumor biology and cancer, and virology.

Most M.S. students complete their course of study in three years.

The department encourages applicants who have earned a Bachelor of Science with a major in biology, chemistry, biochemistry, clinical laboratory science, microbiology, or zoology. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. They should have an undergraduate g.p.a. of at least 3.00 and a combined verbal and quantitative score of at least 1100 on the Graduate Record Exam (GRE) General test.

For more information about graduate study, see Education on the Department of Pathology web site.

Postgraduate Training

The Department of Pathology offers postgraduate clinical fellowship programs in hematopathology, transfusion medicine, clinical microbiology, cytopathology, dermatopathology, molecular genetics pathology, and surgical pathology for physicians who have completed residency training in pathology. These fellowships consist of one to two years of diagnostic work and research.

The department provides postdoctoral research training in immunology, neuropathology, apoptosis, cancer biology, and clinical microbiology as well as in other areas of cellular and molecular pathology. These positions are open to individuals who have earned a Ph.D. or an M.D.

Facilities

The Department of Pathology is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. It administers more than 90,000 square feet of clinical laboratories at University of Iowa Hospitals and Clinics and has individual research and core facility laboratories, including histopathology and laser capture microscopy for cellular and molecular pathology research, in the Medical Research Center, Medical Laboratories, and at the Iowa City Veterans Affairs Medical Center. Also available are Carver College of Medicine research facilities for nucleic acid chemistry, hybridoma production, flow cytometry, ultrastructural studies, protein structure, image analysis, electron spin resonance, mass spectroscopy, nuclear magnetic resonance, and laboratory animal care.

Courses

PATH:4150 (069:150) Advanced Laboratory Practice 0,2,6 s.h.

Advanced laboratory practical skills. Requirements: acceptance to Clinical Laboratory Science Program.

PATH:4151 (069:151) MLS Program Registration 0 s.h.

Requirements: admission to Medical Laboratory Science Program.

PATH:4152 (069:152) MLS Theory, Application, and Correlation 0,3,5 s.h.

Theory, application, and correlation of medical laboratory science. Prerequisites: PATH:4150 (069:150).

PATH:4154 (069:154) Clinical Chemistry I 0,3 s.h.

Theory, practical application, technical performance, and evaluation of clinical chemistry laboratory procedures; correlation of laboratory data with diagnosis of disease. Prerequisites: PATH:4150 (069:150).

PATH:4155 (069:155) Clinical Chemistry II 0,3 s.h.

Advanced theory, practical application, technical performance, and evaluation of clinical chemistry laboratory procedures; correlation of laboratory data with diagnosis of disease. Prerequisites: PATH:4154 (069:154).

PATH:4156 (069:156) Clinical Hematology I 0,4 s.h.

Introduction to theory, practical application, technical performance, and evaluation of hematological and hemostasis procedures; correlation of laboratory data with disease diagnosis. Prerequisites: PATH:4150 (069:150).

PATH:4157 (069:157) Clinical Hematology II 0,3 s.h.

Advanced theory, practical application, technical performance, and evaluation of hematological and hemostasis procedures; correlation of laboratory data with disease diagnosis. Prerequisites: PATH:4156 (069:156).

PATH:4158 (069:158) Clinical Microbiology I 0,4 s.h.

Introduction to theory, practical application, technical performance, and evaluation of procedures for isolation, identification, and susceptibility testing of infectious disease organisms in humans. Prerequisites: PATH:4150 (069:150).

PATH:4159 (069:159) Clinical Microbiology II 0,4 s.h.

Advanced theory, practical application, technical performance, and evaluation of procedures for isolation, identification, and susceptibility testing of infectious disease organisms in humans. Prerequisites: PATH:4158 (069:158).

PATH:4160 (069:160) Clinical Immunology 0-1 s.h.

Theory, application, and evaluation of immunological components, principles, and methodologies used to assess immune dysfunction; theory and application of molecular diagnostic tools. Prerequisites: PATH:4150 (069:150).

PATH:4162 (069:162) Clinical Immunoematology I 0,3 s.h.

Introduction to theory, practical application, technical performance, and evaluation of blood bank procedures required for storage and transfusion of blood and blood components. Prerequisites: PATH:4150 (069:150).

PATH:4163 (069:163) Clinical Immunoematology II 0,3 s.h.

Clinical immunoematology for laboratory science. Prerequisites: PATH:4162 (069:162).

PATH:4164 (069:164) Phlebotomy for Clinical Laboratory Science 0-1 s.h.

Theory, practical application, technical performance, and evaluation of procedures used in collecting, handling, and processing blood specimens. Prerequisites: PATH:4150 (069:150).

PATH:4166 (069:166) Urine and Body Fluid Analysis 0,2 s.h.

Theory, practical application, technical performance, and evaluation of procedures used in analyzing urine and other body fluids, including cerebrospinal, synovial, serous, and amniotic fluids. Prerequisites: PATH:4150 (069:150).

PATH:4170 (069:170) Clinical Laboratory Management I 0,2 s.h.

Theory, practical application, technical performance, and evaluation of laboratory management principles and associated models; critical thinking, problem solving, leadership skills. Prerequisites: PATH:4150 (069:150).

PATH:4171 (069:171) Clinical Laboratory Management II 0,2,3 s.h.

Advanced theory, application, technical performance, and evaluation of laboratory management principles and associated models; critical thinking, problem solving, leadership skills. Prerequisites: PATH:4170 (069:170).

PATH:4172 (069:172) Molecular Biology Methods 0-1 s.h.

Introduction to theory, practical application, and evaluation of molecular biology methods.

PATH:5133 (069:153) Introduction to Human Pathology for Graduate Students 4 s.h.

Human disease; basic disease processes, organ-related and multisystem diseases; case analysis. Offered fall semesters. Same as PATH:8133 (069:133).

PATH:5260 (069:260) Translational Histopathology 3 s.h.

Didactic sessions on human comparative histology, molecular and cellular pathology, and animal model applications; laboratory sessions on microscopy, histology, histotechnology, and immunohistochemistry, with group discussions of model papers; experience in scientific writing and oral presentation skills; for students who plan to investigate experimental models of human disease. Prerequisites: BISC:5201 (156:201) and BISC:5203 (156:203).

PATH:5270 (069:270) Pathogenesis of Major Human Diseases 3 s.h.

Critical analysis of pathogenesis models in a series of major human diseases; clinical presentation, analysis of cellular and molecular events leading to the disease, discussion of key papers. Prerequisites: BISC:5201 (156:201) and BISC:5203 (156:203).

PATH:6220 (069:220) Seminar in Pathology 1 s.h.

Current research and literature. Requirements: pathology graduate standing.

PATH:6720 (069:272) Translational Research in Cancer 2 s.h.

Basic tumor biology and lab-based methods applied to development of translational approaches to prevention, early diagnosis, and treatment of human cancers. Offered fall semesters of even years. Same as EPID:6720 (173:272).

PATH:7001 (069:288) Molecular and Cellular Biology of Cancer 3 s.h.

Fundamental aspects of oncology at the cellular and molecular levels; mechanisms of cancer initiation and progression, oncogene action, DNA damage and repair, carcinogenesis by radiation, chemicals, viruses; tumor immunology, anticancer therapies. Offered spring semesters of odd years. Requirements: strong basic science background. Same as FRRB:7001 (077:288).

PATH:7207 (069:130) Clinical Laboratory Medicine for Physician Assistants 0-1 s.h.

Theory and practice of selected clinical laboratory techniques and procedures; emphasis on effective use of clinical laboratory in diagnosis and management of disease. Requirements: Physician Assistant Studies and Services enrollment.

PATH:7211 (069:211) Research in Pathology arr.

Basic aspects of pathology or clinical patient material; emphasis on experimental design, methods, literature review, obtaining formal answers to specific questions. Requirements: M.D. enrollment or graduate standing.

PATH:8007 (069:290) Medical Student Fellowships in Pathology (Externships) 0 s.h.

First-hand experience in autopsy, surgical and clinical pathology, teaching, and research to further understanding of disease mechanisms, normal and pathologic anatomy, laboratory use.

PATH:8008 (069:291) Warner Fellowship in Experimental Pathology 0 s.h.

One-year, full-time membership in established research laboratory in the Department of Pathology or collaborating laboratory. Requirements: M.D. enrollment.

PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students 4 s.h.

Human disease; basic disease processes, organ-related and multisystem diseases; case analysis. Offered fall semesters. Same as PATH:5133 (069:153).

PATH:8204 (069:205) Medical Pathology I 5 s.h.

Mechanisms of disease, etiology, pathogenesis, epidemiology, major clinical manifestations of disease in organ systems. Requirements: M.D. enrollment or graduate standing.

PATH:8214 (069:206) Medical Pathology II 5 s.h.

Mechanisms of disease, etiology, pathogenesis, epidemiology, major clinical manifestations of disease in organ systems. Requirements: PATH:8204 (069:205) and M.D. enrollment, or graduate standing.

PATH:8301 (069:240) Laboratory Medicine in Clinical Practice arr.

Issues in appropriate use of clinical laboratory and pathology resources in the primary care setting; case-based approach. Requirements: third- or fourth-year M.D. enrollment.

PATH:8401 (069:241) Autopsy Pathology Clerkship arr.

PATH:8402 (069:245) Hematopathology Clerkship arr.

PATH:8403 (069:246) Surgical Pathology Clerkship arr.

PATH:8404 (069:247) Blood Bank Clerkship arr.

PATH:8498 (069:998) Pathology On Campus arr.

PATH:8499 (069:999) Pathology Off Campus arr.

Pharmacology

Chair

- Curt D. Sigmund

Professors

- Mario Ascoli, Timothy Brennan, Frank Faraci, Rory Fisher, Donna L. Hammond, Donald Heistad, A. Kim Johnson, Curt D. Sigmund, Stefan Strack

Associate professors

- Christopher Benson, Songhai Chen, Minnetta Gardinier, Barry Kasson, John Koland, Anne Kwitek, Kathryn G. Lamping, D.P. Mohapatra, Dawn E. Quelle, Frederick W. Quelle, Kamal Rahmouni, Yuriy Usachev

Assistant professors

- Justin Grobe, Matthew Potthoff

Professors emeriti

- Jeffrey Baron, Ranbir Bhatnagar, Gary R. Dutton, Gerald F. Gebhart, Raymond Hohl, Ulla Kopp, Herbert K. Proudfit, Thomas Shires, Thomas Tephly, Harold Williamson

Graduate degrees: M.S.in pharmacology; Ph.D. in pharmacology

Web site: <http://www.medicine.uiowa.edu/pharmacology/>

The Department of Pharmacology provides professional training for health science students and participates with other departments in educational and research activities such as the Medical Scientist Training (p. 1086) Program, the Physician Scientist Training Pathway, the Molecular and Cellular Biology (p. 986) Program, the Neuroscience (p. 989) Program, the Holden Comprehensive Cancer Center, the Iowa Cardiovascular Center, and the UI Fraternal Order of Eagles Diabetes Research Center.

The department was a pioneer in offering pharmacology to undergraduate students with little or no science background. Lectures in PCOL:2120 (071:120) *Drugs: Their Nature, Action, and Use* emphasize the mechanisms of drug action and give students a background for rational decisions concerning use of drugs.

Pre- and postdoctoral students pursue research training in all areas of pharmacology in the department in preparation for career opportunities in academia, government, and industry.

Graduate Programs of Study

- Master of Science in pharmacology
- Doctor of Philosophy in pharmacology

Department of Pharmacology graduate study includes both didactic and research experience. Qualified students may pursue the joint M.D./Ph.D. in the University's Medical Scientist Training Program.

Master of Science

The Master of Science program in pharmacology requires a minimum of 30 s.h. of graduate credit. The program requires the following core courses.

PCOL:5135 (071:135) Principles of Pharmacology	1 s.h.
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PCOL:5136 (071:136) Pharmacogenetics and Pharmacogenomics	1 s.h.
PCOL:5137 (071:137) Neurotransmitters	1 s.h.
PCOL:6080 (071:204) Pharmacology Seminar	1 s.h.
PCOL:6090 (071:203) Graduate Research in Pharmacology	arr.
PCOL:6203 (071:302) Pharmacology for Graduate Students	6 s.h.
BIOC:5243 (099:243) Protein Structure, Function, and Regulation: Biophysical Chemistry Module 1	1 s.h.
BISC:5201 (156:201) Fundamentals of Gene Expression	1 s.h.
BISC:5203 (156:203) Fundamentals of Dynamic Cell Processes	1 s.h.
BISC:5204 (156:204) Biostatistics for Biomedical Research	1 s.h.
MPB:5153 (072:153) Graduate Physiology	4 s.h.

Students are expected to gain maximum experience in laboratory research while completing their course work. Satisfactory preparation and oral defense of a thesis based on the student's own research are required for completion of the program.

Doctor of Philosophy

The Doctor of Philosophy program in pharmacology requires a minimum of 72 s.h. of graduate credit. The program requires the following core courses.

PCOL:5135 (071:135) Principles of Pharmacology	1 s.h.
PCOL:5136 (071:136) Pharmacogenetics and Pharmacogenomics	1 s.h.
PCOL:5137 (071:137) Neurotransmitters	1 s.h.
PCOL:6080 (071:204) Pharmacology Seminar	1 s.h.
PCOL:6090 (071:203) Graduate Research in Pharmacology	arr.
PCOL:6203 (071:302) Pharmacology for Graduate Students	6 s.h.
PCOL:6207 (071:138) Ion Channels	1 s.h.
PCOL:6208 (071:208) G Proteins and G Protein-Coupled Receptors	1 s.h.
PCOL:6209 (071:209) Steroid Receptor Signaling	1 s.h.
PCOL:6250 (071:250) Advanced Problem Solving in Pharmacological Sciences	1 s.h.
BIOC:5243 (099:243) Protein Structure, Function, and Regulation: Biophysical Chemistry Module 1	1 s.h.
BISC:5201 (156:201) Fundamentals of Gene Expression	1 s.h.
BISC:5203 (156:203) Fundamentals of Dynamic Cell Processes	1 s.h.
BISC:5204 (156:204) Biostatistics for Biomedical Research	1 s.h.
MCB:6225 (142:225) Growth Factor Receptor Signaling	1 s.h.
MPB:5153 (072:153) Graduate Physiology	4 s.h.

Individual faculty research advisors may require additional courses.

During the first year of the program, students are required to work in three different faculty laboratories before selecting a laboratory in which to pursue thesis research. Students then are expected to gain maximum laboratory research experience while completing course work. The Ph.D. comprehensive examination (written and oral) is given at the end of the fourth semester. Satisfactory preparation and oral defense of the thesis complete the program.

There is no departmental foreign language requirement.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. They should have a g.p.a. of at least 3.00 and a combined verbal and quantitative score of at least 312 on the Graduate Record Examination (GRE) General Test. They should have completed undergraduate courses in chemistry, biology, biochemistry, and mathematics.

Admission to the graduate programs is determined by the faculty after receipt of a completed formal application and interview (if appropriate) by faculty members or other designated individuals. Each application is reviewed individually. Some standard admission criteria may be waived for applicants who possess outstanding credentials in other areas.

Financial Support

The department provides all Ph.D. students and some M.S. students with financial support in the form of stipends and tuition support. Support is renewed annually based on satisfactory progress toward meeting degree requirements.

Courses

PCOL:2120 (071:120) Drugs: Their Nature, Action, and Use 2 s.h.

Principles of drug action, toxicity; sedatives, stimulants, hallucinogens, narcotics, over-the-counter agents, antibiotics, oral contraceptives. Offered spring semesters. Recommendations: closed to Pharm.D. students.

PCOL:4130 (071:130) Drug Mechanisms and Actions 3 s.h.

Introduction to principles of pharmacology, pharmacologic actions of drugs. Offered spring semesters. Requirements: undergraduate biochemistry and physiology courses.

PCOL:4199 (071:199) Undergraduate Research in Pharmacology arr.

Experimental research under faculty supervision in department laboratories.

PCOL:5135 (071:135) Principles of Pharmacology 1 s.h.

Basic pharmacological principles underlying drug absorption, drug distribution throughout the body, drug metabolism, and drug elimination; how these processes determine drug dosing and the means by which dosing parameters are characterized; drug receptor interactions and their quantitation. Offered spring semesters.

PCOL:5136 (071:136) Pharmacogenetics and Pharmacogenomics 1 s.h.

Impact of genetic variation on the actions and metabolism of drugs; database search techniques to identify variants. Offered spring semesters. Prerequisites: PCOL:5135 (071:135). Recommendations: undergraduate or graduate biochemistry.

PCOL:5137 (071:137) Neurotransmitters 1 s.h.

Mechanisms of neurotransmission focusing on mechanisms of synthesis, regulation of release, mechanisms of action, means of degradation, and CNS pathways for major neurotransmitters; disease states involving various neurotransmitter systems. Offered spring semesters.

PCOL:6015 (071:215) Topics in Neuropharmacology 1 s.h.

Recent advances in neuropharmacology, developmental neurobiology, neuroendocrinology, and related neurosciences. Offered fall semesters.

PCOL:6020 (071:220) Topics in Pharmacogenomics 1 s.h.

Recent advances in pharmacogenomics, pharmacogenetics, and related genetic fields. Offered fall semesters.

PCOL:6025 (071:225) Topics in Cell Signaling and Cancer 1 s.h.

Recent advances in cell signaling mechanisms, mechanisms of cancer, cancer biology, and related sciences.

PCOL:6030 (071:231) Topics in Cardiovascular Pharmacology 1 s.h.

Recent advances in cardiovascular pharmacology, metabolic pharmacology, and related sciences. Offered spring semesters.

PCOL:6035 (071:235) Topics in Pain and Analgesia 1 s.h.

Recent advances in pain research, therapy.

PCOL:6080 (071:204) Pharmacology Seminar 1 s.h.

PCOL:6090 (071:203) Graduate Research in Pharmacology arr.

PCOL:6099 (071:210) Special Topics in Pharmacology arr.

PCOL:6203 (071:302) Pharmacology for Graduate Students 6 s.h.

Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: BIOC:5243 (099:243), BISC:5201 (156:201), BISC:5203 (156:203) and MPB:5153 (072:153).

PCOL:6204 (071:115) Pharmacology for Health Sciences: Nurse Anesthetist 5 s.h.

Principles of pharmacology; pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: ACB:6000 (060:270) or NURS:6000 (096:270). Requirements: enrollment in Anesthesia Nursing Program.

PCOL:6207 (071:138) Ion Channels 1 s.h.

Heuristic, semiquantitative approach to concepts in ion channel physiology and pharmacology; up-to-date physical principles, classification, and structure/function relationships for major voltage-gated ion channels that facilitate application of abstract concepts to physiological, pharmacological, and general biological problems. Offered spring semesters.

PCOL:6208 (071:208) G Proteins and G Protein-Coupled Receptors 1 s.h.

Structure and function of small molecular weight G proteins; heteromeric G proteins and G protein-coupled receptors. Offered spring semesters. Prerequisites: BIOC:5243 (099:243), BISC:5201 (156:201), and BISC:5203 (156:203). Recommendations: MCB:6225 (142:225).

PCOL:6209 (071:209) Steroid Receptor Signaling 1 s.h.

Structure-function relationship and genomic and nongenomic actions of the steroid hormone receptor family; basis for actions of novel new ligands on these receptors. Offered spring semesters. Same as MPB:6209 (072:209), NSCI:6209 (132:209).

PCOL:6250 (071:250) Advanced Problem Solving in Pharmacological Sciences 1 s.h.

Discussion of methodologies, strategies, and approaches commonly used to solve pharmacological sciences problems; use of interpersonal problem-solving skills to develop experimental study plans for solving contemporary scientific problems in pharmacology.

PCOL:8180 (071:180) Pharmacology for Pharmacy Students I 3 s.h.

Principles of pharmacology, toxicology; drug and toxic mechanisms; systemic and organ-specific pharmacologic and toxic responses. Offered spring semesters. Requirements: first-year Pharm.D. enrollment or graduate standing.

PCOL:8181 (071:181) Pharmacology for Pharmacy Students II 3 s.h.

Continuation of PCOL:8180 (071:180). Offered fall semesters. Requirements: second-year Pharm.D. enrollment or graduate standing.

PCOL:8203 (071:105) Pharmacology for Health Sciences: Medical 5 s.h.

Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: MED:8112 (050:240). Requirements: M.D. enrollment.

PCOL:8225 (071:125) Pharmacology for Health Sciences: Physician Assistant Students 6 s.h.

Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: BIOC:8204 (099:164). Requirements: Physician Assistant Studies and Services enrollment.

PCOL:8240 (071:111) Basic Pharmacology for Dental Students 3 s.h.

Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered spring semesters. Prerequisites: BIOC:8101 (099:161) and MPB:8115 (072:152). Requirements: D.D.S. enrollment.

Physical Therapy and Rehabilitation Science

Chair

- Richard K. Shields

Professors

- Annunziato Amendola (Physical Therapy and Rehabilitation Science/Health and Human Physiology/Orthopaedics and Rehabilitation), David Asprey (Physical Therapy and Rehabilitation Science/Stead Family Department of Pediatrics/Physician Assistant Studies and Services), Warren Darling (Health and Human Physiology/Physical Therapy and Rehabilitation Science), Richard K. Shields, Kathleen A. Sluka

Associate professors

- Joseph Chen (Physical Therapy and Rehabilitation Science/Orthopaedics and Rehabilitation), Kelly Cole (Health and Human Physiology/Physical Therapy and Rehabilitation Science), Laura A. Frey Law, Barbara Rakel (Physical Therapy and Rehabilitation Science/Nursing), Glenn N. Williams, Brian R. Wolf (Physical Therapy and Rehabilitation Science/Orthopaedics and Rehabilitation), H. John Yack

Assistant professors

- Darren P. Casey, Stacey L. DeJong

Lecturer

- Byron Bork

Associates

- Marcie Becker, Kelly Sass, Carol Vance, David Williams

Adjunct associate professor

- Bryon Ballantyne

Adjunct assistant professors

- Pamela A. Duffy, Kim Eppen, Masaki Iguchi

Adjunct associates

- Lisa Ainsworth, Amy Baker, Rhonda Barr, Sarah Bengtson, Randy Boldt, Michelle Borgwardt, Molly Camacho, Leslie Carpenter, Nicholas Cooper, Wendy Craft, Dana Dailey, Matt Ehler, Richard Evans, Robb Gardner, Jerry F. Gillon, Catherine Hahn, Jaclyn Hall, Scott Harms, James Holte, Michael Horsfield, Melanie House, Alexas Ihrig, Judy Jicinsky, Patrick Johnston, Carol Kelderman, Janine Kelly, Lisabeth Kestel, Jill Kilkenny, Amy Kimball, Kevin Komenda, Paul Kraushaar, Bret Kruthoff, Tami Lansing, Ken Leo, Joseph A. Leone, Shannon Miers, Bruce Miller, Joy Miller, Shelley Mockler, Joseph Nelson, Debra Parrott, Erin Pazour, Andrew Phillips, Michael Reiling, Elayne Sexsmith, Michael Shaffer, Mary Shepherd, Kolleen Shields, Jamie Smelser, Susan Sohraweide, Sherry Steffen, Travis Sterling, Patrick Swancutt, Margaret Thomas, Blake Tiedtke, Amy Uitermark, Barbara Van Gorp, Elizabeth Vermeer

Professors emeriti

- Thomas M. Cook, David H. Nielsen, Gary L. Smidt, Gary L. Soderberg

Graduate degrees: D.P.T.; M.A. in physical therapy; Ph.D. in physical rehabilitation science

Web site: <http://www.medicine.uiowa.edu/pt/>

Physical therapists provide services to patients and clients who have impairments, functional limitations, disabilities, pain, or changes in physical function resulting from injury, disease, or other causes. Physical therapists practice and collaborate with a variety of health professionals. In the area of health promotion and wellness, they provide screening examinations, prescribe fitness programs, and educate the public regarding healthy lifestyles. Research, teaching, consultation, and administration also are parts of a physical therapist's professional role.

A wide variety of opportunities exist for professional practice in inpatient, outpatient, and community-based settings. Examples include practice in general or specialized hospitals, programs for children with disabilities, private physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, home health agencies, school systems, fitness centers, and athletic facilities. Research and teaching careers in academic institutions are available for those who earn a Ph.D. in rehabilitation science.

The Department of Physical Therapy and Rehabilitation Science is located in the Carver College of Medicine on the University of Iowa health sciences campus, which includes University of Iowa Hospitals and Clinics, one of the nation's largest university-owned teaching hospitals. The department has seven state-of-the-art independent research laboratories and is well equipped for classroom and laboratory instruction and innovative research. Students have access to faculty members in the basic sciences and medicine, basic sciences courses, clinical specialty expertise, and innovative learning experiences associated with a medical college environment.

Graduate Programs of Study

- Doctor of Physical Therapy
- Master of Arts in physical therapy
- Doctor of Philosophy in physical rehabilitation science

The Doctor of Physical Therapy (D.P.T.) is the entry-level professional degree for physical therapists. The Master of Arts in physical therapy is granted to students working toward the Doctor of Philosophy in physical rehabilitation science. Each year 36 students are admitted to the D.P.T. program and around 20 students are enrolled in the Ph.D. program.

Doctor of Physical Therapy

The Doctor of Physical Therapy requires a minimum of 104 s.h. and is completed in two and a half years. The program is fully accredited by the Commission on Accreditation in Physical Therapy Education. Satisfactory completion of the professional program qualifies candidates to take the National Physical Therapy Examination for licensure to practice. The minimum passing score on the exam is the same in all jurisdictions.

Technical Standards for Graduation

Doctor of Physical Therapy graduates must possess and demonstrate the physical and cognitive skills and character attributes required to provide physical therapy services in a broad variety of clinical situations and

environments. All D.P.T. candidates must perform, with or without reasonable accommodation, the following skills safely, effectively, efficiently, and in compliance with the legal and ethical standards set by the American Physical Therapy Association Code of Ethics and Standards of Practice:

- communicate effectively through appropriate verbal, nonverbal, and written communication with patients, families, and others;
- demonstrate ability to apply universal precautions;
- utilize appropriate tests and measures in order to perform a physical therapy examination; examples include, but are not limited to, examination and evaluation of cognitive/mental status, vital signs, skin and vascular integrity, wound status, endurance, segmental length, girth, volume, sensation, strength, tone, reflexes, movement patterns, coordination, balance, developmental stage, soft tissue, joint motion/play, cranial and peripheral nerve function, posture, gait, functional abilities, assistive devices fit/use, psychosocial needs, and the pulmonary system;
- demonstrate the ability to reach diagnostic and therapeutic judgments through analysis and synthesis of data gathered during patient/client examination in order to develop an appropriate plan of care;
- perform fully, or in a reasonably independent manner, physical therapy interventions appropriate to the patient's status and desired goals;
- apply teaching/learning theories and methods in health care and community environments;
- accept criticism and respond by appropriate behavior modification;
- possess the perseverance, diligence, and consistency to complete the physical therapy curriculum and enter the practice of physical therapy.

Applicants with health conditions or disabilities who need accommodation to meet the technical standards for graduation should contact the University's Student Disability Services office.

Curriculum

The Doctor of Physical Therapy degree requires the following course work (total of 104 s.h.).

First Summer Session

PTRS:5101 (101:140) Introduction to Physical Therapy Practice	2 s.h.
PTRS:5102 (101:141) Principles of Physical Therapy I	2 s.h.
PTRS:5205 (101:205) Health Promotion and Wellness	3 s.h.

First Semester (Fall)

PTRS:5100 (101:120) Professional Issues and Ethics	1 s.h.
PTRS:5103 (101:142) Principles of Physical Therapy II	2 s.h.
PTRS:5144 (101:244) Interprofessional Education I: Team-Based Approach to Health Care	1 s.h.
PTRS:5209 (101:209) Surface Anatomy	1 s.h.
PTRS:5210 (101:210) Kinesiology and Pathomechanics	4 s.h.
PTRS:5235 (101:235) Case-Based Learning I	1 s.h.

PTRS:5790 (101:189) Clinical Education I	1 s.h.
ACB:5108 (060:108) Human Anatomy	5 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.

Second Semester (Spring)

PTRS:5131 (101:131) Therapeutic Physical Agents	2 s.h.
PTRS:5201 (101:185) Musculoskeletal Therapeutics I	3 s.h.
PTRS:5206 (101:206) Cardiopulmonary Therapeutics	3 s.h.
PTRS:5215 (101:201) Applied Clinical Medicine	2 s.h.
PTRS:5236 (101:236) Case-Based Learning II	1 s.h.
PTRS:5791 (101:190) Clinical Education II	1 s.h.
ACB:8114 (060:234) Medical Neuroscience	4 s.h.

Second Summer Session

PTRS:6120 (101:119) Physical Therapy Management and Administration I	2 s.h.
PTRS:6143 (101:143) Selected Topics in Physical Therapy Practice	2 s.h.
PTRS:6176 (101:176) Pharmacology for Physical Therapists	3 s.h.
PTRS:6794 (101:194) Clinical Internship	3 s.h.

Third Semester (Fall)

PTRS:6122 (101:122) Psychosocial Aspects of Patient Care	1 s.h.
PTRS:6134 (101:134) Physical Therapy Management of Integumentary System	2 s.h.
PTRS:6145 (101:245) Interprofessional Education II: Teaching Neural and Musculoskeletal Evaluation Principles	1 s.h.
PTRS:6170 (101:170) Prosthetics and Orthotics	2 s.h.
PTRS:6200 (101:200) Pediatric Physical Therapy	2 s.h.
PTRS:6202 (101:202) Musculoskeletal Therapeutics II	3 s.h.
PTRS:6224 (101:224) Activity-Based Neural and Musculoskeletal Plasticity in Health Care	4 s.h.
PTRS:6237 (101:237) Service Learning I	1 s.h.
PTRS:6250 (101:248) Research in Physical Therapy	2 s.h.

Fourth Semester (Spring)

PTRS:6121 (101:121) Physical Therapy Management and Administration II	1 s.h.
PTRS:6133 (101:133) Pain Mechanisms and Treatment	2 s.h.
PTRS:6172 (101:172) Radiology/Imaging for Physical Therapists	2 s.h.
PTRS:6173 (101:173) Differential Diagnosis in Physical Therapy	2 s.h.
PTRS:6203 (101:203) Musculoskeletal Therapeutics III	4 s.h.
PTRS:6204 (101:151) Progressive Functional Exercise	2 s.h.
PTRS:6225 (101:225) Neuromuscular Therapeutics	3 s.h.
PTRS:6238 (101:238) Service Learning II	1 s.h.

PTRS:6251 (101:251) Critical Inquiry in Physical Therapy I	2 s.h.
PTRS:6792 (101:191) Clinical Education III	1 s.h.

Third Summer Session

PTRS:6794 (101:194) Clinical Internship	4 s.h.
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Fifth Semester (Fall)

PTRS:6252 (101:252) Critical Inquiry in Physical Therapy II	1 s.h.
PTRS:6794 (101:194) Clinical Internship	8 s.h.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. They must have completed a baccalaureate degree from an accredited institution in the United States, or anticipate completing the degree before enrolling in the D.P.T. program. They must have a cumulative g.p.a. of at least 3.00 and must have completed the following prerequisite course work, preferably with a g.p.a. of at least 3.00. All science courses must include the appropriate laboratory instruction. The prerequisite courses must have been taken for a letter grade. Credit awarded through advanced placement testing may be applied only to the mathematics requirement.

Biological sciences: a complete introductory course in principles of general biology or zoology and advanced course work in biology or zoology (for which an introductory course is prerequisite) equivalent to 12 s.h.

Physics: a complete introductory course equivalent to 8 s.h.

Chemistry: a complete introductory course equivalent to 8 s.h.

Physiology: a systemic human physiology course equivalent to 3 s.h.

Psychology: courses equivalent to 6 s.h.

Mathematics: a college-level mathematics course, at the level of trigonometry or higher, equivalent to 3 s.h.

Statistics: a statistical methods course equivalent to 3 s.h.

All applicants must take the Graduate Record Examination (GRE) General Test. They must take the test early enough for their scores to be received by the University in time for the November 1 application deadline.

Applications are submitted online through the Physical Therapist Centralized Application Service (PTCAS). PTCAS allows applicants to use a single application and one set of materials to apply to multiple physical therapy programs. Once the application portfolio is complete, PTCAS forwards it to The University of Iowa.

Personal interviews are required of applicants selected for consideration by the admissions committee. Interviews are conducted at The University of Iowa. The physical therapy admissions committee selects applicants who appear to be best qualified for the study and practice of the profession. Some preference is given to Iowa residents.

Applications are accepted from July 1 to November 1 for entry the following summer. Prospective students should apply as early as possible.

EARLY ADMISSION

The D.P.T. program offers an early admission plan for highly qualified applicants. Early admission applicants must have outstanding grade-point averages, generally 3.75 or higher. They also must have Graduate Record Examination (GRE) General Test scores at or above the 50th percentile for all sections. Application materials are the same as those for regular admission. Application deadline for the early admission plan is September 15; applicants are notified of admission by December 1. Those who are interviewed but are not selected for early admission are automatically placed in the final general applicant pool. Contact the Department of Physical Therapy and Rehabilitation Science for more information.

Background Checks

Enrollment in the Doctor of Physical Therapy program is contingent on a successful criminal background check. Drug screening may be required for some clinical rotations.

Expenses

Applicants admitted to the D.P.T. program must make an advance tuition payment of \$300, which is forfeited if the applicant does not enroll. In addition to paying University tuition and fees, students are assessed laboratory fees for the human anatomy and medical neuroscience courses and are responsible for purchasing supplies, such as lab coats, patient evaluation kits, and course syllabi.

All students are required to comply with the pre-entry and periodic health screening program developed by Student Health & Wellness in cooperation with University of Iowa Hospitals and Clinics. Students must pay for the health screenings. Students also are required to have health insurance.

Ph.D. in Physical Rehabilitation Science

The Doctor of Philosophy in physical rehabilitation science requires a minimum of 72 s.h. of graduate credit. The program is designed to advance the student's ability to independently develop and carry out research that establishes the scientific basis for prevention, evaluation, and treatment of impairments, functional limitations, and disability. The curriculum is flexible enough to accommodate research focusing on basic, applied, or clinical studies in the rehabilitation sciences. Students have access to the program's research laboratories (see "Research Facilities" later in this section).

Graduates who complete the program are prepared for academic appointments that emphasize research, scholarship, and teaching. They possess:

- theoretical and scientific knowledge to perform basic, applied, or clinical-level original research that leads to scientific presentations, publication in peer-reviewed journals, and competition for extramural funding through scientific grant writing;
- breadth of knowledge in exercise physiology, biomechanic, neuroscience, or motor control specialty areas as they relate to impairment, functional limitation, and disability; and

- theoretical and practical skills required for college or university teaching at the professional entry and advanced graduate levels.

Curriculum

Ph.D. students complete a minimum of 72 s.h. beyond the baccalaureate. Each student and his or her faculty advisor develop an individualized study plan. A preliminary study plan is developed within the first 9 s.h. of graduate study; a final plan is submitted to the Graduate College when the Ph.D. comprehensive examination is scheduled.

To ensure breadth of knowledge, all students complete specific core, research, and scientific specialty area content courses. Elective courses are selected to provide in-depth study of the specialty; they are complemented by an advanced seminar course specific to the student's specialty and taken in preparation for the comprehensive examination.

Students must satisfactorily complete the comprehensive examination, which is taken after all required course work is completed. Doctoral study culminates with 12 s.h. of thesis research and an oral examination.

GENERAL CORE REQUIREMENT

Ph.D. students must complete the following core requirements. Exception: the capstone course PTRS:7900 (101:300) Rehabilitation Research Capstone Project is recommended but not required for students who enter the program with a master's or doctoral-level degree; however, it is required for all students who enter the program with a bachelor's degree.

All of these:

PTRS:7812 (101:212) Biomedical Instrumentation and Measurement	3 s.h.
PTRS:7820 (101:220) Seminar in Rehabilitation Science (taken twice)	2 s.h.
PTRS:7826 (101:326) Scientific Writing in Rehabilitation Science	3 s.h.
PTRS:7880 (101:280) Teaching Practicum	arr.
PTRS:7900 (101:300) Rehabilitation Research Capstone Project	arr.
GRAD:7270 (650:270) Principles of Scholarly Integrity	1 s.h.
GRAD:7604 (650:604) Principles of Scholarly Integrity	0 s.h.
GRAD:7614 (650:614) Principles of Scholarly Integrity	0 s.h.
PSQF:7385 (07P:385) Teaching and Learning in Higher Education	3 s.h.

One of these:

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.

One of these:

BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
STAT:6513 (22S:148) Intermediate Statistical Methods	4 s.h.

RESEARCH REQUIREMENT

Students complete at least 24 s.h. from the following.

PTRS:7884 (101:284) Practicum in Research	arr.
PTRS:7895 (101:214) Advanced Seminar in Rehabilitation Science	3 s.h.
PTRS:7925 (101:325) Independent Study	arr.
PTRS:7927 (101:327) Research in Rehabilitation Science	arr.
PTRS:7990 (101:301) Thesis: Rehabilitation Science	12 s.h.

SPECIALTY CONTENT REQUIREMENT

Each student must complete at least 9 s.h. in his or her scientific specialty area. Students may choose courses from the following list, but other courses suited to the student's background knowledge and interest area are considered.

Anatomy and Cell Biology

ACB:8401 (060:232) Advanced Human Anatomy	arr.
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Epidemiology

EPID:6900 (173:290) Design of Intervention and Clinical Trials	3 s.h.
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Health and Human Physiology

HHP:4130 (027:155) Skeletal Muscle Physiology	3 s.h.
HHP:4220 (027:197) Biomechanics of Human Motion	3 s.h.
HHP:4300 (027:160) Neural Control of Posture and Movement	3 s.h.
HHP:4410 (027:141) Exercise Physiology	3 s.h.
HHP:4460 (027:145) Cardiovascular Physiology	3 s.h.
HHP:6300 (027:314) Seminar in Motor Control	1 s.h.

Neuroscience

ACB:8114 (060:234) Medical Neuroscience	4 s.h.
NSCI:7180 (132:180) Neurobiology	4 s.h.
NSCI:7235 (132:235) Neurobiology of Disease	3 s.h.

Occupational and Environmental Health

OEH:4310 (175:190) Occupational Ergonomics I	3 s.h.
OEH:6310 (175:295) Clinical Ergonomics	3 s.h.
OEH:6320 (175:294) Occupational Ergonomics II	3 s.h.

Pharmacology

PCOL:5137 (071:137) Neurotransmitters	1 s.h.
PCOL:6035 (071:235) Topics in Pain and Analgesia	1 s.h.
PCOL:6250 (071:250) Advanced Problem Solving in Pharmacological Sciences	1 s.h.

Physical Therapy

PTRS:5210 (101:210) Kinesiology and Pathomechanics	4 s.h.
PTRS:6224 (101:224) Activity-Based Neural and Musculoskeletal Plasticity in Health Care	4 s.h.

PTRS:7875 (101:275) Analysis of Activity-Based Neural and Musculoskeletal Plasticity	3 s.h.
PTRS:7885 (101:285) Biomechanical Analysis in Rehabilitation	3 s.h.
PTRS:7899 (101:899) Introduction to Pain: Overview of Theories, Concepts, and Mechanisms	1 s.h.
PTRS:7901 (101:901) Clinical Correlates of Pain: Syndromes and Management	1 s.h.
PTRS:7902 (101:902) Molecular, Cellular, and Neural Mechanisms of Pain	1 s.h.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. They should have a cumulative g.p.a. of at least 3.00 and scores at or above the 50th percentile for each section of the Graduate Record Exam (GRE) General Test. A minimum of two years of clinical experience is desirable.

Applicants whose first language is not English must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Application materials must include a complete Graduate College application form, test scores, transcripts, three letters of recommendation, and a statement of purpose. Completed applications should be sent to the Department of Physical Therapy and Rehabilitation Science.

Personal interviews are required of all applicants selected for consideration by the admissions committee. On-campus interviews are preferred, but telephone interviews may be substituted when necessary.

Application deadlines are October 15 for spring semester entry (notification by December 15); March 15 for summer entry (notification by May 15); and May 15 for fall semester entry (notification by July 15).

Financial Support

A number of research assistantships are available for Ph.D. students. Faculty advisors provide guidance for students seeking external scholarship support through foundations and federal programs that support Ph.D. training.

Research Facilities

The department's state-of-the-art research facilities include the Orthopedic Gait Analysis Laboratory and a spinal cord research laboratory at University Hospitals and Clinics; the Human Movement Control/Performance Laboratory; the Musculoskeletal Biomechanics and Sports Medicine Research Laboratory; the Neurobiology of Pain Laboratory; the Neuromuscular Biomechanics Laboratory; the Human Integrative and Cardiovascular Physiology Laboratory; and the Applied Neuroplasticity Laboratory. Use of other laboratories may be arranged.

Courses

PTRS:5100 (101:120) Professional Issues and Ethics	1 s.h.
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Evolution of physical therapy and rehabilitation science as a profession; contemporary issues in education and practice; ethical theory and approaches to analyzing and acting on ethical problems; professional and peer relationships.

PTRS:5101 (101:140) Introduction to Physical Therapy Practice	2 s.h.
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Lectures, case presentations, and group activities using the Guide to Physical Therapist Practice; elements of the patient/client management model, concepts of the disablement model, preferred practice patterns as applied in clinical problems; importance of professionalism, professional socialization; introduction to evidence-based practice; competence in medical terminology.

PTRS:5102 (101:141) Principles of Physical Therapy I	2 s.h.
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Patient management skills: interviewing, medical history taking, vital signs, positioning, draping, transfers, body mechanics, assisted gait, wheelchairs, and negotiation of architectural barriers.

PTRS:5103 (101:142) Principles of Physical Therapy II	2 s.h.
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Continuation of PTRS:5102 (101:141); expansion of existing skills and provides new learning experiences in documentation, assessment of joint range of motion/ goniometry, manual muscle testing, preambulatory intervention strategies, gait analysis; musculoskeletal, neuromuscular, and integumentary systems review. Prerequisites: PTRS:5102 (101:141).

PTRS:5131 (101:131) Therapeutic Physical Agents	2 s.h.
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Theoretical and practical applications for safe, effective use of physical agents (superficial and deep heat, cold, hydrotherapy), electrotherapeutic modalities (biofeedback, NMES, TENS, iontophoresis); massage and soft tissue mobilization; emphasis on problem solving, clinical decision making.

PTRS:5144 (101:244) Interprofessional Education I: Team-Based Approach to Health Care	1 s.h.
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Development and interaction within small group of interprofessional students from physical therapy, medicine, pharmacy, dentistry, nursing, and public health; deans and faculty from each college facilitate; three-hour initial session for all disciplines followed by informal monthly electronic scenarios, second formal meeting followed by informal monthly electronic discussions.

PTRS:5201 (101:185) Musculoskeletal Therapeutics I	3 s.h.
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Musculoskeletal techniques and biomechanical principles applied to assessment and evaluation of common orthopedic problems of the spine; problem solving, case-study approach to clinical methods, skill acquisition.

PTRS:5205 (101:205) Health Promotion and Wellness	3 s.h.
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Overview of health promotion, fitness, and wellness strategies, including information on levels of health promotion, risk assessment, applied physiology (skeletal muscle, energy metabolism, and physiological responses to exercise), exercise testing and training guidelines, body composition assessment, and development of individual weight management and exercise training programs; classroom and laboratory experiences.

PTRS:5206 (101:206) Cardiopulmonary Therapeutics 3 s.h.

Cardiorespiratory anatomy, physiology, and application of basic concepts, techniques in management of patients with acute and chronic cardiac, pulmonary disorders; laboratories.

PTRS:5209 (101:209) Surface Anatomy 1 s.h.

Laboratory teaching activities that parallel the human anatomy course; observation, palpation, and problem solving skills; upper- and lower-limb, head and neck, thorax, and abdomen.

PTRS:5210 (101:210) Kinesiology and Pathomechanics 4 s.h.

Normal and pathological movement based on understanding of muscle mechanics, segment and joint mechanics, muscle function; instructor- and student-centered learning experiences; EMG laboratories.

PTRS:5215 (101:201) Applied Clinical Medicine 2 s.h.

Pathological disorders frequently encountered by physical therapists in clinical practice, addressed by physicians and health professionals who are not physical therapists; physical therapy management.

PTRS:5235 (101:235) Case-Based Learning I 1 s.h.

Small group case study seminars and simulated patient instructor learning experiences; clinical problems coordinated with concurrent courses; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. First in a two-course sequence.

PTRS:5236 (101:236) Case-Based Learning II 1 s.h.

Small-group case study seminars and simulated patient instructor learning experiences; clinical problems coordinated with concurrent courses taken in curriculum; student centered, problem-based learning format; emphasis on evidence-based practice objectives. Second in a two-part series of integrated courses. Prerequisites: PTRS:5235 (101:235).

PTRS:5790 (101:189) Clinical Education I 1 s.h.

Integrated clinical experiences in area physical therapy clinics; overview of the diverse nature of practice through half- or full-day experience; basic skills in examination, intervention, documentation.

PTRS:5791 (101:190) Clinical Education II 1 s.h.

Continuation of PTRS:5790 (101:189); integrated half-day clinical experiences. Prerequisites: PTRS:5790 (101:189).

PTRS:6120 (101:119) Physical Therapy Management and Administration I 2 s.h.

The changing U.S. health care system; access to physical therapy services, reimbursement to health care providers, mechanisms for controlling costs while providing quality care; clinical vignettes, small group problem solving.

PTRS:6121 (101:121) Physical Therapy Management and Administration II 1 s.h.

Principles of management in physical therapy practice; historical perspective, current health care environment; business principles; marketing, managing risk, medical/legal concerns, preparing for the future.

PTRS:6122 (101:122) Psychosocial Aspects of Patient Care 1 s.h.

Emotional reactions to disability, psychosocial aspects of disability as they relate to patient-physical therapist interaction; specific problems of the angry, non-compliant, or chronic-pain patient; complementary roles of other health professionals; cultural competence in professional behavior and patient treatment; importance of holistic health care.

PTRS:6133 (101:133) Pain Mechanisms and Treatment 1-2 s.h.

Introduction to basic science mechanisms, assessment, and management of pain; basic science mechanism involved in transmission and perception of painful stimuli after tissue injury, assessment and physical therapy management of pain; emphasis on scientific principles and published literature to support treatment techniques.

PTRS:6134 (101:134) Physical Therapy Management of Integumentary System 2 s.h.

Overview of physical therapy examination and management of the integumentary system; wound pathology, diagnosis associated with the integumentary system, inflammation and repair, examination and reexamination techniques, documentation, clinical decision making, lecture and laboratory formats; interventions, including patient/client information, physical agents, electrotherapy, wound dressing.

PTRS:6143 (101:143) Selected Topics in Physical Therapy Practice 2 s.h.

Specialty topics in physical therapy; geriatrics, wheelchair seating/positioning, women's health, home health, industrial physical therapy; alternative or new treatments; guest lectures, lab component.

PTRS:6145 (101:245) Interprofessional Education II: Teaching Neural and Musculoskeletal Evaluation Principles 1 s.h.

Active involvement in integrating anatomy, kinesiology, and movement control principles as applied to a select group of pathologies with the goal of being able to teach content area; preassigned student group leaders; emphasis on student as active learner; opportunity to teach academic areas previously studied in first and second years of curriculum; may include teaching several of these musculoskeletal principles in a first-year medical student anatomy course.

PTRS:6170 (101:170) Prosthetics and Orthotics 2 s.h.

Physical therapy management and assessment of patients in need of prosthetic and orthotic devices; principles and components of prosthetic and orthotic design and use.

PTRS:6172 (101:172) Radiology/Imaging for Physical Therapists 2 s.h.

Basic principles and procedures for acquisition and interpretation of radiology and imaging in clinical practice and research; plain film radiographs, CT, MRI, other common imaging modalities; case-based, multidisciplinary approach.

PTRS:6173 (101:173) Differential Diagnosis in Physical Therapy 2 s.h.

Use of physical therapy examination and evaluation skills to diagnose physical therapy problems; focus on use of good clinical decision-making skills when analyzing a patient's history and administering physical therapy tests and measures to confirm or rule out differential diagnoses; components of the medical examination; importance of collaboration between therapists and other health professionals; interactive case studies presented by clinical experts.

PTRS:6176 (101:176) Pharmacology for Physical Therapists 3 s.h.

Contemporary pharmacology; overview of basic pharmacokinetic and pharmacodynamic principles; relation of drug therapy to therapeutic interventions provided by physical therapists; small group clinical case presentations.

PTRS:6200 (101:200) Pediatric Physical Therapy 2 s.h.

Preparation for physical therapy practice in pediatric settings using interdisciplinary family-centered practice; normal and abnormal development, standardized assessment, service-delivery settings, interventions, management strategies specific to pediatrics.

PTRS:6202 (101:202) Musculoskeletal Therapeutics II 3 s.h.

Pathology, assessment, management of orthopedic disorders of the upper quarter; problem-solving approach to evaluation and management of patients with musculoskeletal conditions. Prerequisites: PTRS:5201 (101:185).

PTRS:6203 (101:203) Musculoskeletal Therapeutics III 4 s.h.

Pathology, assessment, management of orthopedic disorders of the lower quarter; problem-solving approach to evaluation and management of patients with musculoskeletal conditions. Prerequisites: PTRS:6202 (101:202).

PTRS:6204 (101:151) Progressive Functional Exercise 2 s.h.

Therapeutic exercise options (e.g., isometrics, isotonic, isokinetic, plyometric, endurance exercises, stretching exercises) and training principles; application to functional activities, including those of daily living, work, recreation, and sport; laboratory component.

PTRS:6224 (101:224) Activity-Based Neural and Musculoskeletal Plasticity in Health Care 4 s.h.

Examination of neural, muscular, and skeletal plasticity to increased and decreased use in normal and pathological states (chronic inactivity, obesity, metabolic syndromes, orthopedic and neurological injuries); principles of genetic regulation with physical activity including underlying mechanisms contributing to acute and chronic adaptations of muscle, spinal circuitry, and supra-spinal centers; integration of movement control concepts through contemporary papers evaluating short and long latency reflexes, posture and balance control, spasticity, and motor learning in individuals with acute and chronic perturbations to the nervous system.

PTRS:6225 (101:225) Neuromuscular Therapeutics 3 s.h.

Application of clinical neuroscience knowledge and motor control and motor learning concepts to the practice of neurological physical therapy; emphasis on diagnosis and therapeutic intervention for persons with central nervous system dysfunction of adult onset. Prerequisites: PTRS:6224 (101:224).

PTRS:6237 (101:237) Service Learning I 1 s.h.

Service-learning work experience with community partners; students develop individual learning goals for these experiences; classroom reflection on service activities, experiences with elderly and/or disabled, and social responsibility, advocacy, and professionalism in physical therapy; written reflection assignments. First in a two-course sequence.

PTRS:6238 (101:238) Service Learning II 1 s.h.

Service-learning work experience with community partners; students develop individual learning goals for these experiences; classroom reflection on service activities, experiences with elderly and/or disabled, and social responsibility, advocacy, and professionalism in physical therapy; written reflection assignments. Second in a two-course sequence. Prerequisites: PTRS:6237 (101:237).

PTRS:6250 (101:248) Research in Physical Therapy 2 s.h.

Topics relevant to evidence-based practice and research design; identification of appropriate questions for research and clinical applications, location and evaluation of available evidence, identification of issues that affect validity of research designs, interpretation of basic statistical analyses.

PTRS:6251 (101:251) Critical Inquiry in Physical Therapy I 2 s.h.

Experience conducting group research projects under faculty supervision; data collection and analysis, manuscript preparation, oral defense of research findings during a formal poster presentation. Prerequisites: PTRS:6250 (101:248).

PTRS:6252 (101:252) Critical Inquiry in Physical Therapy II 1 s.h.

Principles and procedures learned in PTRS:6250 (101:248) and PTRS:6251 (101:251) applied to a clinical setting; students write and present a case report with an evidence-based practice focus, using a clinical case from their final internships. Requirements: Physical Therapy and Rehabilitation Science Program enrollment.

- PTRS:6792 (101:191) Clinical Education III** 1 s.h.
Two-week, full-time clinical experience in physical therapy clinics in Iowa, under the guidance of physical therapists; theory and practice of physical therapy procedures, competence building in basic skills. Prerequisites: PTRS:5791 (101:190).
- PTRS:6794 (101:194) Clinical Internship** arr.
Full-time clinical education divided among varied settings; development of competence in independent examination, evaluation, and treatment of patients under supervision of clinical faculty. Requirements: Physical Therapy and Rehabilitation Science Program enrollment.
- PTRS:7812 (101:212) Biomedical Instrumentation and Measurement** 3 s.h.
Introduction to biomedical instrumentation and measurement; understanding sources of error and noise in biomedical research applications; basic circuit analysis, calibration of measurement tools, A/D conversion, digital filtering; lab components. Offered fall semesters of even years.
- PTRS:7820 (101:220) Seminar in Rehabilitation Science** 1 s.h.
Exploration of research related to rehabilitation science; lectures by faculty, graduate students, and guest scholars with expertise in areas relevant to rehabilitation science (e.g., neuroscience, physiology, medicine, engineering, pharmacology, integrated physiology).
- PTRS:7826 (101:326) Scientific Writing in Rehabilitation Science** 3 s.h.
Knowledge of and experience related to scientific writing, critical review of scientific literature, publication in the biomedical sciences, thesis/dissertation writing, grant writing, scientific presentation, writing used in academic and scientific careers.
- PTRS:7875 (101:275) Analysis of Activity-Based Neural and Musculoskeletal Plasticity** 3 s.h.
Examination of neural, muscular, and skeletal plasticity to increased/decreased use in normal and pathological states (chronic inactivity, obesity, metabolic syndromes, orthopedic and neurological injuries); genetic regulation with physical activity and underlying mechanisms contributing to acute and chronic adaptations of muscle, spinal circuitry, and supra-spinal centers; integration of movement control concepts through contemporary papers evaluating short and long latency reflexes, posture and balance control, spasticity, and motor learning in individuals with acute and chronic perturbations to the nervous system; individual research projects.
- PTRS:7880 (101:280) Teaching Practicum** arr.
Individual instruction, observation, experimentation in teaching, guidance, analysis of evaluation processes in Physical Therapy and Rehabilitation Science Program.
- PTRS:7884 (101:284) Practicum in Research** arr.
Laboratory experiences connected with investigative process; individual instruction, observation, activities in methodological development, data acquisition, data analysis aspects of research.
- PTRS:7885 (101:285) Biomechanical Analysis in Rehabilitation** 3 s.h.
Assessment of pathological movement through human movement analysis techniques, including link segment modeling and analysis, mechanical energy and power analysis, electromyography and muscle modeling.
- PTRS:7895 (101:214) Advanced Seminar in Rehabilitation Science** arr.
Current status of research for biological, mechanical, psychological components pertinent to cardiopulmonary, musculoskeletal, neuromuscular areas of rehabilitation science; preparation for comprehensive exam.
- PTRS:7899 (101:899) Introduction to Pain: Overview of Theories, Concepts, and Mechanisms** 1 s.h.
Overview of pain concepts and mechanisms; general overview of pain, models of pain, peripheral and central mechanisms, and pain inhibition. Requirements: prior neuroscience course.
- PTRS:7900 (101:300) Rehabilitation Research Capstone Project** arr.
Specific phases of the research process; development of a research question and associated hypotheses, collection and analysis of data, interpretation and discussion of the information's meaning; presentation to sponsoring mentor's laboratory/program, and written document.
- PTRS:7901 (101:901) Clinical Correlates of Pain: Syndromes and Management** 1 s.h.
Common pain conditions and management of pain using an interdisciplinary focus; lectures by University of Iowa Hospitals and Clinics clinicians on a variety of acute and chronic pain conditions and management approaches. Requirements: prior neuroscience course.
- PTRS:7902 (101:902) Molecular, Cellular, and Neural Mechanisms of Pain** 1 s.h.
Basic science mechanisms of pain and pain modulation; understanding molecular basis for pain in nociceptive afferents (peripheral sensitization), underlying molecular and neuronal mechanisms of central processing of pain (central sensitization), cortical pain processing, animal and human experimental pain models; readings from past and current literature. Prerequisites: PTRS:7901 (101:901). Requirements: prior neuroscience course.
- PTRS:7903 (101:903) Rehabilitation Management of Pain** 1 s.h.
Basic principles of rehabilitation for pain control including education, exercise, and electrophysical modalities; evidence-based approach to rehabilitation covering mechanisms of action and clinical effectiveness; case studies. Prerequisites: PTRS:7899 (101:899) and PTRS:7901 (101:901).
- PTRS:7925 (101:325) Independent Study** arr.
Problem-solving experience in physical therapy; commensurate with student's interest, ability.
- PTRS:7927 (101:327) Research in Rehabilitation Science** arr.

Placement of physical therapy on sound scientific base; therapy; initiation, refinement, establishment of methods in physical therapy evaluation, treatment; direct clinical and laboratory approach, philosophical treatise, or research proposal.

PTRS:7990 (101:301) Thesis: arr.
Rehabilitation Science

Investigative process: formulation of problem, literature search and analysis, procedure for collecting data, data analysis, organization and writing of thesis proposal, thesis.

Physician Assistant Studies and Services

Chair

- David P. Asprey

Director

- Anthony Brenneman

Director, clinical education

- Carol Gorney

Director, curriculum and evaluation

- Theresa Hegmann

Medical director

- George Bergus

Professors

- David P. Asprey, George Bergus, Anthony Brenneman, Theresa Hegmann

Associate professor

- Carol Gorney

Associate

- Katie Iverson

Graduate degree: M.P.A.S.

Web site: <http://www.medicine.uiowa.edu/pa/>

The physician assistant profession is one of the newest and most exciting in health care. Physician assistants (PAs) are licensed to practice medicine with physician supervision. They are responsible for making medical decisions and providing a broad range of diagnostic and therapeutic services.

Physician assistants work in a variety of settings, including medical offices, hospital emergency rooms, nursing homes, rural satellite clinics, health maintenance organizations, and patients' homes.

In the traditional office setting, PAs see patients, obtain histories, perform physical examinations, and order necessary laboratory and/or radiological studies. Based on this information, the PA establishes a diagnosis, develops an appropriate management plan, and initiates treatment that may include prescribing medications. The physician is consulted as needed and remains ultimately responsible for the care provided by the physician/PA team. PAs also are involved in both patient and community health education.

The Department of Physician Assistant Studies and Services is part of the Carver College of Medicine. It is located on the University of Iowa health sciences campus, which includes University of Iowa Hospitals and Clinics, one of the nation's largest university-owned teaching hospitals.

Graduate Program of Study

- Master of Physician Assistant Studies

The Master of Physician Assistant Studies (M.P.A.S.) program emphasizes primary care medicine, particularly family medicine. It also offers elective clinical rotations in

selected medical subspecialties. Students who complete the program are eligible to take the National Certifying Examination for Primary Care Physician Assistants, which they must complete successfully in order to register as physician assistants in the United States.

The Department of Physician Assistant Studies and Services is accredited by the Accreditation Review Commission on Education for the Physician Assistant and is a member of the Physician Assistant Education Association.

Master of Physician Assistant Studies

The Master of Physician Assistant Studies requires a minimum of 104 s.h. of credit. The curriculum spans two years and consists of a preclinical phase and a clinical phase. The program begins in August.

The Master of Physician Assistant Studies requires the following work.

Preclinical Curriculum

The M.P.A.S. program's preclinical phase is built on a triple-helix model whose three strands consist of clinical and professional skills (CAPS), mechanisms of health and disease (MOHD), and medicine and society (MAS). The strands are interwoven, assuring that their material is integrated and revisited throughout the preclinical phase, so that students' understanding and mastery of the material deepens progressively.

The preclinical curriculum consists of the following courses.

HUMAN ANATOMY AND FOUNDATIONS OF LIFE

ACB:8101 (060:103) Medical Gross Human Anatomy involves complete dissection of the human body. Students learn to identify the human body's components and learn how their structures and locations relate to their functions. They also learn much of the language they will need in order to communicate accurately and specifically with patients and other physicians.

MED:8123 (050:355) Foundations of Cellular Life covers genetics, embryology, molecular biology, biochemistry, cell biology, and histology. Students learn the molecular events required for cellular life and how cells grow and interact to form the basic tissues of the human body. This course provides the necessary framework students will need in order to begin the mechanisms of health and disease series.

CLINICAL AND PROFESSIONAL SKILLS

The clinical and professional skills (CAPS) strand provides students with the knowledge, skills, and attitudes required for professional development and clinical excellence, including the sense of inquiry and lifelong habits of skill acquisition, self-assessment, and reflective practice. CAPS features developmental learning through increasingly challenging experiences across the curriculum, repeated practice opportunities, observation and feedback, and self-directed learning and reflection. CAPS requires the following three courses.

MED:8121 (050:351) Clinical and Professional Skills I introduces students to concepts of clinical reasoning, communication, physical examination, and evidence-based clinical practice as well as the principles of

biomedical ethics. The Longitudinal Clinical Mentor (LCM) program allows early clinical interactions and helps place classroom experiences into the context of patient care. Through interactions with students from other health sciences colleges, M.P.A.S. students begin to explore the interprofessional approach to caring for patients.

MED:8131 (050:353) Clinical and Professional Skills II reinforces clinical reasoning concepts from MED:8121 (050:351) and introduces additional elements of clinical reasoning, which are practiced through interactions with standardized patients and through Longitudinal Clinical Mentor clinical visits. The varied experiences help students gain a deeper appreciation for issues in biomedical ethics. As part of interprofessional education, students focus on the strengths and barriers involved in providing comprehensive interdisciplinary patient care.

MED:8221 (050:359) Clinical and Professional Skills III develops advanced clinical reasoning skills through focused patient encounters and interactions with special patient populations. Emphasis is on students' ability to integrate and use concepts from the other curricular strands that are required for cost-conscious, patient-centered, interdisciplinary care.

The second semester is followed by a six-week session that includes preclinical workshop material and clinical rotations in cardiology and radiology. Students complete a two-week introduction to clinical medicine before beginning the clinical rotations.

MECHANISMS OF HEALTH AND DISEASE

The mechanisms of health and disease (MOHD) strand focuses on multisystem mechanisms. MOHD requires the following five courses.

MED:8124 (050:356) Mechanisms of Health and Disease I covers normal and healthy processes within and among the mechanisms of oxygenation, metabolism, and genetics/development.

MED:8133 (050:357) Mechanisms of Health and Disease II covers normal and healthy processes within and among the mechanisms of immunology/inflammation, locomotion/integument, and neuropsychiatry.

MED:8134 (050:358) Mechanisms of Health and Disease III covers abnormalities or disruptions leading to disease within and among the mechanisms of oxygenation, metabolism, and genetics/development.

MED:8223 (050:361) Mechanisms of Health and Disease IV covers abnormalities or disruptions leading to disease within and among the mechanisms of immunology/inflammation, locomotion/integument, and neuropsychiatry.

MED:8224 (050:362) Mechanisms of Health and Disease Keystone provides a transition from classroom instruction in MED:8124 (050:356), MED:8133 (050:357), MED:8134 (050:358), and MED:8223 (050:361) to clinical practice. Foundational information from those courses is approached from the perspective of common clinic encounters. Students make diagnostic and management decisions about common important clinical problems using the foundational knowledge they gained from those courses.

HEALTH AND SOCIETY

The medicine and society (MAS) strand teaches students about disease prevention, health promotion services,

public health, epidemiology, health services organizations and delivery, and community dimensions of medical practice. MAS requires the following three courses.

MED:8122 (050:352) Medicine and Society I introduces social determinants of health. Students investigate the influence and impact of culture and the community on healthcare, learn about community resources, and apply health and risk assessment to individual patients and to themselves.

MED:8132 (050:354) Medicine and Society II focuses on public health and epidemiology, with attention to screening, global health, and environmental hazards.

MED:8222 (050:360) Medicine and Society III focuses on health services organization and delivery, with emphasis on community dimensions of medical practice and patient safety.

Clinical Curriculum

The program's second phase concentrates on clinical education. Students complete a 40-week core of required primary care clinical rotations, including general internal medicine, surgery, family medicine, pediatrics, emergency medicine, gynecology, and psychiatry. Students also select 12 weeks of electives, which may include rotations such as geriatrics, cardiology, dermatology, and orthopaedics.

The primary care clinical rotations are designed to provide instruction and experience in caring for patients in a way that enables students to integrate the knowledge, skills, behaviors, and attitudes they learned in the program's didactic phase. Clinical training is provided at University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, the Veterans Affairs Central Iowa Health Care System and Broadlawn Medical Center in Des Moines, and other affiliated hospitals throughout Iowa. In elective rotations, students gain additional clinical experience through placement with selected preceptors involved in office-based practices, typically in medically underserved rural areas.

Students also complete a master's degree project as part of the clinical curriculum.

REQUIRED CLINICAL ROTATIONS

The following clinical rotations are required.

PA:8304 (117:300) Emergency Medicine for Physician Assistant Students	4 s.h.
PA:8305 (117:301) Gynecology for Physician Assistant Students	4 s.h.
PA:8306 (117:302) Family Practice I for Physician Assistant Students	4 s.h.
PA:8307 (117:303) Family Practice II for Physician Assistant Students	4 s.h.
PA:8308 (117:304) General Surgery for Physician Assistant Students	6 s.h.
PA:8309 (117:305) Internal Medicine for Physician Assistant Students	6 s.h.
PA:8310 (117:306) Pediatrics for Physician Assistant Students	4 s.h.
PA:8311 (117:307) Psychiatry for Physician Assistant Students	4 s.h.

ELECTIVE CLINICAL ROTATIONS

Students select elective clinical rotations from these.

PA:8320 (117:321) Dermatology Elective for Physician Assistant Students	arr.	PA:8348 (117:350) Migrant Health Elective for Physician Assistant Students	arr.
PA:8321 (117:322) Neurology Elective for Physician Assistant Students	arr.	PA:8349 (117:351) Occupational Medicine Elective for Physician Assistant Students	arr.
PA:8322 (117:323) Obstetrics for Physician Assistant Students	arr.	PA:8350 (117:352) Pediatrics (Neonatology) Elective for Physician Assistant Students	arr.
PA:8323 (117:324) Ophthalmology Elective for Physician Assistant Students	arr.	PA:8351 (117:353) Internal Medicine (Rheumatology) for Physician Assistant Students	arr.
PA:8324 (117:325) Otolaryngology Elective for Physician Assistant Students	arr.	PA:8352 (117:354) Medical Intensive Care for Physician Assistant Students	arr.
PA:8325 (117:326) Pediatric Elective for Physician Assistant Students	arr.	PA:8353 (117:355) International Medicine for Physician Assistant Students	arr.
PA:8326 (117:327) Radiology Elective for Physician Assistant Students	arr.	PA:8354 (117:356) Interventional Radiology for Physician Assistant Students	arr.
PA:8327 (117:328) Pediatric Elective (Bone Marrow Transplant) for Physician Assistant Students	arr.	PA:8355 (117:357) Gynecologic Oncology Elective for Physician Assistant Students	arr.
PA:8328 (117:329) Pediatric (Cardiology) Elective for Physician Assistant Students	arr.		
PA:8329 (117:330) Psychiatry Elective for Physician Assistant Students	arr.		
PA:8330 (117:331) Surgery Elective for Physician Assistant Students	arr.		
PA:8331 (117:332) Surgery Elective (Transplant/Organ Retrieval) for Physician Assistant Students	arr.		
PA:8332 (117:333) Surgery Elective (Burn Unit) for Physician Assistant Students	arr.		
PA:8333 (117:334) Surgery Elective (Cardiac Surgery) for Physician Assistant Students	arr.		
PA:8334 (117:335) Orthopedics Elective for Physician Assistant Students	arr.		
PA:8335 (117:336) Internal Medicine Elective for Physician Assistant Students	arr.		
PA:8336 (117:337) Internal Medicine (Cardiology) Elective for Physician Assistant Students	arr.		
PA:8337 (117:338) Internal Medicine (EKG) Elective for Physician Assistant Students	arr.		
PA:8338 (117:339) Internal Medicine (Gastroenterology) Elective for Physician Assistant Students	arr.		
PA:8339 (117:340) Internal Medicine (Oncology) Elective for Physician Assistant Students	arr.		
PA:8340 (117:341) Internal Medicine (Geriatrics) Elective for Physician Assistant Students	arr.		
PA:8341 (117:342) Internal Medicine (Pulmonary) Elective for Physician Assistant Students	arr.		
PA:8342 (117:343) Internal Medicine (Hospice) Elective for Physician Assistant Students	arr.		
PA:8343 (117:344) Internal Medicine (Infectious Disease) Elective for Physician Assistant Students	arr.		
PA:8345 (117:347) Urology Elective for Physician Assistant Students	arr.		
PA:8346 (117:348) Family Practice Elective for Physician Assistant Students	arr.		
PA:8347 (117:349) Gynecology Elective (Women's Health) for Physician Assistant Students	arr.		

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Applicants must be citizens or permanent residents of the United States. They must have taken the Graduate Record Examination (GRE) General Test or the Medical College Admission Test (MCAT) no more than 10 years before they apply. Applicants whose first language is not English and who have not earned a master's or doctoral degree from an accredited U.S. institution must score at least 93 (Internet-based) with a speaking score of at least 26 on the Test of English as a Foreign Language (TOEFL). Scores must be sent to the Department of Physician Assistant Studies and Services by the Educational Testing Service.

Applicants must hold a bachelor's degree from an accredited institution in the United States and have a cumulative g.p.a. and a science g.p.a. of at least 3.00 on a 4.00 scale or a g.p.a. of at least 3.00 on their last 40 s.h. of college-level science course work. They must have completed preparatory science courses in organic and inorganic chemistry, introductory animal biology or zoology, and general statistics or biostatistics. They also must have completed an upper-level course in human or animal physiology (lower-level combined anatomy/physiology courses do not satisfy this requirement); a minimum of three upper-level natural science courses such as cell biology, cell physiology, endocrinology, genetics, histology, immunology, microbiology, molecular biology, neurobiology, and/or related disciplines; and an introductory biochemistry course (combined organic/biochemistry courses do not satisfy this requirement).

Applicants must have at least 1,000 clock hours of hands-on, direct patient health care experience.

The admissions committee gives special attention to applicants' performance in science courses. Some successful applicants have had a g.p.a. of at least 3.70, both cumulative and in science; up to 141 s.h. of college credit, including at least 81 s.h. in the sciences; and more than 3,000 hours of clinical experience.

Satisfaction of the basic admission requirements does not ensure acceptance to the program. The admissions committee selects the applicants it considers best qualified. Previous health care experience involving direct

patient contact is preferred. The committee requests interviews with the most qualified applicants.

Applications are accepted from April 16 to November 1 for entry the following August. Applicants must apply through the Central Application Service for Physician Assistants (CASPA). Application materials include three letters of recommendation, with one from an academic instructor and one from a health care supervisor; GRE or MCAT scores; and transcripts. The majority of prerequisite course requirements must be completed by the November 1 application deadline. All materials must be received by CASPA by the November 1 deadline.

Expenses

In addition to University of Iowa tuition and fees, students in the Department of Physician Assistant Studies and Services must purchase a laptop computer (specifications are given), their medical uniforms, and diagnostic equipment, an expense of approximately \$3,400. Microscopes are not required.

Courses

PA:8209 (117:101) Introduction to Medical History and Physical Examination for Physician Assistant Students 0-3 s.h.

Development of skills vital to taking a comprehensive medical history, psychomotor skills, and physical examination techniques necessary for conducting a comprehensive physical exam.

PA:8210 (117:103) Clinical Decision Making I 1 s.h.

Review of basic concepts of research design and statistics as they apply to medical research literature; formation of a basis for sound, evidence-based, clinical decision making.

PA:8211 (117:104) Clinical Decision Making II 1 s.h.

Core concepts of evidence-based medicine; development of the knowledge and practical skills to search the medical literature for answers to clinical questions and critically appraise the evidence found.

PA:8300 (117:001) Physician Assistant Clinical Second Year arr.

PA:8301 (117:107) Seminar for Physician Assistant Students 1 s.h.

Professional issues that affect the physician assistant's practice of medicine.

PA:8302 (117:110) Introduction to Clinical Skills 1 s.h.

Suturing, injections, prescription and order writing, medical records, patient confidentiality, Iowa Law governing physician assistant practice, completion of the American Heart Association's Advanced Cardiac Life Support Program. Requirements: completion of physician assistant curriculum phase I.

PA:8303 (117:201) Clinical Decision Making III 1 s.h.

Asking appropriate clinical questions in the course of patient care; gathering information from multiple sources to answer questions.

PA:8304 (117:300) Emergency Medicine for Physician Assistant Students arr.

Obtaining and recording pertinent historical data, obtaining indicated laboratory studies, assessing the results, arriving at a diagnosis, formulating a treatment plan, implementing appropriate therapy.

PA:8305 (117:301) Gynecology for Physician Assistant Students 4 s.h.

Opportunity to develop proficiency in history and physical exams of gynecological patients; outpatient, family planning, gynecological cancer, concepts of diagnostic techniques and therapy.

PA:8306 (117:302) Family Practice I for Physician Assistant Students 4 s.h.

Obtaining and recording complete history and physical exams; formulation of differential diagnosis and problem list; ordering, obtaining, and interpreting lab and diagnostic studies; implementation of therapeutic procedures and treatment plans.

PA:8307 (117:303) Family Practice II for Physician Assistant Students 4 s.h.

Opportunity to participate in delivery of ambulatory primary care; at a different site from PA:8306 (117:302).

PA:8308 (117:304) General Surgery for Physician Assistant Students 6 s.h.

Preparation for work as an assistant to the generalist; outpatient and inpatient surgical services, including surgical procedures and management of postoperative course.

PA:8309 (117:305) Internal Medicine for Physician Assistant Students 6 s.h.

Eliciting a medical history, doing a pertinent physical exam, obtaining indicated lab studies, assessment of results, formulation of management plan and implementation of appropriate therapy for common internal medicine problems.

PA:8310 (117:306) Pediatrics for Physician Assistant Students arr.

Knowledge and skills required for providing appropriate medical care to infants, children, and adolescents; initiation and promotion of interpersonal relationships.

PA:8311 (117:307) Psychiatry for Physician Assistant Students 4 s.h.

Training in history and physical exams of psychiatry patients, including individual and family therapy, vocational testing and guidance, development of interviewing skills.

PA:8312 (117:308) Long-Term Care for Physician Assistant Students arr.

Development of clinical knowledge and skill in diagnosing, treating, and performing procedures for patients of long-term care settings; knowledge of relevant conditions.

PA:8320 (117:321) Dermatology Elective for Physician Assistant Students arr.

Recognizing dermatologic diseases and disorders, instituting appropriate management of patients with dermatologic problems.

PA:8321 (117:322) Neurology Elective for Physician Assistant Students arr.

Performing general and neurological exams, establishing diagnosis, recommending lab studies, instituting appropriate management of common neurological diseases and disorders, recognizing the need for urgent treatment.

PA:8322 (117:323) Obstetrics for Physician Assistant Students arr.

Proficiency in physical exam of OB patients; applying concepts of diagnostic techniques and therapy; following patients' course, including labor, delivery, and postpartum care.

PA:8323 (117:324) Ophthalmology Elective for Physician Assistant Students arr.

Proficiency in recognizing ophthalmology problems; how to institute appropriate management of these conditions.

PA:8324 (117:325) Otolaryngology Elective for Physician Assistant Students arr.

Proficiency in recognizing otolaryngology problems; how to institute appropriate management of these conditions; opportunity for involvement in varied surgical procedures.

PA:8325 (117:326) Pediatric Elective for Physician Assistant Students arr.

Experience working with children and adolescents.

PA:8326 (117:327) Radiology Elective for Physician Assistant Students arr.

Proficiency in systematic evaluation of normal and abnormal routine radiologic examinations; listing indications for special exam procedures, including details of prepping the patient.

PA:8327 (117:328) Pediatric Elective (Bone Marrow Transplant) for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis, treatment, and management of pre- and post-bone-marrow transplant patients.

PA:8328 (117:329) Pediatric (Cardiology) Elective for Physician Assistant Students arr.

Cardiovascular assessment and problem management of pediatric patients; experience with a range of acute, chronic, common, and rare cardiology diseases.

PA:8329 (117:330) Psychiatry Elective for Physician Assistant Students arr.

Training in evaluation and treatment of psychiatry patients.

PA:8330 (117:331) Surgery Elective for Physician Assistant Students arr.

Experience in a wide range of surgical problems, procedures, and treatments, including diagnosis, care and treatment, and postoperative courses of surgical patients.

PA:8331 (117:332) Surgery Elective (Transplant/Organ Retrieval) for Physician Assistant Students arr.

Extensive experience in care of patients with end-stage organ failure; evaluation of potential transplant candidates, participation in surgical procedures on transplant service.

PA:8332 (117:333) Surgery Elective (Burn Unit) for Physician Assistant Students arr.

Involvement in care on burn unit and in operating room; skills in burn debridement, grafting techniques, skin storage techniques, dressing changes, tub baths, and physical therapy procedures.

PA:8333 (117:334) Surgery Elective (Cardiac Surgery) for Physician Assistant Students arr.

Development of technical skills in operating room; essentials of preoperative evaluation and postoperative management of cardiac surgical patient.

PA:8334 (117:335) Orthopedics Elective for Physician Assistant Students arr.

Recognition of varied orthopedic problems and treatments; musculoskeletal diseases and disorders, both emergencies and common conditions, and how to establish appropriate management.

PA:8335 (117:336) Internal Medicine Elective for Physician Assistant Students arr.

Training in varied internal medicine problems; recognition, appropriate treatment.

PA:8336 (117:337) Internal Medicine (Cardiology) Elective for Physician Assistant Students arr.

Cardiovascular assessment and problem management; experience with wide range of acute, chronic, common, and rare diseases.

PA:8337 (117:338) Internal Medicine (EKG) Elective for Physician Assistant Students arr.

Experience reading electrocardiograms, interpreting cardiac arrhythmias, performing and evaluating EKG stress tests.

PA:8338 (117:339) Internal Medicine (Gastroenterology) Elective for Physician Assistant Students arr.

Experience with a wide range of gastrointestinal pathology; history and physical exams of gastrointestinal diagnostic procedures, follow-up care of patients through outpatient clinics.

PA:8339 (117:340) Internal Medicine (Oncology) Elective for Physician Assistant Students arr.

Experience to develop diagnostic skills in clinical oncology and gain familiarity with methods of staging common cancers; assistance in therapy and outpatient management of cancer patients.

PA:8340 (117:341) Internal Medicine (Geriatrics) Elective for Physician Assistant Students arr.

Familiarity with broad spectrum of medical conditions among the elderly; experience in history and physical exams, diagnosis of geriatric patients along with follow-up visits.

PA:8341 (117:342) Internal Medicine (Pulmonary) Elective for Physician Assistant Students arr.

Development of basic clinical knowledge and skills for diagnosis, treatment, and management of pulmonary diseases.

PA:8342 (117:343) Internal Medicine (Hospice) Elective for Physician Assistant Students arr.

Work on a hospice care team performing evaluation, treatment, and education of patients with terminal illnesses; dealing with the prospect of death.

PA:8343 (117:344) Internal Medicine (Infectious Disease) Elective for Physician Assistant Students arr.

Development of basic clinical knowledge and skills for diagnoses, treatment, and management of infectious diseases.

PA:8345 (117:347) Urology Elective for Physician Assistant Students arr.

Proficiency in managing patients with urologic conditions; skill in taking a urologic history, performing physical exams, interpreting laboratory studies and data.

PA:8346 (117:348) Family Practice Elective for Physician Assistant Students arr.

Proficiency in delivering ambulatory primary care.

PA:8347 (117:349) Gynecology Elective (Women's Health) for Physician Assistant Students arr.

Experience in annual gynecologic exams, PAP screening, gynecology problems, contraception issues, STD screening and counseling, common gynecologic procedures.

PA:8348 (117:350) Migrant Health Elective for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis, treatment, and prevention of diseases, injuries, and conditions related to environmental exposure in migrant worker populations.

PA:8349 (117:351) Occupational Medicine Elective for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis, treatment, and prevention of work-related diseases, injuries, and conditions related to environmental exposure.

PA:8350 (117:352) Pediatrics (Neonatology) Elective for Physician Assistant Students arr.

Basic clinical knowledge and skill for diagnosis, treatment, and management of critically ill infants.

PA:8351 (117:353) Internal Medicine (Rheumatology) for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis, treatment, and management of rheumatologic diseases.

PA:8352 (117:354) Medical Intensive Care for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis, treatment, and management of critically ill patients.

PA:8353 (117:355) International Medicine for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis, treatment, and prevention of diseases, injuries, and conditions relevant to international medicine.

PA:8354 (117:356) Interventional Radiology for Physician Assistant Students arr.

Basic clinical knowledge and skills for diagnosis and treatment of conditions requiring interventional therapy.

PA:8355 (117:357) Gynecologic Oncology Elective for Physician Assistant Students arr.

Experience developing diagnostic skills in clinical gynecologic oncology, learning methods of staging specific cancers; and assisting in therapy and outpatient management of patients with varied cancers.

PA:8356 (117:358) Wilderness Medicine for Physician Assistant Students arr.

Four-week emergency medicine elective taken in conjunction with Carver College of Medicine; mix of didactic and experiential learning; ten-day trip to Colorado to learn about hypothermia, altitude medicine, search and rescue, field evaluation, treatment and evacuation of common back country injuries; lectures and simulations.

Psychiatry

Chair

- James Potash

Professors

- Bruce Alexander, James Amos, Nancy Andreasen, Stephan Arndt, John Bayless, George Bergus, Donald Black, Wayne Bowers, Kathleen Buckwalter, Brian Cook, William Coryell, Judith Crossett, Michael Flaum, Samuel Kuperman, Douglas Langbehn, Jeffrey Long, Delwyn Miller, David Moser, Peggy Nopoulos, Daniel O'Leary, Jane S. Paulsen, Bruce Pfohl, Robert Philibert, James Potash, Robert Robinson, Susan Schultz, Scott Stuart, Jodi Tate, Scott Temple, John Wemmie, Nancy A. Williams

Associate professors

- James Beeghly, Leigh Beglinger, Thomas Brashers-Krug, Kristin Marsh Buroker, Chadi Calarge, Huxing Cui, Peter Daniolos, Patricia Espe-Pfeiffer, Jess Fiedorowicz, Gary Gaffney, Beng Choon Ho, Vicki Kijewski, Jill Liesveld, Alison Lynch, Vincent Magnotta, Anthony Miller, Karen Nelson, Andrew Pieper, Anne Sadler, Debra Suda, Victor Swayze, Beth Troutman, Carolyn Turvey, Jatin Vaidya, Thomas Wassink, Virginia Willour, Catherine Woodman

Assistant professors

- Arwa Aburizik, Thad Abrams, Jeffery Alden, Nancy Beyer, E. Taylor Buckingham, Erin Crocker, Ravneet Dhaliwal, Lilian Dindo, Eric Epping, Elizabeth Faust, Laura Fuller, Elaine Himadi, Jeffrey Jaeger, Hans Johnson, Ji-in Kim, Hristina Koleva, Robin Kopelman, Todd Kopelman, Michael Lutter, Jacob Michaelson, Anthony Miller, Angeles Morcuende, Ki Won Nam, Susan Pike, Richard Rinehart, Han Shizhong, Sarah Tighe

Adjunct associate professors

- Dewi Abramhoff, Tracy Gunter, Janeta Tansey, Kevin Took

Adjunct assistant professors

- Raja Akbar, Tami Argo, Eric Barlow, Bridgit Buck, Martin Carpenter, Donner Dewdney, Jason Guca, Michael Hall, John Hartson, Adnan Iqbal, Kent Kunze, Leenu Mishra, Polly Nichols, Mark Preston, Larry Richards, Ara Robinson, Kevin Satisfsky, Bruce Sieleni, Manmohan Singh, Douglas Steenblock, William Warnes

Adjunct instructors

- Nancee Blum, Dan Grinstead, Bev Klug, Betty Moore, Marguerite Moore

Professors emeriti

- Bruce Alexander, Arnold Andersen, Arthur Canter, Brian Cook, Raymond Crowe, Michael Garvey, Russell Noyes, Paul Perry, Robert Smith

Web site: <http://www.medicine.uiowa.edu/psychiatry/>

The Department of Psychiatry teaches M.D. students, principally during their third year, and trains resident physicians for academic and clinical careers in psychiatry.

Residency Programs

The department offers a four-year training program approved by the Residency Review Committee of the American Medical Association. Training experiences are available at University of Iowa Hospitals and Clinics and at the Iowa City Veterans Affairs Medical Center. Additional experiences are available at affiliated institutions: Broadlawns Medical Center in Des Moines, the Iowa Medical and Classification Center at Oakdale, the Community Mental Health Center for Mid-Eastern Iowa in Iowa City, and the Independence Mental Health Institute (Iowa Department of Human Services).

The department also offers an approved two-year residency in child psychiatry. Fellowships in geriatrics and psychosomatic medicine are available after residency training.

Research

Department of Psychiatry staff members are involved in genetic and family studies of psychiatric disorders and research in genetic and biological psychiatry, neurochemistry, neuroimaging, neurophysiology, neuropsychiatry, and psychosocial aspects of behavior.

The department's students and residents have many research opportunities in psychiatry and in the basic science areas of neurochemistry, neurophysiology, and electrophysiology. The clinical areas of psychology, child psychiatry, and psychotherapy also offer opportunities for research and further study to a limited number of students.

Courses

PSYC:8267 (073:255) Psychiatric Epidemiology 3 s.h.

Population-based studies of psychiatric disorders and associated etiologic tools; diagnostic criteria used in psychiatric research, common structured interviews and rating scales; recent research relevant to common psychiatric disorders; experience writing a research idea using NIH PHS grant form. Offered spring semesters of even years. Prerequisites: EPID:4400 (173:140). Recommendations: EPID:6400 (173:240) or two years of resident training in psychiatry. Same as EPID:6670 (173:267).

PSYC:8301 (073:005) Clinical Psychiatry 4 s.h.
Requirements: third-year M.D. enrollment.

PSYC:8401 (073:033) Adult Psychiatry, Pappajohn Pavilion arr.
Requirements: M.D. enrollment.

PSYC:8402 (073:035) Child Psychiatry, Pappajohn Pavilion arr.
Roles of child psychiatry as a consultation service. Requirements: M.D. enrollment.

PSYC:8403 (073:045) Adult Outpatient Psychiatry and Psychotherapy 2,4 s.h.

Diagnostic assessment, evaluation, treatment of psychiatric patients; exposure to both psychotherapeutic, psychopharmacologic treatments. Requirements: M.D. enrollment.

PSYC:8404 (073:047) Women's Wellness and Counseling Service 4 s.h.

Experience evaluating and treating women with mental illness, with some emphasis on practitioner's autonomy; four-week rotation. Requirements: psychiatry clerkship.

PSYC:8405 (073:835) Subinternship in Medical Psychiatry 4 s.h.

Hands-on experience in evaluation and treatment of patients with combined medical and psychiatric disease; decisions regarding appropriate consultations, diagnostic tests, treatment; etiology and pathophysiology. Requirements: M.D. enrollment.

PSYC:8407 (073:053) Advanced Clinical Psychiatry, Des Moines 4 s.h.

Work in adult psychiatry setting and/or child-adolescent psychiatry setting for a four-week rotation; optional participation in psychiatric emergency/crisis care team, substance abuse clinics, and/or ECT treatment sessions.

PSYC:8408 (073:836) Subinternship in Mood/Psychotic Disorders 4 s.h.

Subinternship in adult psychiatry; experiences that maximize autonomy and responsibility; inpatient rotation focuses on one subspecialty area (psychotic disorders or mood disorders); emphasis on substantial medical comorbidity; assess and address medical and psychiatric needs of assigned patients in a collaborative and integrative fashion; assess and manage patients independently at the level of a psychiatry intern, reporting directly to the attending; call is required; didactic curriculum focuses on critical appraisal of medical literature. Prerequisites: PSYC:8301 (073:005). Requirements: fourth-year M.D. enrollment.

PSYC:8409 (073:049) Eating Disorders 2,4 s.h.

Inpatient rotation; emphasis on co-occurring psychiatric and comorbid medical conditions associated with eating disorders; patient assessment and management at an advanced level; direct patient care and engagement in clinical decision making for complex patients with substantial comorbidity; call is required; student experience maximizes autonomy and responsibility; didactic curriculum; focus on critical appraisal of relevant medical literature. Prerequisites: PSYC:8301 (073:005). Requirements: fourth-year M.D. enrollment.

PSYC:8410 (073:050) Intellectual Disability 2,4 s.h.

In-depth two week clinical experience in the interdisciplinary approach to assessment and management of individuals with intellectual disability. Requirements: M.D. enrollment.

PSYC:8411 (073:051) Substance Abuse 2,4 s.h.

In-depth clinical experience in assessment and management of individuals with alcohol and drug abuse. Requirements: M.D. enrollment.

PSYC:8412 (073:052) Emergency Psychiatry 2,4 s.h.

In-depth clinical experience in assessment and management of acute psychiatric illness under supervision of faculty with expertise in care within this setting; clinical experiences centered in emergency department at University of Iowa Hospitals and Clinics. Prerequisites: PSYC:8301 (073:005). Requirements: third- or fourth-year M.D. enrollment.

PSYC:8450 (073:060) Continuity of Care in Psychiatry 4 s.h.

Experience in Psychiatry Continuity of Care Clinic; maximizes autonomy and responsibility in an outpatient continuous care setting. Requirements: fourth-year M.D. enrollment.

PSYC:8497 (073:105) Research Psychiatry arr.

Experience, training in practical application of scientific methodology; work with research project at Psychiatric Service or affiliated cooperating research centers. Requirements: fourth-year M.D. enrollment.

PSYC:8498 (073:998) Psychiatry On Campus arr.

Arranged by student with departmental approval. Requirements: M.D. enrollment.

PSYC:8499 (073:999) Psychiatry Off Campus arr.

Requirements: M.D. enrollment.

Radiation Oncology

Chair

- John M. Buatti

Professors

- Mark E. Anderson, John M. Buatti, Garry R. Buettner, A. Brent Carter, Joseph J. Cullen, Frederick E. Domann Jr., Gerry F. Funk, Prabhat Goswami, Michael M. Graham, Richard D. Hichwa, Henry T. Hoffman, Kevin C. Kregel, Francis J. Miller, Larry W. Robertson, Milan Sonka, Douglas R. Spitz

Associate professors

- Sudershan Bhatia, Kyle E. Brown, Kristi E. Chang, Ryan Flynn, Paloma H. Giangrande, Aloysius J. Klingelutz, C. Michael Knudson, William McGinnis, Yusuf Menda, Alfredo C. Siochi, Mark C. Smith, John J. Sunderland, Aliye Uc, Douglas J. Van Dael, M. Todd Washington, Gordan L. Watkins, Xiaodong Wu

Assistant professors

- Bryan Allen, Carryn M. Anderson, Mark W. Dion, Apollina Goel, Dan Hyer, Mathews Jacob, Yusung Kim, Sarah McGuiire, Joseph Modrick, William Rockey, R. Michael K. Schultz, Wenqing Sun, Dongxu Wang, John Watkins, Junyi Xia

Associates

- Christopher Mart, Earl Nixon, Edward Pennington, Timothy J. Waldron

Adjunct professor

- Geraldine M. Jacobson

Adjunct associate professors

- Sanford Meeks, Timothy C. Ryken

Adjunct assistant professors

- Nukhet Aykin-Burns, Adrian L. Burnett, Melissa E. Fath, Michael L. McCormick, Ehab Sarsour

Adjunct instructor

- Mindi J. Tennapel

Professor emeritus

- James W. Osborne

Associate professor emeritus

- J. Fred Doornbos

Web site: <http://www.medicine.uiowa.edu/radiationoncology/>

Radiation oncology specializes in the delivery of radiation treatments for cancer patients. It includes treatments with linear accelerators as well as isotopes and temporary and permanent surgically implanted sources. Radiation oncologists also use these methods to treat some benign diseases, such as Graves' ophthalmopathy and trigeminal neuralgia.

The Department of Radiation Oncology is dedicated to educating undergraduate and graduate students, M.D. and other health professions students, and residents. Its faculty members provide instruction for Doctor of Philosophy students in the Free Radical and Radiation Biology (p. 1076) Program through their participation

in FRRB:3110 (077:110) Medical Physics I, FRRB:3215 (077:121) Medical Physics II, FRRB:5000 (077:103) Radiation Biology, FRRB:7000 (077:222) Redox Biology and Medicine, and FRRB:7001 (077:288) Molecular and Cellular Biology of Cancer.

The department's professional staff provides training in radiation therapy technology for undergraduate students in the Radiation Sciences (p. 1136) Program by teaching courses RSTH:4100 (672:803) Radiation Therapy I and RSTH:4200 (672:804) Radiation Therapy II.

The department provides a four-year physician residency training program in radiation oncology that includes clinical care and education. It also has a residency program in medical physics. M.D. students can elect a two- or four-week radiation oncology rotation and/or a two-week multidisciplinary cancer care elective. Nursing students, dental residents, and fellows in gynecologic oncology and in adult and pediatric hematology and oncology do rotations in the department.

The department also offers specialized research projects and sponsors postdoctoral students in biology, physics, and clinical disciplines by arrangement with the instructor or mentor.

Courses

RADO:8401 (186:202) Radiation Oncology 2,4 s.h.

Integration of clinical oncology, physics, and cancer biology; clinical work with faculty mentors; experience in clinical evaluation, technical physics, biological application.

RADO:8498 (186:998) Radiation Oncology arr. **On Campus**

Development of new markers for normal tissue toxicity following radiation treatment.

RADO:8499 (186:999) Radiation Oncology arr. **Off Campus**

Arranged by the student with department approval.

Radiation Sciences

Director, undergraduate program

- Anthony Knight

Director, student affairs

- Jennifer Maiers

Director, radiologic technology program

- Jean Wiese

Director, diagnostic medical sonography program

- Stephanie Ellingson

Director, radiation therapy program

- Mindi TenNapel

Undergraduate major: radiation sciences (B.S.)

Web site: <http://www.medicine.uiowa.edu/radsci/>

Radiation sciences professionals work with physicians to gather accurate patient information for diagnosis, treatment, and/or research of disease and injury. They provide direct patient care, produce quality images, and deliver treatment using a variety of radiation sources. The radiation sciences professional must apply knowledge, skill, and mature judgment while operating complex equipment safely and efficiently.

The University of Iowa's radiation sciences educational programs are designed to provide students with opportunities for intellectual, professional, and social growth. Students learn with faculty members and instructors who are committed to radiation sciences education.

Radiation sciences is one of two undergraduate majors in the field of medical imaging offered by the Carver College of Medicine. It encompasses radiologic technology, computed tomography, magnetic resonance imaging, cardiovascular interventional, diagnostic medical sonography, and radiation therapy programs. The other undergraduate major in medical imaging is nuclear medicine technology; see Nuclear Medicine Technology (p. 1100) in the Catalog.

The Carver College of Medicine is located on the University of Iowa health sciences campus, which includes University of Iowa Hospitals and Clinics, one of the nation's largest university-owned teaching hospitals. For information about the college's academic programs and resources, see Carver College of Medicine (p. 1038) in the Catalog.

Undergraduate Program of Study

- Major in radiation sciences (Bachelor of Science)

The Radiation Sciences Program offers two paths toward completing the major: an on-campus program for students who have not completed a radiation sciences modality (see "Bachelor of Science" below) and an online program for registered radiologic technologists who would like to earn a Bachelor of Science degree by distance education (see "RT to B.S. Online" later in this Catalog section).

Undergraduate study in radiation sciences is guided by the academic rules and procedures outlined under

"Undergraduate Programs" in the Carver College of Medicine (p. 1038) section of the Catalog.

Requirements for the major in radiation sciences have changed. Students who completed a radiologic technology program before fall 2014 fulfill the requirements stated in the Radiation Sciences section of the 2011-12 General Catalog. All other students must fulfill the requirements stated below.

The 18-month diagnostic medical sonography certificate program and 12-month radiation therapy and nuclear medicine technology certificate programs are closing; new applicants are not accepted. University of Iowa Hospitals and Clinics no longer offers the two-year certificate program in radiologic technology.

Bachelor of Science

The Bachelor of Science with a major in radiation sciences requires a minimum of 120 s.h. Work for the degree includes a set of courses that are prerequisite to entering the radiation sciences major, completion of one of several radiation sciences professional programs, and elective course work sufficient to complete the minimum of 120 s.h. required for graduation. Students must complete the radiation sciences professional program at The University of Iowa.

Admission to the radiation sciences major is competitive. Students who wish to enter the major must first be admitted to The University of Iowa as College of Liberal Arts and Science (CLAS) students with a radiation sciences interest. As CLAS students, they must apply to the radiation sciences professional program of their choice by January 15 of the year in which they wish to enter it (see "Radiation Sciences Professional Programs" below). Students who are accepted enter the professional program, the radiation sciences major, and the Carver College of Medicine the following fall semester.

Applicants for admission to The University of Iowa whose first language is not English are strongly encouraged to complete the University of Iowa English Proficiency Evaluation and satisfy the University's English proficiency requirements before they apply to a professional program. Students must have permission to register for a full academic load before they may be admitted to a radiation sciences professional program.

For additional information on UI admission requirements, contact the University's Office of Admissions.

First-year and transfer applicants who are admitted to CLAS as radiation sciences interest students must complete all courses that are prerequisite to the radiation sciences major (including approved transfer equivalents) by June 1 before they may begin one of the radiation sciences professional programs and enter the major. Prerequisite courses vary slightly depending on which professional program the student wishes to enter.

Students who have declared a radiation sciences interest but have not yet applied and been accepted to a professional program are advised at the University's Academic Advising Center. After they have been accepted to a professional program, they are advised by the Radiation Sciences Program.

When students complete the professional multimodality program, they are eligible to take national certification exams for their program's specialty area(s). Once they

have completed the professional program and all other requirements for graduation, they are granted a Bachelor of Science degree.

The Bachelor of Science with a major in radiation sciences requires the following work.

PREREQUISITES TO THE RADIATION SCIENCES MAJOR

Students who wish to enter a radiologic technology or diagnostic medical sonography professional program must complete the following prerequisite courses (25-27 s.h.) before they may enter the program and the major. Students who wish to enter the radiation therapy professional program must complete a total of 60 s.h. of college course work, including the following prerequisites, before they may enter the program and the major.

Rhetoric:

RHET:1030 (010:003) Rhetoric	4 s.h.
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Anatomy—one of these:

ACB:1199 (060:099) Human Anatomy and Basic Physiology for Radiation Science	4 s.h.
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ACB:3110 (060:110) Principles of Human Anatomy	3 s.h.
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ACB:3113 (060:113) Human Anatomy Online	4 s.h.
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HHP:1100 (027:053) Human Anatomy	3 s.h.
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Natural sciences—one of these [students who wish to enter a diagnostic medical sonography program or the radiation therapy program must choose PHYS:1400 (029:008) or PHYS:1511 (029:011)]:

BIOL:1140 (002:021) Human Biology	4 s.h.
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CHEM:1070 (004:007) General Chemistry I	3 s.h.
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CHEM:1110 (004:011) Principles of Chemistry I	4 s.h.
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HHP:1300 (027:050) Fundamentals of Human Physiology	3 s.h.
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HHP:3500 (027:130) Human Physiology	3 s.h.
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PHYS:1400 (029:008) Basic Physics	3-4 s.h.
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PHYS:1511 (029:011) College Physics I	4 s.h.
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Quantitative or formal reasoning—one of these:

MATH:1020 (22M:009) Elementary Functions	4 s.h.
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MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.
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Social science:

PSY:1001 (031:001) Elementary Psychology	3 s.h.
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Medical terminology:

CLSA:3750 (20E:103) Medical and Technical Terminology	2 s.h.
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Culture, society, and the arts—3 s.h. each in two of these areas (total of 6 s.h.):

Historical Perspectives approved course work	3 s.h.
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International and Global Issues approved course work	3 s.h.
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Literary, Visual, and Performing Arts approved course work	3 s.h.
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Values, Society, and Diversity approved course work	3 s.h.
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See General Education Program (p. 323) (College of Liberal Arts and Sciences) in the Catalog for approved courses in the culture, society, and arts areas listed above.

RECOMMENDED PRE-MAJOR WORK

The Radiation Sciences Program recommends that before students enter a radiation sciences professional program and the major, they job-shadow a professional who works in their area of interest, gain hands-on experience with patient care, and complete the following additional preparatory courses.

RSP:1100 (680:010) Introduction to the Radiation Sciences	1 s.h.
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One of these:

CS:1020 (22C:001) Principles of Computing	3 s.h.
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CS:1110 (22C:005) Introduction to Computer Science	3 s.h.
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One of these:

STAT:1020 (22S:025) Elementary Statistics and Inference	3 s.h.
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STAT:3510 (22S:101) Biostatistics	3 s.h.
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STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.
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For students interested in entering the radiation therapy professional program, one of these sequences:

CHEM:1070 (004:007) & CHEM:1080 (004:008) General Chemistry I-II	6 s.h.
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CHEM:1110 (004:011) & CHEM:1120 (004:012) Principles of Chemistry I-II	8 s.h.
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ELECTIVES

In order to earn the minimum of 120 s.h. required for graduation, students may need to complete elective course work in addition to the prerequisite course work listed above and one of the professional programs in medical imaging described below. They should plan their elective courses in consultation with their advisor.

RADIATION SCIENCES PROFESSIONAL PROGRAMS

Students must complete one of the following radiation sciences professional programs at University of Iowa Hospitals and Clinics. Each program offers modality-specific didactic and supervised clinical education courses. Graduates of the professional programs and associated internships are eligible to take one or more certification exams.

The radiologic technology programs and diagnostic medical sonography programs last three years, and the radiation therapy program lasts two years. Each program begins in fall.

Students must apply to the program of their choice by January 15 of the year in which they intend to enter the program.

Admission to all radiation sciences professional programs is competitive; each program accepts a limited number of students. To apply, students must have a cumulative g.p.a. of at least 2.50 in college course work.

Radiologic Technology and Computed Tomography

The radiologic technology component of this program provides education in pathology, radiation biology, radiation protection, patient care, and ethics. Students learn about radiographic procedures, imaging, and evaluation. They become acquainted with imaging equipment, study quality assurance, and participate in supervised clinical education in radiography and computed tomography (CT). The computed tomography component concentrates on sectional anatomy, single and multislice CT, electron beam CT, physiologic and 3-D imaging, CT simulation, physics and imaging, and procedures and pathology.

Upon completing the program, graduates are eligible to take the national certification exams in radiography and computed tomography.

Students typically apply to this three-year program during their first year and begin it in fall of their sophomore year. Application deadline is January 15.

Radiologic Technology and Magnetic Resonance Imaging

The radiologic technology component of this program provides education in pathology, radiation biology, radiation protection, patient care, and ethics. Students learn about radiographic procedures, imaging, and evaluation. They become acquainted with imaging equipment, study quality assurance, and participate in supervised clinical education in radiography and magnetic resonance imaging (MRI). The magnetic resonance imaging component offers intensive study and practice in MRI, including patient care procedures, pathophysiology, physics, sectional anatomy, and instrumentation.

Upon completing the program, graduates are eligible to take the national certification exams in radiography and magnetic resonance imaging.

Students typically apply to this three-year program during their first year and begin it in fall of their sophomore year. Application deadline is January 15.

Radiologic Technology and Cardiovascular Interventional

The radiologic technology component of this program provides education in pathology, radiation biology, radiation protection, patient care, and ethics. Students learn about radiographic procedures, imaging, and evaluation. They become acquainted with imaging equipment, study quality assurance, and participate in supervised clinical education in radiography, cardiac interventional, and peripheral/neurological interventional. The cardiovascular interventional component concentrates on imaging equipment; pharmacology; sterile techniques; cardiac monitoring; vascular anatomy and physiology; cardiovascular, peripheral, and neurological procedures and pathology; therapeutic intervention techniques; and digital angiography.

Upon completing the program, graduates are eligible to take the national certification exams in radiography, vascular interventional technology, and cardiac interventional technology.

Students typically apply to this three-year program during their first year and begin it in fall of their sophomore year. Application deadline is January 15.

Diagnostic Medical Sonography in General and Vascular Sonography

The diagnostic medical sonography program in general and vascular sonography provides a multispecialty education in obstetrical, abdominal, and vascular sonography (ultrasound imaging). Students learn about sonographic imaging and evaluation, hemodynamics and Doppler evaluation, sonography equipment, sectional anatomy, pathology, patient care, medical ethics, and quality assurance methods. They become proficient in using sonographic imaging equipment and in performing obstetrical and gynecological, abdominal, and vascular sonographic procedures, including invasive procedures, emergency exams, and 3-D imaging. They also participate in supervised clinical education. Elective courses are available in neurosonography and breast sonography.

Upon completing the program, graduates are eligible to take the national certification exams in diagnostic medical sonography in the specialty areas of obstetrics and gynecology, abdomen, and vascular technology.

Students typically apply to this three-year program during their first year and begin it in fall of their sophomore year. Application deadline is January 15.

Diagnostic Medical Sonography in Cardiac and Vascular Sonography

The diagnostic medical sonography program in cardiac and vascular sonography provides a multispecialty education in cardiac (echocardiography) and vascular sonography (ultrasound imaging). Students learn about sonographic imaging and evaluation, hemodynamics and Doppler evaluation, sonography equipment, sectional anatomy, pathology, patient care, medical ethics, and quality assurance methods. They become proficient in using sonographic imaging equipment and in performing cardiac and vascular sonographic procedures, including invasive procedures, emergency exams, and 3-D imaging. They also participate in supervised clinical education. Elective courses are available in neurosonography and breast sonography.

Upon completing the program, graduates are eligible to take the national certification exams in diagnostic medical sonography in the specialty areas of cardiac (echocardiography) and vascular technology.

Students typically apply to this three-year program during their first year and begin it in fall of their sophomore year. Application deadline is January 15.

Radiation Therapy and Computed Tomography

The radiation therapy professional program teaches theory and techniques of radiation therapy technology, with emphasis on competence in areas of oncology treatment planning, treatment delivery, dosimetry, and use of megavoltage radiation-producing equipment to administer treatment. Students participate in clinical education in radiation therapy. The computed tomography (CT) portion of this program concentrates on sectional anatomy, single and multislice CT, electron beam CT, physiologic and 3-D imaging, CT simulation, physics and imaging, and procedures and pathology.

Upon completing the program, graduates are eligible to take the national certification exam in radiation therapy. Students will have completed the course work but not the clinical component to take the national certification exam in computed tomography.

Students typically apply to this two-year program during their sophomore year and begin it in fall of their junior year. Application deadline is January 15.

RT to B.S. Online

The RT to B.S. is an online program designed for registered radiologic technologists who wish to earn a Bachelor of Science degree with a major in radiation sciences by distance education. The program requires a minimum of 120 s.h., including 60 s.h. of credit for the student's completed radiologic technology program plus course work that is prerequisite to entering the major, an online modality, advanced courses, and electives to complete the credit required for graduation. Students must earn 30 s.h. toward the degree in University of Iowa course work.

Students choose one of three online modalities: cardiovascular interventional (CVI), computed tomography (CT), or magnetic resonance imaging (MRI). The modalities do not require an internship.

In order to be admitted to the radiation sciences major, students must pass the American Registry of Radiologic Technologists (AART) board certification exam. They also must have completed all course work prerequisite to entering the major with a g.p.a. of at least 2.50; see "Prerequisites to the Radiation Sciences Major" under "Bachelor of Science" above. Students may count approved transfer credit toward the required prerequisites; learn more by visiting Transfer Courses in ISIS.

Once students are admitted to the Carver College of Medicine and the radiation sciences major, they must complete at least 30 s.h. of University of Iowa course work: two advanced courses (6 s.h.), an online modality (19-25 s.h., depending on the modality), and sufficient elective course work to complete the 120 s.h. of credit required for graduation.

ADVANCED COURSES

Management and leadership—the online section of one of these:

COMM:1819 (036:019) Organizational Leadership	3 s.h.
MGMT:2100 (06J:048) Introduction to Management	3 s.h.
MGMT:3500 (06J:147) Nonprofit Organizational Effectiveness I	3 s.h.

Statistics—the online section of one of these:

STAT:1020 (22S:025) Elementary Statistics and Inference	3 s.h.
STAT:4143 (22S:102) Introduction to Statistical Methods	3 s.h.

ONLINE MODALITY

Students complete one of the following three online modalities.

Cardiovascular Interventional

The cardiovascular interventional online modality requires the following course work (total of 23 s.h.).

RSCI:4110 (675:110) Vascular Anatomy	3 s.h.
RSCI:4120 (675:120) CVI Principles	4 s.h.
RSCI:4130 (675:130) Electrocardiogram and Hemodynamics	3 s.h.
RSCI:4140 (675:140) CVI Peripheral Procedures and Pathology	3 s.h.
RSCI:4150 (675:150) CVI Neurology and Nonvascular Procedures and Pathology	3 s.h.
RSCI:4160 (675:160) CVI Cardiac Procedures and Pathology	4 s.h.
RSCT:4100 (676:100) Sectional Anatomy for Imaging Sciences	3 s.h.

Computed Tomography

The computed tomography online modality requires the following course work (total of 19 s.h.).

RSCI:4110 (675:110) Vascular Anatomy	3 s.h.
RSCT:4100 (676:100) Sectional Anatomy for Imaging Sciences	3 s.h.
RSCT:4110 (676:110) CT/MRI Pathology	3 s.h.
RSCT:4120 (676:120) Computed Tomography Procedures I	3 s.h.
RSCT:4125 (676:125) Computed Tomography Procedures II	3 s.h.
RSCT:4130 (676:130) Computed Tomography Physical Principles and QC	4 s.h.

Magnetic Resonance Imaging

The magnetic resonance imaging online modality requires the following course work (total of 25 s.h.).

RSCI:4110 (675:110) Vascular Anatomy	3 s.h.
RSCT:4100 (676:100) Sectional Anatomy for Imaging Sciences	3 s.h.
RSCT:4110 (676:110) CT/MRI Pathology	3 s.h.
RSMR:4110 (674:110) Fundamentals for the MRI Technologist	3 s.h.
RSMR:4120 (674:120) MRI Procedures I	4 s.h.
RSMR:4130 (674:130) MRI Procedures II	3 s.h.
RSMR:4140 (674:140) MRI Acquisition and Principles I	3 s.h.
RSMR:4150 (674:150) MRI Acquisition and Principles II	3 s.h.

ELECTIVES

Students choose elective course work to complete the 120 s.h. required for graduation.

Courses

Cardiovascular Interventional Program

RSCI:4110 (675:110) Vascular Anatomy 3 s.h.
Normal arterial and venous anatomy of the circulatory system, illustrated through angiographic, magnetic resonance imaging (MRI), and computed tomography (CG) images; common variants. Prerequisites: ACB:3110 (060:110) or ACB:3113 (060:113) or HHP:1100 (027:053).

- RSCI:4120 (675:120) CVI Principles** 4 s.h.
Imaging and accessory equipment for vascular interventional and cardiac interventional procedures; imaging equipment quality control; fundamental principles of vascular and cardiac procedures; patient preparation and care, radiation safety, contrast medium, pharmacology, and sedation. Corequisites: RSCI:4110 (675:110). Requirements: acceptance to B.S. radiation science RT/CVI track or ARRT primary RT certification.
- RSCI:4130 (675:130) Electrocardiogram and Hemodynamics** 3 s.h.
ECG analysis, hemodynamic principles and waveform analysis, cardiac output, vascular resistance, calculations of stenotic valves. Prerequisites: ACB:3110 (060:110), ACB:3113 (060:113), or HHP:1100 (027:053).
- RSCI:4140 (675:140) CVI Peripheral Procedures and Pathology** 3 s.h.
Angiographic and interventional procedures of the abdomen, thorax, and upper and lower extremities; associated pathologies. Corequisites: RSCI:4120 (675:120), if not taken as a prerequisite. Requirements: RSCI:4110 (675:110) or three months CVI experience.
- RSCI:4150 (675:150) CVI Neurology and Nonvascular Procedures and Pathology** 3 s.h.
Angiographic and interventional procedures of the head and neck; associated pathologies. Corequisites: RSCI:4120 (675:120), if not taken as a prerequisite. Requirements: RSCI:4110 (675:110) or three months CVI experience.
- RSCI:4160 (675:160) CVI Cardiac Procedures and Pathology** 4 s.h.
Cardiac diagnostic and interventional procedures; associated pathologies. Corequisites: RSCI:4120 (675:120) and RSCI:4130 (675:130), if not taken as prerequisites. Requirements: RSCI:4110 (675:110) or three months CVI experience.
- RSCI:4170 (675:170) Cardiac Interventional Clinical Internship** 4,6 s.h.
Scheduled cardiac-interventional clinical time at UI Hospitals and Clinics and Mercy Hospital, Iowa City; rotations in adult cardiac, electrophysiology, and pediatric catheterization; competency and objective-based education provided with clinical performance evaluations and constructive feedback from CI staff and clinical coordinator; clinical coordinator facilitates schedules, rotations, learning objectives, evaluations, and competencies. Corequisites: RSCI:4130 (675:130) and RSCI:4160 (675:160), if not taken as prerequisites. Requirements: acceptance to B.S. radiation sciences RT/CVI track.
- RSCI:4180 (675:180) Vascular Interventional Clinical Internship** 4,6 s.h.
Scheduled vascular-interventional clinical time at UI Hospitals and Clinics; labs specialize in peripheral, neuro- and non-vascular procedures; competency and objective-based education; clinical performance evaluations providing constructive feedback from VI staff and clinical coordinator; clinical coordinator facilitates schedules, rotations, learning objectives, evaluations, and competencies. Corequisites: RSCI:4140 (675:140) and RSCI:4150 (675:150), if not taken as prerequisites. Requirements: acceptance to B.S. radiation sciences RT/CVI track.
- RSCI:4190 (675:190) CVI Clinical Internship** 2 s.h.
Introduction to VI and CI labs, including basic set up, equipment, and procedures; preparation to spend more concentrated time in each area for future internships; provides 192 hours of clinical experience over a 12-week period. Requirements: acceptance to radiation sciences RT/CVI degree track or CVI clinical internship.
- Computed Tomography Program**
- RSCT:4100 (676:100) Sectional Anatomy for Imaging Sciences** 3 s.h.
Sectional anatomy identifiable on computed tomography and magnetic resonance imaging, including transverse, coronal, and sagittal planes. Prerequisites: ACB:3110 (060:110) or ACB:3113 (060:113) or HHP:1100 (027:053).
- RSCT:4105 (676:105) Computed Tomography Clinical Internship I** 1,6 s.h.
Clinical internship scheduled at UI Hospitals and Clinics; rotation through CT scanners, 3-D lab, and radiation therapy departments; competency and objective-based education with required clinical performance evaluations; clinical coordinator facilitates schedules, rotations, learning objectives, evaluations, and competencies; experience facilitated by CT technologists, radiologists, residents, and coordinator; participation in routine and advanced CT scans; performance expectations become progressively higher as student gains experience and skills. Requirements: acceptance to B.S. radiation sciences RT/CT track.
- RSCT:4110 (676:110) CT/MRI Pathology** 3 s.h.
Common pathological conditions found in CT and MRI images; protocol appearance variations; units of CNS, musculoskeletal, neck/thorax, and abdominopelvic pathology; textbook readings, in-class discussions, special projects including case studies and presentations. Requirements: concurrent enrollment in RSCT:4100 (676:100), if not taken as a prerequisite, or at least 3 months fulltime CT/MRI clinical experience.
- RSCT:4115 (676:115) Computed Tomography Clinical Internship II** 3 s.h.
CT scanners, 3-D lab, and radiation therapy department rotation at University of Iowa Hospitals and Clinics; competency and objective-based education with required clinical performance evaluations; clinical coordinator facilitates schedule, rotations, learning objectives, evaluations, and competencies; experience facilitated by CT technologists, radiologists, residents, and coordinator; participation in routine and advanced CT scans; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSCT:4140 (676:140).

RSCT:4120 (676:120) Computed Tomography Procedures I 3 s.h.

Computed tomography procedures of the head, neck, thorax, mediastinum, abdomen, and pelvis; positioning techniques, patient preparation, monitoring and care, indications and contraindications for procedures; contrast media usage; basic protocol information with adjustments to tailor procedures for patient's indications; brief units on patient care relevant to CT; CT parameters and equipment. Corequisites: RSCT:4100 (676:100). Requirements: acceptance to B.S. radiation sciences RT/CT track or ARRT primary certification in radiologic technology, nuclear medicine, or radiation therapy.

RSCT:4125 (676:125) Computed Tomography Procedures II 3 s.h.

Imaging information in musculoskeletal exams, 3-D reconstruction, CTAs; cardiac, including gating, biopsies, drains, post-myelography, radiation therapy planning, and 4-D imaging; CT arthrography, PET/CT, SPECT/CT, virtual colonoscopy; procedure indications and contraindications, patient and room preparation, positioning techniques, contrast media usage, and scan parameters; basic protocol information and how to tailor procedures to a patient's indications. Prerequisites: RSCT:4120 (676:120). Corequisites: RSCT:4110 (675:110), if not taken as a prerequisite.

RSCT:4130 (676:130) Computed Tomography Physical Principles and QC 4 s.h.

Physical principles and instrumentation; historical development and evolution of CT; characteristics of radiation, beam attenuation, linear attenuation coefficients, tissue characteristics, Hounsfield numbers, data acquisition, image manipulation techniques, tube configuration, collimation design and function, detectors, image quality factors, functions of CT computer and array processor; image processing and display examined from data acquisition through postprocessing and archiving; radiation protection practices and QC. Requirements: acceptance to B.S. radiation sciences RT/CT degree track or ARRT primary certification in radiologic technology, nuclear medicine, or radiation therapy.

RSCT:4140 (676:140) Computed Tomography Clinical Internship 6 s.h.

Completion of clinical documentation needed to take the ARRT certification examination in computed tomography; 32 hours per week in UI Healthcare's computed tomography department. Corequisites: RSCT:4120 (676:120) and RSCT:4130 (676:130), if not taken as prerequisites. Requirements: ARRT primary certification in radiologic technology, nuclear medicine, or radiation therapy; and acceptance to CT internship.

RSCT:4215 (676:215) Computed Tomography Clinical Internship III 3 s.h.

CT scanners, 3-D lab, and radiation therapy department rotation at University of Iowa Hospitals and Clinics; competency and objective-based education with required clinical performance evaluations; clinical coordinator facilitates schedule, rotations, learning objectives, evaluations, and competencies; experience facilitated by CT technologists, radiologists, residents, and coordinator; participation in routine and advanced CT scans; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSCT:4115 (676:115).

Magnetic Resonance Imaging Program**RSMR:4110 (674:110) Fundamentals for the MRI Technologist** 3 s.h.

Care-giving skills specific to patients undergoing MRI examinations, including techniques in effectively communicating for safety and comfort; maintaining patient and personnel safety; patient preparation, monitoring, and venipuncture; technologist's role in a wide variety of MRI examinations and patient conditions. Requirements: acceptance to B.S. radiation sciences RT/MRI track or ARRT primary certification in radiologic technology, nuclear medicine, sonography, or radiation therapy.

RSMR:4120 (674:120) MRI Procedures I 4 s.h.

Imaging techniques related to central nervous and musculoskeletal systems; specific clinical applications; available coils and their use; considerations in imaging parameters; specific choices in protocols and positioning criteria; anatomical structures and the plane that best demonstrates anatomy; signal characteristics of normal and abnormal structures. Prerequisites: RSCT:4100 (676:100). Requirements: concurrent registration in RSMR:4110 (674:110), if not taken as a prerequisite; or three months MRI experience.

RSMR:4130 (674:130) MRI Procedures II 3 s.h.

MRI techniques related to neck, thorax, breast, abdomen, and pelvis; specific clinical applications; available coils and their use; considerations in imaging parameters; specific choices in protocols and positioning criteria. Prerequisites: RSMR:4120 (674:120).

RSMR:4140 (674:140) MRI Acquisition and Principles I 3 s.h.

Physics and hardware used in obtaining a magnetic resonance signal, including magnetism, NMR signal production, tissue characteristics, spatial localization, pulse sequencing, imaging parameters and options, and special applications; exploration of skills useful in maximizing MR image quality. Requirements: concurrent registration in RSMR:4110 (674:110), if not taken as a prerequisite; or three months MRI experience.

RSMR:4150 (674:150) MRI Acquisition and Principles II 3 s.h.

Advanced MRI techniques; MR angiography and further investigation of fast image acquisition sequences; overview of MR magnets, installation, operation, and facility design; computers and digital image acquisition as they apply to MR; outline of quality assurance procedures. Prerequisites: RSMR:4140 (674:140).

RSMR:4160 (674:160) MRI Clinical Internship I 2,3,6 s.h.

MRI clinical internship scheduled at UI Hospitals and Clinics; rotation through each MRI department scanning room; competency and objective-based education with required clinical performance evaluations; clinical preceptor facilitates schedules, rotations, learning objectives, evaluations, and competencies; experience facilitated by MRI technologists, radiologists, residents, and preceptor; participation in routine and advanced MRI scans; performance expectations become progressively higher as student gains experience and skills. Prerequisites: RSMR:4110 (674:110). Corequisites: RSMR:4120 (674:120) and RSMR:4140 (674:140), if not taken as prerequisites. Requirements: acceptance to B.S. radiation sciences RT/MRI track.

RSMR:4170 (674:170) MRI Clinical Internship II 3,6 s.h.

MRI clinical internship scheduled at UI Hospitals and Clinics; rotation through each MRI department scanning room; competency and objective-based education with required clinical performance evaluations; clinical preceptor facilitates schedules, rotations, learning objectives, evaluations, and competencies; experience facilitated by MRI technologists, radiologists, residents, and preceptor; participation in routine and advanced MRI scans; performance expectations become progressively higher as student gains experience and skills. Prerequisites: RSMR:4160 (674:160). Corequisites: RSMR:4140 (674:140), if not taken as a prerequisite. Requirements: acceptance to B.S. radiation sciences RT/MRI track.

RSMR:4175 (674:175) MRI Clinical Internship III 4 s.h.

Rotation through MRI department scanning rooms at University of Iowa Hospitals and Clinics; competency and objective-based education with required clinical performance evaluations; clinical preceptor facilitates schedules, rotations, learning objectives, evaluations, and competencies; experience facilitated by MRI technologists, radiologists, residents, and preceptor; participation in routine and advanced MRI scans; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSMR:4170 (674:170).

Diagnostic Medical Sonography Program

RSMS:3100 (673:160) Cardiac Sonography I 3 s.h.

Normal sonographic anatomy, exam protocols, imaging techniques, and basic pathology of human heart. Prerequisites: RSCT:4100 (676:100). Corequisites: RSMS:3110 (673:110), if not taken as prerequisite. Requirements: acceptance to radiation sciences MS degree track or successful completion of two-year radiologic technology or diagnostic medical sonography program.

RSMS:3101 (673:161) Cardiac Sonography I Lab 1 s.h.

Simulated application of basic sonographic cardiac imaging; clinical history analysis. Corequisites: RSMS:3100 (673:160). Requirements: acceptance to radiation sciences MS degree track.

RSMS:3110 (673:110) Foundations of Sonography 3 s.h.

Sonography history, ergonomics, terminology, image orientation; basic theories of sound waves, echo production, transducers, equipment operation, body imaging, Doppler, hemodynamics. Requirements: PHYS:1400 (029:008) or radiologic technology program physics course or diagnostic medical sonography physics course.

RSMS:3111 (673:111) Foundations of Sonography Lab 1 s.h.

Sonography history, ergonomics, terminology, image orientation; basic theories of sound waves, echo production, transducers, equipment operation, body imaging, Doppler, and hemodynamics. Corequisites: RSMS:3110 (673:110).

RSMS:3115 (673:101) Diagnostic Medical Sonography Clinical Internship I 2 s.h.

Development of basic understanding of sonography clinical environment and professional practice standards; experience in health care setting. Requirements: acceptance to radiation sciences MS degree track.

RSMS:3120 (673:115) Abdominal Sonography I 3 s.h.

Embryology, anatomy, and physiology of various abdominal structures imaged sonographically; abdominal vasculature, hepatobiliary system, pancreas, urinary system, adrenals, spleen, male anatomy; proper sonographic imaging techniques, including appearance of normal anatomy, imaging protocol, proper instrument settings. Prerequisites: RSCT:4100 (676:100). Corequisites: RSMS:3110 (673:110), if not taken as a prerequisite. Requirements: successful completion of a two-year radiologic technology or diagnostic medical sonography program.

RSMS:3121 (673:116) Abdominal Sonography I Lab 1 s.h.

Simulated application of basic sonographic abdominal imaging, normal anatomy, examination protocols, and clinical history analysis. Corequisites: RSMS:3120 (673:115). Requirements: acceptance to radiation sciences MS degree track.

RSMS:3130 (673:120) Obstetrical and Gynecological Sonography I 3 s.h.

Embryology, anatomy, and physiology of the female reproductive system and developing fetus; proper sonographic imaging techniques, including appearance of normal anatomy, imaging protocol, proper instrument settings. Prerequisites: RSCT:4100 (676:100). Corequisites: RSMS:3110 (673:110), if not taken as a prerequisite. Requirements: successful completion of a two-year radiologic technology or diagnostic medical sonography program.

RSMS:3131 (673:131) Obstetrical and Gynecological Sonography I Lab 1 s.h.

Simulated application of basic sonographic obstetrical and gynecological imaging; clinical history analysis. Corequisites: RSMS:3131 (673:131). Requirements: acceptance to radiation sciences MS degree track.

- RSMS:3140 (673:125) Vascular Sonography I** 3 s.h.
Embryology, anatomy, and physiology of peripheral and cerebral vascular system; normal and abnormal hemodynamics, Doppler waveforms, pressure measurements, plethysmography, sonographic appearance, scanning techniques; common types of pathology of the lower extremity arterial and venous system, cerebrovascular system. Prerequisites: RSCI:4110 (675:110). Corequisites: RSMS:3110 (673:110), if not taken as a prerequisite. Requirements: successful completion of a two-year radiologic technology or diagnostic medical sonography program.
- RSMS:3141 (673:126) Vascular Sonography I Lab** 1 s.h.
Simulated application of basic sonographic vascular imaging, vascular physiologic testing, and clinical history analysis. Corequisites: RSMS:3140 (673:125). Requirements: acceptance to radiation sciences MS degree track.
- RSMS:3150 (673:163) Cardiac Physiology and Hemodynamics** 3 s.h.
Analysis of cardiac physiology, hemodynamics, diagnostic testing, and evaluation techniques specifically related to sonographic imaging. Prerequisites: RSCI:4130 (675:130). Corequisites: RSMS:3110 (673:110), if not taken as prerequisite. Requirements: acceptance to radiation sciences MS degree track, or successful completion of two-year radiologic technology or diagnostic medical sonography program.
- RSMS:3205 (673:165) Cardiac Sonography II** 3 s.h.
Sonographic evaluation of advanced pathophysiology of human heart; sonographic appearance, imaging techniques, and exam modification. Prerequisites: RSMS:3100 (673:160).
- RSMS:3206 (673:166) Cardiac Sonography II Lab** 1 s.h.
Simulated application of advanced sonographic cardiac imaging and clinical history analysis. Corequisites: RSMS:3205 (673:165). Requirements: acceptance to radiation sciences MS degree track.
- RSMS:3215 (673:102) Diagnostic Medical Sonography Clinical Internship II** 3 s.h.
Development of basic skills for sonographic imaging and physiologic vascular testing in health care setting. Prerequisites: RSMS:3115 (673:101). Requirements: acceptance to radiation sciences MS degree track.
- RSMS:3230 (673:140) Sonography Principles, Physics, and Instrumentation** 3 s.h.
Physical principles of sound waves, their applications to imaging of the human body, operation and physical characteristics of various ultrasound transducers, method by which the sound wave is converted into a visual image, instrumentation components and their functions, Doppler principles, image artifacts, advanced hemodynamics, and spectral Doppler waveform analysis. Prerequisites: RSMS:3110 (673:110).
- RSMS:3231 (673:141) Sonography Principles, Physics, and Instrumentation Lab** 1 s.h.
Simulated application of sonographic imaging; emphasis on physics principles; instrumentation and quality assurance testing. Corequisites: RSMS:3230 (673:140). Requirements: acceptance to radiation sciences MS degree track.
- RSMS:3240 (673:145) Abdominal Sonography II** 3 s.h.
Pathophysiology of abdominal structures imaged sonographically, including the GI system, abdominal wall, peritoneal, retroperitoneal, and superficial structures from RSMS:3120 (673:115); interventional sonographic procedures (aspirations, biopsies, intraoperative procedures, sterile technique, needle-guide use); post-procedure protocol; clinical findings, laboratory studies, prognosis correlated with sonographic findings; appropriate image analysis and documentation of pathology. Prerequisites: RSMS:3120 (673:115).
- RSMS:3250 (673:150) Obstetrical and Gynecological Sonography II** 3 s.h.
Sonographically-related pathological and abnormal congenital conditions of gynecology and obstetrics, infertility, assisted reproductive therapy, invasive procedures in obstetrics and gynecology, postpartum complications and maternal-fetal bonding; clinical findings, laboratory studies, and prognosis correlated with sonographic findings; appropriate image analysis and documentation of pathology. Prerequisites: RSMS:3130 (673:120).
- RSMS:3260 (673:152) Breast Sonography** 2 s.h.
Embryology, anatomy, physiology, and pathophysiology of the breast as it relates to sonographic imaging; proper sonographic imaging techniques, including appearance of normal anatomy, imaging protocol, proper instrument settings; sonographic findings of diseases involving the breast. Prerequisites: RSMS:3110 (673:110). Requirements: successful completion of a two-year radiologic technology or diagnostic medical sonography program.
- RSMS:3270 (673:155) Vascular Sonography II** 3 s.h.
Pathophysiology of peripheral, cerebral, and abdominal vascular systems as evaluated sonographically; normal and abnormal hemodynamics, Doppler waveforms, pressure measurements, plethysmography, sonographic appearance, scanning techniques; sonographic findings of diseases involving the lower extremity arterial and venous system, upper extremity arterial and venous system, cerebrovascular system, and abdominal vascular system. Prerequisites: RSMS:3140 (673:125).
- RSMS:3300 (673:170) Neurosonography** 2 s.h.
Normal sonographic anatomy, exam protocols, imaging techniques, and pathology of neonatal brain and pediatric spinal cord. Prerequisites: RSMS:3110 (673:110). Requirements: acceptance to a radiation sciences degree track, or successful completion of two-year radiologic technology or diagnostic medical sonography program.
- RSMS:3315 (673:103) Diagnostic Medical Sonography Clinical Internship III** 4 s.h.

Development of skills for sonographic imaging and physiologic vascular testing in health care setting. Prerequisites: RSMS:3215 (673:102). Requirements: acceptance to radiation sciences MS degree track.

RSMS:3325 (673:146) Abdominal Sonography II Lab 1 s.h.

Simulated application of advanced sonographic abdominal imaging and clinical history analysis. Corequisites: RSMS:3240 (673:145), if not taken as prerequisite. Requirements: acceptance to radiation sciences MS degree track.

RSMS:3376 (673:156) Vascular Sonography II Lab 1 s.h.

Simulated application of advanced sonographic vascular imaging; non-imaging vascular physiologic testing; clinical history analysis. Corequisites: RSMS:3270 (673:155), if not taken as prerequisite. Requirements: acceptance to radiation sciences MS degree track.

RSMS:4100 (673:803) Diagnostic Medical Sonography I 0,9 s.h.

RSMS:4110 (673:112) Advanced Sonography 3 s.h.

Exploration of advanced sonographic imaging techniques and new technologies. Prerequisites: RSMS:3240 (673:145) and RSMS:3250 (673:150).

RSMS:4111 (673:113) Advanced Sonography Lab 1 s.h.

Simulated application of advanced sonographic imaging techniques and new technologies. Prerequisites: RSMS:4110 (673:112). Requirements: acceptance to radiation sciences MS degree track.

RSMS:4115 (673:104) Diagnostic Medical Sonography Clinical Internship IV 5 s.h.

Development of high-level skills for sonographic imaging and physiologic vascular testing in health care setting. Prerequisites: RSMS:3315 (673:103). Requirements: acceptance to radiation sciences MS degree track.

RSMS:4120 (673:122) Advanced Cardiac Sonography 3 s.h.

Advanced cardiac sonographic imaging techniques, quantifications, and new technologies. Prerequisites: RSMS:3205 (673:165).

RSMS:4121 (673:123) Advanced Cardiac Sonography Lab 1 s.h.

Simulated application of advanced cardiac sonographic imaging techniques, quantifications, and new technologies. Corequisites: RSMS:4120 (673:122). Requirements: acceptance to radiation sciences MS degree track.

RSMS:4150 (673:911) Diagnostic Cardiac Sonography 0 s.h.

Principles, methods in using ultrasound; specialties including adult and stress echocardiography; six-month program; national certification examination required at completion of program. Requirements: completion of an accredited medical sonography or vascular technology program.

RSMS:4200 (673:804) Diagnostic Medical Sonography II 0,9 s.h.

Principles and methods in using ultrasound as an imaging modality; abdomen, obstetrics and gynecology, neurosonography, and vascular technology specialties; 18-month program; national certification required at completion. Prerequisites: RSTH:4100 (672:803). Requirements: completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, and algebra.

RSMS:4215 (673:105) Diagnostic Medical Sonography Clinical Internship V 5 s.h.

Development of advanced skills for sonographic imaging and physiologic vascular testing in health care setting. Prerequisites: RSMS:4115 (673:104). Requirements: acceptance to radiation sciences MS degree track.

RSMS:4220 (673:190) Multidisciplinary Capstone Seminar 3 s.h.

Completion of student preparation for professional work environment; case-based learning. Prerequisites: RSMS:4110 (673:112) or RSMS:4120 (673:122).

RSMS:4250 (673:912) Cardiac Sonography Clinical Course 0 s.h.

Using ultrasound as an imaging modality; specialties, including adult echocardiography, stress echocardiography; six-month program; national certification examination required at completion. Requirements: completion of an accredited medical sonography or vascular technology program.

RSMS:4300 (673:805) Diagnostic Medical Sonography III 0,3 s.h.

Prerequisites: RSMS:4200 (673:804). Requirements: completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.

RSMS:4400 (673:806) Diagnostic Medical Sonography IV 0,9 s.h.

Principles and methods in using ultrasound as an imaging modality; specialties including abdomen, pediatrics, obstetrics, gynecology, interventional procedures, vascular imaging, neurosonography; 18-month program; national certification examination required at completion. Prerequisites: RSMS:4300 (673:805). Requirements: completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.

RSMS:4500 (673:807) Diagnostic Medical Sonography V 0,6 s.h.

Prerequisites: RSMS:4400 (673:806). Requirements: completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.

Radiation Sciences Program

RSP:1100 (680:010) Introduction to the Radiation Sciences 1 s.h.

Exploration of radiation sciences field (radiologic technology, nuclear medicine and PET, diagnostic medical sonography, radiation therapy, computed tomography, magnetic resonance imaging, cardiovascular interventional); introduction to basic principles and modalities associated with the field in preparation for application to radiation sciences or nuclear medicine technology major.

RSP:2110 (680:110) Pathology for Radiation Sciences 2 s.h.

General pathologic processes; introduction to imaging modalities; pathological terms that describe the body's response to stress and disease; how the body responds to and forms pathological diseases (e.g., infectious and parasitic diseases, inflammation and repair, immunopathology, neoplasia, genetic disorders, dietary deficiencies and excesses, hemodynamic disorders, trauma and emergencies). Requirements: acceptance to radiation science degree track.

RSP:2120 (680:120) Patient Care for the Radiation Sciences 3 s.h.

Foundation for providing care to clients during radiographic examinations; taking medical histories, basic life support, medical emergencies, vital sign assessment, body mechanics, infection control, sterile techniques, intravenous equipment, administration; advance concepts in client assessment and monitoring, including evaluation and monitoring of clients in pain, and clients in acute and chronic states of illness; communication techniques, role playing. Requirements: acceptance to radiation science degree track.

RSP:3130 (680:130) Radiation Safety and Radiobiology 2 s.h.

Instruction on safe operation of radiation producing equipment and handling of radioactive materials; origin and/or derivation of certain formulae and techniques useful in radiation protection programs; regulatory agencies, regulations, and regulatory guides pertinent to student's field; emphasis on applied aspects of radiation protection; characteristics and biological effects of ionizing radiations, properties and uses of radioisotopes, medical applications, and biological basis for protection procedures. Requirements: enrollment in radiation sciences program. Same as FRRB:3130 (077:120).

RSP:3210 (680:210) Medical Ethics and Law 2 s.h.

Introduction to ethical reasoning and problem solving; integration of knowledge about patient care and ethical/legal issues which occur in process of providing care; ethical principles of autonomy, beneficence, justice, nonmaleficence, paternalism, Patient's Bill of Rights, resolving moral dilemmas; legal principles of malpractice, intentional torts, negligence. Requirements: radiation science or nuclear medicine technology major.

RSP:3220 (680:220) Radiation Sciences Quality Management and Health Care Administration 2 s.h.

Introduction to health care administration; quality management, safety, and patient satisfaction concepts for the radiation sciences professional. Requirements: radiation sciences or nuclear medicine technology major.

RSP:4110 (680:111) Research Methodology for Radiation Sciences 3 s.h.

Introduction to research concepts and methods for the radiation science professional. Requirements: radiation sciences or nuclear medicine technology major.

Radiologic Technology Program

RSRT:2110 (670:110) Radiographic Procedures and Analysis I 4 s.h.

Introduction to radiographic positioning principles; technical, positioning, and analysis information needed to perform and evaluate images of chest and abdomen on adult and pediatric patients; emphasis on quality patient care and adaptation to a variety of client conditions; labs. Prerequisites: ACB:1199 (060:099), ACB:3110 (060:110) or ACB:3113 (060:113), CLSA:3750 (20E:103), and HHP:1100 (027:053). Requirements: acceptance to radiation sciences RT/CT, CVI, or MRI degree track.

RSRT:2120 (670:120) Radiologic Technology Clinical Internship I 1 s.h.

Student rotations through different radiography-related areas of University of Iowa Hospitals and Clinics; assist, practice, and test radiographic examinations learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Requirements: acceptance to radiation sciences RT/CT, CVI, or MRI degree track.

RSRT:2215 (670:112) Radiographic Procedures and Analysis II 7 s.h.

Technical, positioning, and analysis information needed to perform and evaluate images of upper and lower extremity, shoulder, and gastrointestinal and biliary radiographic procedures; emphasis on quality patient care and adaptation to a variety of client conditions; labs. Prerequisites: RSRT:2110 (670:110).

RSRT:2225 (670:130) Radiologic Technology Clinical Internship II 4 s.h.

Student rotation through different radiography-related areas of University of Iowa Hospitals and Clinics; assist, practice, and test radiographic examinations learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSRT:2120 (670:120).

RSRT:2325 (670:135) Radiologic Technology Clinical Internship III 3 s.h.

Student rotation through different radiography-related areas of University of Iowa Hospitals and Clinics; assist, practice, and test radiographic examinations learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSRT:2225 (670:130).

- RSRT:3115 (670:115) Radiographic Procedures and Analysis III** 4 s.h.
 Technical, positioning, and analysis information needed to perform and evaluate images of hip, pelvis, spine, thorax, skull, and GU system radiographic procedures; emphasis on quality patient care and adaptation to a variety of client conditions; labs. Prerequisites: RSRT:2215 (670:112).
- RSRT:3125 (670:145) Radiologic Technology Clinical Internship IV** 4 s.h.
 Student rotation through different radiography-related areas of University of Iowa Hospitals and Clinics; assist, practice, and test radiographic examinations learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSRT:2325 (670:135).
- RSRT:3140 (670:140) Radiographic and Digital Imaging** 5 s.h.
 Factors that govern and influence production of radiographic image; X-ray and scatter production; patient interactions; function of kVp, mAs, and distance as applied to contrast and spatial resolution; practical issues concerning automatic exposure control and grid usage; labs to practice and apply theoretical principles associated with production of quality images. Prerequisites: MATH:1020 (22M:009) or MATH:1440 (22M:015). Requirements: acceptance to radiation sciences RT/CT, CVI or MRI degree track.
- RSRT:3210 (670:210) Radiographic and Digital Quality Control Lab** 1 s.h.
 Exploration and performing radiographic and digital quality control tests.
- RSRT:3215 (670:118) Radiographic Procedures IV** 1 s.h.
 Technical, positioning, and analysis information needed to perform and evaluate images performed in advanced radiographic procedures; emphasis on quality patient care and adaptation to a variety of client conditions. Prerequisites: RSRT:3115 (670:115).
- RSRT:3225 (670:155) Radiologic Technology Clinical Internship V** 3 s.h.
 Student rotation through different radiography-related areas of University of Iowa Hospitals and Clinics; assist, practice, and test radiographic examinations learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSRT:3125 (670:145).
- RSRT:3230 (670:230) Radiographic Physics and Imaging Equipment** 4 s.h.
 Characteristics of atomic structure, electricity, and X-ray machines; properties of X-rays and their interaction with matter; measurement of radiation exposure; construction principles and theories of operation of specialized imaging equipment, including fundamentals of acquisition for imaging intensification, geometric tomography, mobile/portable radiography, and magnification principles. Prerequisites: MATH:1020 (22M:009) or MATH:1440 (22M:015).
- RSRT:3325 (670:165) Radiologic Technology Clinical Internship VI** 2 s.h.
 Student rotation through different radiography-related areas of University of Iowa Hospitals and Clinics; assist, practice, and test radiographic examinations learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSRT:3225 (670:155).
- RSRT:4125 (670:175) Radiologic Technology Clinical Internship VII** 1 s.h.
 Student rotation through different radiography-related areas of University of Iowa Hospitals and Clinics; assist, practice, and test radiographic examinations learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSRT:3325 (670:165).
- RSRT:4225 (670:185) Radiologic Technology Clinical Internship VIII** 1 s.h.
 Student rotation through different radiography-related areas of University of Iowa Hospitals and Clinics; assist, practice, and test radiographic examinations learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Prerequisites: RSRT:4125 (670:175).
- Radiation Therapy Program**
- RSTH:3100 (672:100) Introduction to Radiation Therapy** 2 s.h.
 Introduction to cancer as a disease; defining methods to treat cancer with emphasis on radiation therapy; simulation, planning, and treatment delivery of radiation therapy. Prerequisites: ACB:1199 (060:099) and CLSA:3750 (20E:103). Requirements: acceptance to radiation sciences therapy program.
- RSTH:3110 (672:110) Medical Physics I** 2-3 s.h.
 Introduction to radiation used in clinical setting; fundamental physical units, measurements, principles, atomic structure and types of radiation; X-ray generating equipment, X-ray production, and its interaction with matter. Requirements: acceptance to radiation sciences therapy program, and maxillofacial or radiation oncology resident. Same as FRRB:3110 (077:110).
- RSTH:3120 (672:120) Radiation Therapy Clinical Internship I** 3 s.h.

Student rotations through different radiation therapy related areas; assist, practice, and test radiation therapy principles learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Requirements: acceptance to radiation sciences therapy program.

RSTH:3205 (672:101) Principles of Radiation Therapy I 2 s.h.

Didactic and laboratory work in principles of radiation therapy; historic and current aspects of cancer treatment; role of radiation therapist; patient care, treatment delivery accessories, tumor localization treatment delivery protocols. Prerequisites: RSTH:3100 (672:100). Requirements: enrollment in radiation sciences therapy program.

RSTH:3215 (672:115) Medical Physics II 2 s.h.

Treatment units used in external radiation therapy; beam calculations, isodose distributions, brachytherapy, quality assurance and quality management, protection and safety. Prerequisites: RSTH:3110 (672:110). Requirements: acceptance to radiation sciences therapy program. Same as FRRB:3215 (077:121).

RSTH:3225 (672:130) Radiation Therapy Clinical Internship II 3 s.h.

Student rotations through different radiation therapy related areas; assist, practice, and test radiation therapy principles learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Requirements: acceptance to radiation sciences therapy program.

RSTH:3325 (672:140) Radiation Therapy Clinical Internship III 6 s.h.

Student rotations through different radiation therapy related areas; assist, practice, and test radiation therapy principles learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Requirements: acceptance to radiation sciences therapy program.

RSTH:4100 (672:803) Radiation Therapy I 0,12 s.h.

Theory and techniques of radiation therapy technology; emphasis on areas of oncology treatment planning, treatment set-up, dosimetry, use of megavoltage radiation-producing equipment to administer treatments. Requirements: completion of radiologic technology program and eligibility for registration with a national certification program.

RSTH:4105 (672:102) Principles of Radiation Therapy II 2 s.h.

Evaluation and management of neoplastic disease using knowledge in arts and sciences; critical thinking and basis of ethical clinical decision making; epidemiology, etiology, detection, diagnosis, patient condition, treatment and prognosis of neoplastic disease. Prerequisites: RSTH:3100 (672:100) and RSTH:3205 (672:101). Requirements: enrollment in radiation sciences therapy program.

RSTH:4125 (672:150) Radiation Therapy Clinical Internship IV 4 s.h.

Student rotations through different radiation therapy related areas; assist, practice, and test radiation therapy principles learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Requirements: acceptance to radiation sciences therapy program.

RSTH:4200 (672:804) Radiation Therapy II 0,12 s.h.

Theory and techniques of radiation therapy technology; emphasis on areas of oncology treatment planning, treatment set-up, dosimetry, use of megavoltage radiation-producing equipment to administer treatment; one-year program ending in eligibility for national certification examination in radiation therapy. Prerequisites: RSTH:4100 (672:803). Requirements: graduation from an accredited radiography program and eligibility for registration with a national certification program.

RSTH:4225 (672:160) Radiation Therapy Clinical Internship V 4 s.h.

Student rotations through different radiation therapy related areas; assist, practice, and test radiation therapy principles learned in didactic setting; skill building for care and management of patients; conduction of performance assessments and completion of guideline objectives for each rotation; performance expectations become progressively higher as students gain experience and skills. Requirements: acceptance to radiation sciences therapy program.

RSTH:4230 (672:170) Radiation Therapy Capstone 3 s.h.

Professional development; review of concepts. Requirements: acceptance to radiation sciences therapy program.

RSTH:4300 (672:805) Radiation Therapy III 0,6 s.h.

Prerequisites: RSTH:4200 (672:804).

Radiology

Interim head

- Joan E. Maley

Professors

- Monzer M. Abu-Yousef, D. Lee Bennett, Kevin S. Berbaum, David Bushnell, Michael D'Alessandro, Georges Y. El-Khoury, Laurie L. Fajardo, Michael M. Graham, Richard D. Hichwa, Eric A. Hoffman, Daniel Kahn, Simon Kao, Mark T. Madsen, Joan E. Maley, Toshio Moritani, Brian Mullan, John D. Newell Jr., Kenjiro Ohashi, Axel Ruprecht, Punam Saha, Yutaka Sato, Shiliang Sun

Associate professors

- Thomas Barloon, Eve Clark, Thomas Grabowski, David Kuehn, Vincent Magnotta, Yusuf Menda, Louis Messerle, Jun Ni, Bruno Policeni, Laura Ponto, Michael K. Schultz, Alan Stolpen, John Sunderland, Brad H. Thompson, G. Leonard Watkins, Jinhu Xiong

Assistant professors

- Andres Capizzano, David W. Dick, Minako Hayakawa, Jack Kademian, Jinsuh Kim, Archana Laroia, Sandeep Laroia, Joshua McDonald, Howard O'Rourke, Stanley Parker, Maheen Rajput, Jessica Sieren, Limin Yang

Professors emeriti

- James Ehrhardt, Edmund A. Franken Jr., Peter Kirchner, Charles C. Lu, Wendy Smoker, William Stanford, Timothy Tewson

Associate professor emeritus

- Bruce P. Brown

Web site: <http://www.medicine.uiowa.edu/radiology/>

The Department of Radiology has a three-fold mission of education, research, and patient care. It trains Doctor of Medicine students, residents, and fellows and offers programs for medical professionals. It is a leader in innovative research relating to diagnosis and treatment across the clinical subspecialties, including MRI, PET, breast imaging, cardiac and pulmonary imaging, and imaging informatics. Residents, fellows, medical students, and graduate students have opportunities to participate in research projects in the department. The radiology library provides varied resources and services for department faculty and staff.

The department also provides diagnostic and therapeutic radiology services for patients and families in Iowa and surrounding states through its clinical services at University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center. Visit the Department of Radiology web site to learn more about the department's activities and resources.

Undergraduate Education

The Department of Radiology offers clinical education to students in the Nuclear Medicine Technology (p. 1100) and Radiation Sciences (p. 1136) Programs.

M.D. Student Training

The Department of Radiology offers a clerkship for Doctor of Medicine students and provides additional courses, research experiences, and externships for students interested in learning more about radiology. Several of the department's programs are open to medical students from other institutions. See Medical Student Education Programs and Externship Program on the Department of Radiology web site.

Residency Programs, Fellowships

The department offers two residency programs: one in diagnostic radiology and one in nuclear medicine. Fellowships are available in the following specialties: body imaging, breast imaging, musculoskeletal radiology, neuroradiology, pediatric radiology, and PET-CT imaging. Practicing radiologists have access to several departmental traineeships that provide category 1 continuing medical education credit through the Carver College of Medicine; see Traineeships on the Department of Radiology web site.

Courses

RAD:8301 (074:006) Clinical Radiology	2 s.h.
Two-week clerkship. Requirements: M.D. enrollment.	
RAD:8401 (074:201) Advanced Clinical Radiology	arr.
Requirements: M.D. enrollment.	
RAD:8402 (074:203) Vascular and Interventional Radiology	arr.
Requirements: M.D. enrollment.	
RAD:8498 (074:998) Radiology On Campus	arr.
Requirements: M.D. enrollment.	
RAD:8499 (074:999) Radiology Off Campus	arr.
Requirements: M.D. enrollment.	

Stead Family Department of Pediatrics

Chair

- Raphael Hirsch

Professors

- Richard C. Ahrens, Dianne L. Atkins, Edward F. Bell, Warren Bishop, Daniel Bonthius, Rami Boutros, Trudy Burns (Nursing/Stead Family Department of Pediatrics/Epidemiology), John Dagle, Donna D'Alessandro, Abhay Divekar, R. Erik Edens, Josephine Gittler (Law/Health Management and Policy/Stead Family Department of Pediatrics/Nursing), Charles Grose, Raphael Hirsch, Lenore Holte (Communication Sciences and Disorders/Stead Family Department of Pediatrics), David Johnsen (Pediatric Dentistry/Preventive and Community Dentistry/Stead Family Department of Pediatrics), Ian Law, Scott D. Lindgren, Ellen Link, Katherine Mathews, Ann Marie McCarthy (Community and Behavioral Health/Stead Family Department of Pediatrics/Nursing), Paul McCray, Jose Morcuende (Orthopaedics and Rehabilitation/Stead Family Department of Pediatrics), Frank H. Morriss Jr., Jeffrey C. Murray, Peg Nopoulos (Psychiatry/Stead Family Department of Pediatrics), M. Sue O'Dorisio, Resmiye Oral, Stanley Perlman (Microbiology/Stead Family Department of Pediatrics), George Phillips, Vickie Pyevich, Mary Ann Roberts, Jean Robillard, Thomas D. Scholz, Jeffrey Segar, Val C. Sheffield, Joel Shilyansky (Surgery/Stead Family Department of Pediatrics), Richard Smith (Internal Medicine/Molecular Physiology and Biophysics/Otolaryngology—Head and Neck Surgery/Stead Family Department of Pediatrics), Michael Tansey, Eva Tsalikian, Yatin Vyas, David P. Wacker, Debra Waldron, Miles M. Weinberger, John A. Widness, Ekhard E. Ziegler

Associate professors

- Heather Bartlett, Alexander Bassuk, Dale Bieber (Internal Medicine/Stead Family Department of Pediatrics), Patrick Brophy, Lori Christensen, Tarah Colaizy, Christopher Cooper (Stead Family Department of Pediatrics/Urology), Linda Cooper-Brown, Arlene Drack (Ophthalmology and Visual Sciences/Stead Family Department of Pediatrics), Dawn Ebach, Patricia Espe-Pfeifer (Psychiatry/Stead Family Department of Pediatrics), Mary Beth Fasano (Internal Medicine/Stead Family Department of Pediatrics), Polly Ferguson, MJ Hajianpour, Sandy Hong, Charles Jennissen (Emergency Medicine/Stead Family Department of Pediatrics), Charuta Joshi, Jonathan M. Klein, Mary Larew, Andrew Lidral (Orthodontics/Stead Family Department of Pediatrics), Deborah Lin-Dyken, John Manak (Biology/Stead Family Department of Pediatrics), Dianne McBrien, Royann Mraz, Jody R. Murph, Andrew Norris, Richard Olson (Ophthalmology and Visual Sciences/Stead Family Department of Pediatrics), Graeme Pitcher (Surgery/Stead Family Department of Pediatrics), Riad Rahhal, Benjamin Reinking, Robert Roghair, Jeffrey Smith, Timothy Starner, Amy Stier, Shannon Sullivan, Raymond Tannous, Pamela Trapane, Aliye Uc, Gretchen Vigil, Thomas Wassink (Psychiatry/Stead Family Department of Pediatrics), Jerold C. Woodhead

Assistant professors

- Ghada Abusin, Osamah Aldoss, Sunny Arikat, Rebecca Benson, Nancy Beyer (Psychiatry/Stead Family Department of Pediatrics), Nancy Bonthius, Chadi Calarge (Psychiatry/Stead Family Department of Pediatrics), Yury Chaly, Heather Ciliberto (Dermatology), Michael Ciliberto, Bradley Coots, Vanessa Curtis, Benjamin Darbro, Bradine Dunnwald, Ayman El-Sheikh, Gwen Erkonen, Eyad Hanna, Sarah Haskell, Jennifer Jetton, Deborah Kacmarynski (Otolaryngology—Head and Neck Surgery/Stead Family Department of Pediatrics), Laura Kair, Sameer Kamath, Kathleen Kieran (Stead Family Department of Pediatrics/Urology), Todd Kopelman (Psychological and Quantitative Foundations/Psychiatry/Stead Family Department of Pediatrics), Kathy Lee Son, Scott Lieberman, Julie Lindower, Susannah Longmuir (Ophthalmology and Visual Sciences/Stead Family Department of Pediatrics), Steven McElroy, Jennifer McWilliams (Psychiatry/Stead Family Department of Pediatrics), Dayna Miller, Anita Moonjely, Jessie Marks, Carla Nester, Catherine Newland, Benton Ng, Ram Niwas, Andrew Norris, Katie Larson Ode, Marguerite Oetting, Seth Perlman, Liuska Pesce, Andrew Peterson, Nathan Price, Christoph Randak, Patricia Quigley, Glenda Rabe, Andrea Reasoner, Benjamin Reinking, Alvaro Serrano Russi, Oleg Shchelochkov, Rosemary Shy, Patrick Sinn, Janice Staber, Steven Stasheff, Joseph Turek (Cardiothoracic Surgery/Stead Family Department of Pediatrics), A. Paige Volk, Nicholas Von Bergen, Kelly Wood, Diana Zepeda-Orozco

Associates

- Jane Brumbaugh, Kristin Buroker-Marsh, Amy Conrad, Natalie Kamberos, Satsuki Matsumoto, Elizabeth Newell

Adjunct professors

- Ken Cheyne, Stephen Stephenson

Adjunct associate professors

- Vidya Chande, Jorge Di Paola, Stephen C. Elliott, Keevin Franzen, Gregory Garvin, Bahri Karacay, Adel F. Makar, Brian Schutte, Rizwan Shah, Peter D. Wallace, Mir Waziri, Veljko Zivkovich

Adjunct assistant professors

- Mary Ann Abrams, Nader R. Ajluni, Samir Alabsi, Baha Al-Shawwa, Naser Al-Zein, Kenneth W. Anderson, Julie Anderson-Suddarth, Scott Barron, David Basel, Thomas E. Becker, Edward Bottei, Allison Brown, Holly Bzdega, Basaviah Chandramouli, Jennifer S. Cook, Steven Dawson, Ronda Dennis-Smithart, Rhonda Dodge, Eric Dodson, Dan Ellsbury, Ricardo Flores, Jennifer Groos, Stanley A. Hackbarth, Susan M. Harrell, Eric Haugen, James A. Hendrix, Jay Hinkhouse, Steven Joyce, Haidar Kabbani, Jason Kessler, David L. Little, Asha Madia, Donald R. McCabe, Lisa J. Menzies, Debra K. Miller, Whitney Molis, Duangechai Narawong, Edward G. Nassif, Scott K. Nau, Kathleen Opdebeeck, Linda Ozaki, Richard Robus, Mariastella Serrano, Jaffar Shaik, Scott Sheets, Tameen Shoukih, Daniel Sloven, Cheryl Standing, Julianne H. Thomas, David Thornston, Rajeev Vibhakar, Judy Walker, Christopher Youngman

Adjunct instructor

- Robin Paetzold-Durumeric

Professors emeriti

- Adel K. Afifi, William E. Bell, Brenda Cruikshank, Claibourne Dungy, Lois B. Dusdieker, James Hardy, Herman Hein, C. Thomas Kisker, Vera Loening-Baucke, Shivanand R. Patil, Charles H. Read, Charles Rebouche, Lynn C. Richman, James A. Stehbins, Raymond Tannous, Don Van Dyke, Robert Weir, Douglas Weismann

Web site: <http://www.medicine.uiowa.edu/pediatrics/>

The Stead Family Department of Pediatrics provides a solid foundation for M.D. students and postgraduate trainees. It offers extensive opportunities for general pediatrics and subspecialties.

Affiliated programs add depth to the educational program in community pediatrics and primary care. The department is affiliated with the child and material health programs of the Bureau of Family Health, Iowa Department of Public Health; the University of Iowa regional Child Health Specialty Clinics and the Center for Disabilities and Development; Blank Children's Hospital in Des Moines; and community sites.

M.D. Student Training

Didactic lectures and physical examination of newborns, toddlers, and older children provide M.D. students with their initial pediatric patient contact. This experience includes taking a history, performing a physical examination, appraisal of growth and development, nutrition, and symptomatology of newborns, toddlers, and adolescents.

For junior and senior medical students, the inpatient service provides training in the complex problems of disease and critical illness. Students participate in daily rounds involving general pediatrics and all subspecialties. Challenging and interesting cases are presented for discussion of diagnosis and treatment.

Outpatient experience, available in the junior clerkship and fourth-year electives, stresses principles and practices required for the maintenance of children's health, treatment of common general pediatric disorders, and the diagnosis and treatment of subspecialty ambulatory patients.

Residency Program, Fellowships

The department offers an accredited three-year residency program designed to prepare trainees for professional careers in general pediatrics or for further fellowship training. The program meets the eligibility requirements of the American Board of Pediatrics and is approved for 13 residents per year by the Accreditation Council for Graduate Medical Education.

Fellowships are available in multiple pediatrics subspecialties. Fellowship programs encourage development of knowledge and skill through research and clinical orientations in the chosen discipline. Upon satisfactory completion of the program, fellows meet the ABP eligibility requirements in their subspecialty.

Facilities

The Stead Family Department of Pediatrics has inpatient and outpatient facilities in the University of Iowa Children's

Hospital at University of Iowa Hospitals and Clinics. Additional outpatient facilities are located at Iowa River Landing in Coralville.

The pediatric inpatient service has approximately 120 beds, and more than 50,000 patients are seen each year in the general, specialty, continuity care, and field clinics and in the University's Emergency Department. The Center for Disabilities and Development provides resources for children with developmental disabilities, cerebral palsy, or mental retardation.

The department maintains a number of laboratories that perform both clinical and research studies.

Courses

PEDS:6101 (070:201) Primary Care: Infants, Children, and Adolescents II 3 s.h.

Enhancement of clinical knowledge and skills for infant, child, adolescent care; development and refinement of knowledge and skills in primary health care delivery. Requirements: for NURS:6101 (096:220) — NURS:6100 (096:219) or NURS:6200 (096:280); for PEDS:6101 (070:201) — NURS:6100 (096:219) and NURS:6200 (096:280). Same as NURS:6101 (096:220).

PEDS:7245 (070:245) Evaluation of Children with ADHD and LD arr.

Clinical experience in conducting pediatric neuropsychology examinations in the Pediatric Attention/Learning Disorders Clinic. Requirements: course on psychological testing (including IQ) and graduate psychology standing (school, counseling, rehabilitation, clinical). Same as PSQF:7245 (07P:207).

PEDS:7251 (070:251) Clinical Pediatric Neuropsychology arr.

Learning and behavior disorders resulting from central nervous system dysfunction; clinical experience in assessment of cognitive, behavioral patterns.

PEDS:7252 (070:252) Assessment of Attention Deficit Disorder 3 s.h.

Participation in clinical, research, didactic work in evaluating children with attention deficit disorder. Requirements: experience in intellectual assessment of children. Recommendations: previous experience with IQ testing and interviewing.

PEDS:7253 (070:253) Assessment of Behavior Disorders arr.

Experience in diagnostic and behavioral assessments of children with conduct disorders.

PEDS:7255 (070:255) Autism Spectrum Disorders 2 s.h.

Overview of autism spectrum disorders (ASDs), including autistic disorder, Asperger's disorder, other pervasive developmental disorders; ASD diagnoses and their etiology; tools used in assessing individuals with ASDs; common interventions for ASDs; resources for work with individuals who have ASDs.

PEDS:7256 (070:256) Pediatric Psychology Inpatient Practicum 1-3 s.h.

Knowledge and practical skills in implementing psychological practice with hospitalized pediatric patients; referrals include challenging behaviors (e.g., treatment adherence, disruptive behaviors), neuropsychological assessment (e.g., child with seizure disorder, child with TBI), and social-emotional evaluation; how to consult with medical teams and work with families with children who have acute and chronic health conditions, including asthma, diabetes, cancer, brain tumors, burns, head injury. Requirements: enrollment in an applied doctoral program in a psychological field. Recommendations: completion of a practicum in an outpatient Pediatric Psychology Clinic.

PEDS:7258 (070:258) Seminar in Pediatric Psychology 2 s.h.

Basic introduction to the field of pediatric psychology; professional issues in pediatric psychology; consultation and professional relations with physicians; psychological services in pediatric psychology; specialized populations, such as childhood chronic illness, children's hospitalization and surgery. Requirements: enrollment in an applied doctoral program in a psychological field.

PEDS:7260 (070:260) Neurobehavioral Assessment and Intervention 1-3 s.h.

Experience evaluating the interaction between a child's neurocognitive profile and their behavior at school and home; interviews with parents/children, assessments to assist in identifying cognitive and learning disorders, behavior analyses to identify interventions; follow-up with families and school teams.

PEDS:7261 (070:261) Autism Assessment and Behavioral Intervention 1-3 s.h.

Foundation in evidence-supported psychological assessment, behavioral assessment, and/or intervention for children with autism spectrum disorders (ASDs); emphasis on evaluating and providing treatment services to young children with ASDs and their families.

PEDS:7262 (070:262) Biobehavioral Assessment and Intervention 1-3 s.h.

Experience conducting brief functional assessments and behavioral treatments for children and adults with developmental disabilities; interviews with caregivers, behavioral assessments, matched treatments (e.g., functional communication training); follow-up with caregivers.

PEDS:7263 (070:263) Evaluation and Treatment of Pediatric Feeding Disorders 1-3 s.h.

Experience evaluating children with varied feeding disorders, such as food overselectivity by texture or type, dependence on gastrostomy or nasogastronomy tubes, failure to grow adequately due to inadequate caloric intake; methods to evaluate feeding behaviors, evaluate design interventions, and measure outcomes; caregiver training and follow-up.

PEDS:7264 (070:264) Clinical Applications of Applied Behavior Analysis 1-3 s.h.

Experience behavioral observations, consultation, and/or conducting behavioral assessments (including preference assessments and functional analyses), matched treatments; interviews with care providers, collect behavioral data, conduct behavioral assessments, matched treatments; follow-up with care providers.

PEDS:7265 (070:265) Research in Applied Behavior Analysis 1-3 s.h.

Experience developing and conducting research in applied behavior analysis; conduct behavioral observations, behavioral assessments, matched treatments; weekly readings and lab meetings; participate in research sessions as data collector or therapist.

PEDS:7300 (070:300) Pediatric Independent Study arr.

PEDS:8104 (070:110) Medical Genetics 2 s.h.

Gene structure and function, basic genetics concepts, application to problems in human disease. Offered fall semesters. Requirements: M.D. enrollment or graduate standing in related health field.

PEDS:8301 (070:002) Clinical Pediatrics 6 s.h.

Principles, practices of health maintenance and treatment of acute and chronic illnesses in children; emphasis on diagnosis and evaluation, nutrition, behavior problems, disorders affecting children; patient care, daily rounds, ward work. Requirements: third-year M.D. enrollment.

PEDS:8401 (070:028) Pediatric Inpatient Care Subinternship arr.

Experience on pediatric inpatient team caring for patients ranging from infants through adolescents; evaluation, formulation of differential diagnoses, diagnostic workups, appropriate therapy programs. Requirements: fourth-year M.D. enrollment.

PEDS:8402 (070:013) Subinternship in Pediatrics: Blank Children's Hospital, Des Moines arr.

Experience in the care of general pediatric inpatients; daily rounds and teaching by senior residents and faculty members; daily didactic conferences. Requirements: fourth-year M.D. enrollment.

PEDS:8403 (070:027) Neonatology (NICU) arr.

Experience caring for ill neonates, proficiency in using diagnostic tests and procedures; responsibility for care of several infants; reference and literature review, conferences, teaching, clinical rounds. Requirements: fourth-year M.D. enrollment.

PEDS:8404 (070:029) Critical Care (PICU) 4 s.h.

Direct care of critically ill children in a multidisciplinary medical/surgical/cardiac intensive care unit, under supervision of pediatric residents and staff; participation in educational activities and formal clinical rounds. Requirements: fourth-year M.D. enrollment.

PEDS:8405 (070:014) Emergency Room Blank Children's Hospital, Des Moines arr.

Pediatric emergencies and urgent care, proficiency in pediatric medicine procedures; expansion of basic knowledge. Requirements: fourth-year M.D. enrollment.

- PEDS:8406 (070:043) Pediatric Allergy** arr. Experience equivalent to intern on neonatal intensive care unit teaching service at Blank Children's Hospital, Des Moines; four-week rotation.
- PEDS:8407 (070:019) Pediatric Cardiology** arr. Participation in clinical activities; observation of cardiac catheterization; experience in cardiac auscultation, ECG, radiography; emphasis on physical diagnosis, approach to heart disease and murmurs in children. Requirements: fourth-year M.D. enrollment.
- PEDS:8408 (070:033) Pediatric Gastroenterology** arr. Diagnosis, management, treatment of diseases of gastrointestinal tract, liver, pancreas in children; ward rounds, consultations, clinics, diagnostic procedures, conferences. Requirements: fourth-year M.D. enrollment.
- PEDS:8409 (070:016) Pediatric Hematology/Oncology** arr. Basic concepts of clinical approach to hematologic and oncologic problems in children and adolescents; primarily outpatient experience. Requirements: fourth-year M.D. enrollment.
- PEDS:8410 (070:017) Pediatric Neurology** arr. Participation in outpatient and inpatient activities, teaching, morning ward rounds. Requirements: fourth-year M.D. enrollment.
- PEDS:8411 (070:025) Child Abuse and Neglect** 2,4 s.h. Hospital- and community-based multidisciplinary responses to child abuse and neglect; experience developing diagnostic skills to recognize, assess, and report cases of child abuse and neglect. Requirements: fourth-year M.D. enrollment.
- PEDS:8412 (070:023) Developmental and Behavioral Pediatrics** 2,4 s.h. Normal developmental sequence of gestation and early childhood, impact of environmental influences; antecedents of developmental disabilities; methods to detect cognitive and motor delays in preschool children; long-term consequences of developmental disabilities for children, their families; advantages of interdisciplinary teamwork. Requirements: fourth-year M.D. enrollment.
- PEDS:8413 (070:055) General Pediatric Outpatient Clinic** 2,4 s.h. Work in general pediatric outpatient clinics with acutely or chronically ill patients and with well children. Requirements: fourth-year M.D. enrollment.
- PEDS:8415 (070:030) Medical Genetics for the Senior Student** arr. Participation in diagnostic, therapeutic problems; techniques for evaluation, appropriate counseling in genetic cases; conferences. Requirements: fourth-year M.D. enrollment.
- PEDS:8416 (070:015) Neonatal Intensive Care Unit, Blank Children's Hospital** 4 s.h. Experience equivalent to intern on neonatal intensive care unit teaching service at Blank Children's Hospital, Des Moines; four-week rotation.
- PEDS:8417 (070:034) Community Pediatric Outpatient Elective** 2 s.h. Opportunity to participate as active members of a community-based general pediatric office; work directly with community-based faculty and non-physician team members; build on clinical skills developed in M3 pediatric clerkship. Requirements: M.D. enrollment.
- PEDS:8431 (070:031) Pediatric Nephrology** 2,4 s.h. Introduction to general pediatric nephrology cases and management. Requirements: M.D. enrollment.
- PEDS:8450 (070:060) Continuity of Care in Outpatient General Pediatrics** 4 s.h. Work with experienced general pediatrician in a longitudinal clinical experience for the academic year; paired with faculty pediatrician to see patients in a weekly clinic, provide clinical care to a defined patient population; growth and development, health supervision, and management of common acute and chronic clinical problems. Requirements: fourth-year M.D. enrollment.
- PEDS:8495 (070:333) Pediatric Intensive Care Off Campus** arr. Arranged by student and department. Requirements: fourth-year M.D. enrollment.
- PEDS:8498 (070:998) Pediatrics On Campus** arr. Requirements: fourth-year M.D. enrollment.
- PEDS:8499 (070:999) Pediatrics Off Campus** arr. Requirements: fourth-year M.D. enrollment.

Surgery

Chair

- Ronald J. Weigel

Professors

- Kent C. Choi, Joseph J. Cullen, Thomas Granchi, James R. Howe, G. Patrick Kealey, Timothy F. Kresowik, Thomas Lawrence, Alan I. Reed, Carol E.H. Scott-Conner, W. John Sharp, Joel Shilyansky, Timothy A. Thomsen, Ronald J. Weigel

Associate professors

- Thomas E. Collins, John Cromwell, Hisakazu Hoshi, Daniel A. Katz, Geeta Lal, Graeme Pitcher, Donald D. Potter, Isaac Samuel, Mel Sharafuddin, Dionne A. Skeete, Sonia Sugg, Lucy Wibbenmeyer

Assistant professors

- Evgeny Arshava, John Byrn, Wei F. Chen, Hui Sen Chong, Thomas E. Collins, Alice Fagin, Luis Garcia, Jody Jones, Muneera Kapadia, Neelima Katragunta, Jerrod Keith, Prashant Khullar, Ingrid Lizarraga, Samy Maklad, James Mezahir, Peter Nau, Rachael Nicholson, Luigi Pascarella, Carlos Pelaez, Vince Reid, Nora Royer, Mel Sharafuddin, Jessica Smith, Zoe Stewart, Suemoy Wallace

Professors emeriti

- Albert E. Cram, Nelson J. Gurll, Peter R. Jochimsen, Ken Kimura, James W. Maher, Edward E. Mason, Amanda M. Metcalf, Siroos S. Shirazi, Luis F. Urdaneta

Associate professors emeriti

- Cornelius Doherty, Samuel Porter, Wilbur L. Zike

Web site: <http://www.medicine.uiowa.edu/surgery/>

The Department of Surgery offers didactic instruction as well as clinical and other practical experiences for medical students. It also hosts a wide spectrum of clinical and scientific research.

M.D. Student Training

Department of Surgery courses provide a unique combination of experience oriented toward patient care and understanding of surgery's place among the physician's skills. Surgery courses are open only to M.D. students and qualified students in associated health sciences.

Students develop an awareness of surgery's role in the treatment of disease. Emphasis is placed on general surgery, basic emergency surgery, trauma, oncology, burns, gastrointestinal and biliary tract disease, endocrine disease, pediatric surgery, transplantation, plastic and reconstructive surgery, and peripheral vascular surgery.

The majority of surgery courses involve patient-centered discussions and practical exercises interwoven with operating room experience. Lectures and conferences are scheduled regularly on specific topics.

The department offers independent study courses in selected surgery topics and clinical experiences; some are available to fourth-year M.D. students by arrangement with the faculty.

Faculty

The faculty's strengths center in pathophysiology and problems of severe burns, trauma, organ transplantation, surgical control of morbid obesity, surgical oncology, bowel disease, biliary tract disease, pediatric surgery, endocrine disease, plastic surgery, and vascular surgery.

Facilities

Abundant patient contact provides education in a wide variety of surgical diseases. The Department of Surgery provides training in the only burn unit in Iowa approved by the American College of Surgeons and in the Level I Trauma Center at University of Iowa Hospitals and Clinics.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. Projects are available in gastrointestinal surgery, surgical microbiology, peripheral vascular surgery, transplantation, wound healing, organ preservation, vascular surgery, pediatric surgery, and surgical oncology.

Courses

SURG:8301 (075:005) Clinical Surgery 6 s.h.

Experience as active member of surgical team; work on inpatient units, in clinics and operating room; assist in elective and emergency patient care.

SURG:8401 (075:217) Advanced General Surgery 4 s.h.

Opportunity to strengthen clinical skills through experiences in the operating rooms, clinics, wards, and intensive care units of University of Iowa Hospitals and Clinics.

SURG:8402 (075:216) Subinternship in General Surgery 4 s.h.

Responsibility for management of selected surgical inpatients, on a surgical service. Prerequisites: SURG:8301 (075:005).

SURG:8406 (075:235) General Surgery, Des Moines, IA 4 s.h.

Care of general surgery patients in private hospital setting. Prerequisites: SURG:8301 (075:005).

SURG:8407 (075:236) Intensive Care Unit—Trauma, Iowa Methodist 4 s.h.

Subinternship on trauma service team; evaluation and management of critically ill patients in the emergency room, operating room, intensive care unit. Prerequisites: SURG:8301 (075:005). Requirements: fourth-year M.D. enrollment.

SURG:8409 (075:237) General Surgery, Davenport, IA 4 s.h.

Participation in diagnosis and management of general surgical patients under supervision of attending surgeons from Davenport Surgical Group, Genesis Medical Center. Prerequisites: SURG:8301 (075:005). Requirements: fourth-year M.D. enrollment.

SURG:8411 (075:238) Multidisciplinary Breast Elective 2,4 s.h.

Evaluation and management of benign and malignant breast diseases; focus on multidisciplinary nature of treatment of breast disease; for students who plan to pursue residency in general surgery, obstetrics and gynecology, family practice, or other field with focus on women's health. Requirements: M.D. enrollment.

SURG:8498 (075:998) Surgery On Campus arr.

Surgery on campus; individually arranged. Prerequisites: SURG:8301 (075:005).

SURG:8499 (075:999) Surgery Off Campus arr.

Prerequisites: SURG:8301 (075:005).

Urology

Chair

- Karl J. Kreder

Professors

- James A. Brown, Christopher S. Cooper, Karl J. Kreder, David M. Lubaroff, Michael A. O'Donnell, Victoria Sharp

Associate professors

- Elizabeth B. Takacs, Moshe Wald

Assistant professors

- Sundeep Deorah, Brad Erickson, Amit Gupta, Kathleen Kieran, Danny Lee, Ken Nepple, Lyse Norian, Doug Storm, Chad Tracy

Professors emeriti

- Bernard Fallon, Charles E. Hawtrey

Web site: <http://www.medicine.uiowa.edu/urology/>

Urology encompasses the subspecialty areas of urologic nephrology, oncology, and endocrinology; male reproductive physiology; erectile dysfunction; neurourology; pediatric urology; urinary tract stone and infection, including endourology; laparoscopic and robotic urology; trauma and reconstructive urology; urodynamics and female urology; diagnostic urology; and urinary tract obstruction.

The Department of Urology offers instruction in all of these areas to M.D. and graduate students and provides continuing education for the delivery of urologic care.

M.D. Student Training

The Department of Urology cooperates with several University of Iowa basic science departments to educate first-year M.D. students in the relationship between urology and the basic sciences. It collaborates with the Department of Microbiology (p. 1088) in teaching and research concerning immunology of genitourinary cancers and renal transplantation.

In the second-year M.D. course, MED:8215 (050:165) Foundations of Clinical Practice IV ICD, the department presents illustrative lectures and demonstrations related to diagnosis and treatment of genitourinary tract diseases.

Third- and fourth-year M.D. students take Department of Urology courses that provide experience in all areas of urology. The department's selective two-week clerkship covers the fundamentals of these areas through experience in outpatient clinics and inpatient units at University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center as well as in daily interactive teaching seminars. Fourth-year M.D. students can take advanced elective courses of intensive study in any of the urologic subspecialties.

Continuing Education

The department offers continuing education activities throughout the year for urologic and family practitioners. These activities are conducted by the senior staff, whose interests include pediatric urology, reproductive physiology, urologic oncology, urinary tract stone

(including endourology/laparoscopy), and prostatic diseases.

Research

The department has earned international recognition for its studies of prostatic diseases. The urological laboratories conduct research and offer instruction in experimental oncology, cellular immunology, and infertility.

Courses

URO:8301 (079:104) Clinical Urology 2 s.h.

Work in urology unit, clinic; responsibility for patient care, working with residents.

URO:8401 (079:108) Advanced Clerkship in Urology 4 s.h.

Experience as integral member of urological staff, junior resident level.

URO:8402 (079:109) Advanced Clerkship Pediatric Urology 2,4 s.h.

In-depth study of pediatric urology topics. Prerequisites: URO:8301 (079:104). Requirements: M.D. enrollment.

URO:8403 (079:115) Urology Oncology 2,4 s.h.

Multispecialty exposure to diagnosis and treatment of patients with current and newly-diagnosed urologic malignancies. Requirements: M.D. enrollment.

URO:8404 (079:117) Female Pelvic Floor Dysfunction 2,4 s.h.

Requirements: M.D. enrollment.

URO:8496 (079:110) Individual Study and Research arr.

Preclinical or clinical projects; may include research presentation, collaboration on a publication.

URO:8499 (079:999) Urology Off Campus arr.

Individually arranged by students with department approval.

College of Nursing

Dean

- Rita A. Frantz

Executive associate dean for academic affairs

- Thad R. Wilson

Associate dean for faculty

- Keela Herr

Associate dean for research

- Ann Marie McCarthy

Assistant dean for undergraduate programs

- Ellen Cram

Director, M.S.N. and D.N.P. programs

- Virginia Conley

Director, Ph.D. program

- Sue Moorhead

Professors

- Mary Kathleen Clark, Kenneth Culp, Rita Frantz, Keela Herr, Diane Huber, Ann Marie McCarthy, Jill Scott-Cawiezell, Janet Specht, Toni Tripp-Reimer, Carol Watson, Janet Williams, Kristine Williams, Thad Wilson

Associate professors

- Lioness Ayres, Mary Berg, Richard Bogue, Howard Butcher, Virginia Conley, Ellen Cram, Sandra Daack-Hirsch, Joann Eland, Jan Foote, Sue Gardner, Brenda Hoskins, Teresa Judge-Ellis, Sue Moorhead, Barbara Rakel, Ann Rhodes, Kerri Rupe, Lisa Segre, Rebecca Siewert, Marianne Smith, Anita Stineman, Elizabeth Swanson, Janette Taylor, Jill Valde

Assistant professors

- Heather Bair, Nancy Downing, Anne Ersig, Amany Farag, Stephanie Gilbertson-White, Ruth Grossmann, Patricia Groves, Todd Ingram, Maria Lindell Joseph, Susan Lehmann, Der-Fa Lu, Melissa Lehan Mackin, Pamela Mulder, Cormac O'Sullivan, Victoria Steelman, Andrea Wallace

Instructors

- Vanessa Kimm, Kelly Smith

Lecturers

- Catherine Abrams, Andrea Achenbach, Jessica Ashlock, Jacinda Bunch, Carol Dupic, Lorraine Femino, Krista Ford, Anne Gentil-Archer, Darlene Gibson, Mila Grady, Emily Griffin, Margaret Hyndman, Mackenzie Kane, Katie Knox, Barbara Kyles, Curtis Long, Debra McCarthy, Patricia Nelson, Nicole Peterson, N. Jane Prater, April Prunty, Sandra Ramey, Debra Strobel, Ann Struve, Syeda Thomas, Jean Underwood

Professors emeriti

- Kathleen Buckwalter, Gloria Bulechek, Patricia Clinton, Martha Craft-Rosenberg, Connie Delaney, Joanne McCloskey Dochterman, M. Patricia Donahue, Melanie Dreher, Geraldene Felton, Marion Johnson, Meridean L.

Maas, Rosemary McKeighen, Hope Solomons, Barbara Thomas, Edward Thompson

Associate professors emeriti

- Toni Clow, Janice Ann Denehy, Mildred Freel, Rose Marie Friedrich, Orpha Glick, Laura Hart, Charmaine Kleiber, Jean Lakin, Leslie Marshall, Eleanor McClelland, Paula Mobily, Jean Reese, Deborah Schoenfelder, Kay Weiler

Assistant professors emeriti

- Pam Ballard, Veronica Brighton, Carolyn Crowell, Connie De Boef, Louise Kruse, Sonja Lively, Nicolett Markovetz, Sherry McKay, Frances Milde, Beverly Saboe, Mary Stewart-Dedmon, Pamela Willard

Undergraduate major: B.S.N.

Graduate degrees: M.S.N.; D.N.P.; Ph.D. in nursing

Graduate certificate: advanced practice nursing

Web site: <http://www.nursing.uiowa.edu/>

The College of Nursing is an integral part of the University of Iowa health science campus, sharing in and contributing to teaching, research, and patient care resources that have earned international recognition. The University provides an unusually fine setting for nursing preparation because the educational and clinical resources vital to educating nurses are available on or near the campus. Faculty and students participate fully in University life and contribute their time, interests, and abilities to the many general and special activities of a major research university.

The college's Bachelor of Science in Nursing (B.S.N.), Master of Science in Nursing (M.S.N.), clinical nurse leader (in the M.S.N.), and Doctor of Nursing Practice (D.N.P.) programs are accredited by the Commission on Collegiate Nursing Education (CCNE), an autonomous accrediting arm of the American Association of Colleges of Nursing (AACN). They also are approved by the Iowa Board of Nursing. The anesthesia nursing program (in the Doctor of Nursing Practice) is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs.

Graduates of the prelicensure B.S.N. qualify to take the licensure examination required for practice as registered nurses (RN). Graduates of advanced practice majors in the graduate program are eligible to take certification examinations and apply for Advanced Registered Nurse Practitioner (ARNP) licensure.

Undergraduate Program of Study

- Bachelor of Science in Nursing

The College of Nursing offers two paths to the Bachelor of Science in Nursing (B.S.N.): a prelicensure program for students who do not hold a nursing license (see "Bachelor of Science in Nursing" below) and a program for registered nurses (see "RN-B.S.N. for Registered Nurses" below).

The B.S.N. programs prepare students for careers caring for patients in hospitals and in community agencies such as public health services, schools, homes, and industries. They also provide a base for graduate study in nursing.

In addition to combining general education with specialized career preparation, the University of Iowa programs in nursing offer the advantages of full participation in the social, cultural, and recreational activities of a highly diverse campus community. A university education enables students to prepare for a

career as well as a life of thought and action informed by knowledge, introspection, and contemplation.

The B.S.N. programs provide a basis for nurses' roles in wellness and health promotion, in acute care, and in long-term care for chronic illness. The professional nurse may provide care to individuals, families, groups, and communities along a continuum of health, illness, and disability in any sector of the health care system.

In addition to providing care, the nurse serves as a coordinator of health care by organizing and facilitating the delivery of comprehensive, efficient, and appropriate service to individuals, families, groups, and communities. The nurse demonstrates the ability to conceptualize the total continuing health needs of the patient, including legal and ethical aspects of care. The University of Iowa programs' goal is to produce graduates who are competent, committed, creative, and compassionate.

Bachelor of Science in Nursing

The Bachelor of Science in Nursing prelicensure program of study requires 128 s.h., including 64 s.h. in the nursing major and 64 s.h. in supporting course work that is prerequisite to the nursing major. The program is intended for students beginning their education in nursing. A B.S.N. program for registered nurses is described under "RN-B.S.N. for Registered Nurses" below.

B.S.N. students may complete their entire program at Iowa, enrolling in the College of Liberal Arts and Sciences to complete courses that are prerequisite to the nursing major, or they may transfer from an institution that offers comparable prerequisite courses that are approved by The University of Iowa and the College of Nursing. They must earn competitive admission to the College of Nursing once they have completed the prerequisite course work. Highly qualified applicants may be admitted to the College of Nursing directly from high school under the B.S.N. early decision program; see "Admission" later in this Catalog section.

Students who are part of the B.S.N. early decision program spend their first four semesters (two years) on prerequisite course work and complete the requirements for the nursing major during the next four semesters (their third and fourth years), earning the B.S.N. in a total of four academic years. Students who earn competitive admission to the College of Nursing have five semesters to complete prerequisite course work. They begin work for the nursing major in spring of their third year and complete the major in four semesters, earning the B.S.N.

University of Iowa students who have declared an interest in the prelicensure nursing program are advised at the University's Academic Advising Center until they are admitted to the College of Nursing. After admission to the college, each student is assigned a College of Nursing faculty advisor and a professional advisor in the college's Office of Student Services.

Nursing courses are based on concepts of health, deviations from health, and nursing intervention. Course work progresses in complexity across the curriculum. The curriculum reflects the current trend in health care delivery toward emphasis on nursing as a service provided both inside and outside hospitals. Students have access to clinical experiences selected from a multitude of agencies in Iowa and around the country.

The B.S.N. prelicensure program requires the following course work. Students must complete the prerequisite course work before beginning work required for the major in nursing.

B.S.N.: PREREQUISITE COURSES

Early decision students complete all of the following prerequisites during their first and second years of enrollment at The University of Iowa. Competitive admission students must complete all of the following prerequisites, with the exception of one natural science course and one social science course, before they may apply for admission to the College of Nursing.

General education prerequisites (13 s.h.):

RHET:1030 (010:003) Rhetoric	4 s.h.
International and Global Issues course	3 s.h.
Literary, Visual, and Performing Arts course	3 s.h.
Values, Society, and Diversity course	3 s.h.

Natural science prerequisites (23 s.h.):

ACB:3110 (060:110) Principles of Human Anatomy	3 s.h.
BIOL:1141 (002:002) Introductory Animal Biology	4 s.h.
CHEM:1070 (004:007) General Chemistry I	3 s.h.
CHEM:1080 (004:008) General Chemistry II	3 s.h.
HHP:1300 (027:050) Fundamentals of Human Physiology	3 s.h.
HHP:2310 (027:040) Nutrition and Health	3 s.h.
MICR:3164 (061:164) Nursing Microbiology	4 s.h.

Social science prerequisites—both of these (6 s.h.):

NURS:1030 (096:030) Human Development and Behavior	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.

And one of these (3 s.h.):

SOC:1010 (034:001) Introduction to Sociology Principles	3-4 s.h.
SOC:1020 (034:002) Social Problems	3-4 s.h.

Other prerequisites (19 s.h.):

NURS:3110 (096:110) Healthcare Finance	3 s.h.
MATH:1440 (22M:015) Mathematics for the Biological Sciences	4 s.h.
Electives	12 s.h.

B.S.N.: COURSES REQUIRED FOR THE MAJOR

Early decision students and competitive admission students complete the following courses for the major in nursing.

First semester in the major (17 s.h.):

NURS:3128 (096:120) Health Assessment and Communication Across the Lifespan	3 s.h.
NURS:3138 (096:121) Nursing and Pharmacological Interventions I	5 s.h.
NURS:3150 (096:122) Clinical Simulation Laboratory I	3 s.h.
NURS:3160 (096:123) Professional Role I: Professionalism and Patient Safety	3 s.h.
NURS:3518 (096:117) Pathology	3 s.h.

Second semester in the major (18 s.h.):

NURS:3438 (096:131) Nursing and Pharmacological Interventions II	5 s.h.
NURS:3450 (096:132) Clinical Simulation Laboratory II	2 s.h.
NURS:3460 (096:133) Professional Role II: Research	3 s.h.
NURS:3615 (096:173) Adult Medical/Surgical Nursing Practicum	3 s.h.
NURS:3620 (096:148) Gerontological Nursing	3 s.h.
NURS:3625 (096:149) Gerontological Nursing Practicum	2 s.h.

Third semester in the major (15 s.h.):

NURS:3630 (096:144) Parent-Child Nursing	3 s.h.
NURS:3635 (096:174) Parent Child Nursing Practicum	2 s.h.
NURS:3640 (096:160) Psychiatric/Mental Health Nursing	3 s.h.
NURS:3645 (096:161) Mental Health Nursing Practicum	2 s.h.
NURS:3660 (096:162) Professional Role III: Improving Health Systems	3 s.h.
Elective	2 s.h.

Fourth semester in the major (14 s.h.):

NURS:3650 (096:164) Community and Public Health Nursing	3 s.h.
NURS:3655 (096:165) Community and Public Health Nursing Practicum	2 s.h.
NURS:4155 (096:166) Senior Nursing Internship	5 s.h.
NURS:4160 (096:167) Professional Role IV: Leadership and Professional Engagement	3 s.h.
Elective	1 s.h.

See B.S.N. Plans of Study on the College of Nursing web site for semester-by-semester study plans for early decision and competitive admission students.

RN-B.S.N. for Registered Nurses

The RN-B.S.N. program of study requires 32 s.h. of credit. RN-B.S.N. students must hold a valid Iowa nursing license (RN) and an Associate Degree in Nursing or Diploma in Nursing.

The program is designed to offer registered nurses the opportunity to build on their nursing knowledge and experience by earning a Bachelor of Science in Nursing. RN-B.S.N. students take courses that focus on professionalism and patient safety, research, improvement of health systems, leadership, professional engagement, and community and public health.

Students may transfer course work completed at other colleges and universities to satisfy the prerequisites, general education requirements, electives, and the world language requirement for admission to the College of Nursing (see "Admission to the RN-B.S.N. Program" below). Once a student is admitted to the RN-B.S.N. program, he or she has the option of completing the required 32 s.h. in three semesters or in five semesters.

Most of the RN-B.S.N. program is delivered online, with limited face-to-face meetings that are associated with the practicum experience. Students must complete a

practicum experience in Iowa and may be required to drive up to 100 miles to a regional practicum setting.

The College of Nursing participates as a receiving institution in the Iowa Statewide Articulation Plan for Nursing Education: RN to Baccalaureate.

The RN-B.S.N. program requires the following College of Nursing course work.

RN-B.S.N.: COURSES REQUIRED FOR THE MAJOR

NURS:3110 (096:110) Healthcare Finance	3 s.h.
NURS:3160 (096:123) Professional Role I: Professionalism and Patient Safety	3 s.h.
NURS:3460 (096:133) Professional Role II: Research	3 s.h.
NURS:3518 (096:117) Pathology	3 s.h.
NURS:3650 (096:164) Community and Public Health Nursing	3 s.h.
NURS:3655 (096:165) Community and Public Health Nursing Practicum	2 s.h.
NURS:3660 (096:162) Professional Role III: Improving Health Systems	3 s.h.
NURS:3734 (096:116) Introduction to Human Genetics	3 s.h.
NURS:4160 (096:167) Professional Role IV: Leadership and Professional Engagement	5 s.h.
Nursing electives	3 s.h.
Nursing seminar	1 s.h.

See RN-B.S.N. Plans of Study on the College of Nursing web site for semester-by-semester views of required course work for full-time (three semesters) and part-time (five semesters) study.

Honors in Nursing

The College of Nursing Honors Program provides seminars and independent study experience for qualified students. In order to pursue honors studies in nursing, students must maintain a University of Iowa g.p.a. of at least 3.33 and a nursing major g.p.a. of at least 3.50.

The honors program in nursing enables students to explore subject matter based on individual interests, needs, and goals. It provides opportunities for self-initiative, research experience, and intellectual and personal development and challenges students to grow and excel. Students who fulfill the requirements of the program graduate with honors in nursing.

In addition to honors in their majors, prelicensure B.S.N. students have a variety of opportunities for honors study and activities through membership in the University of Iowa Honors Program; visit Honors at Iowa to learn about the University's honors program.

Related Certificate or Minor: Aging Studies

College of Nursing students may participate in the Aging Studies Program, which provides undergraduate students with a multidisciplinary approach to gerontology. The program offers a certificate (21 s.h.) and a minor (15 s.h.). Students plan their course of study with their academic advisor in close cooperation with the Aging Studies Program coordinator. See Aging Studies (p. 33)

in the Catalog for details. The Aging Studies Program is administered by the School of Social Work (College of Liberal Arts and Sciences).

Expenses and Insurance

Students pay University of Iowa student fees throughout the B.S.N. program. They must purchase uniforms, shoes, a stethoscope, and a watch with a full-sweep second hand, and they must pay the cost of computer testing, supplies, and materials for required nursing courses. All nursing students arrange and pay for their own health screening requirements, health insurance, and transportation once they are enrolled in clinical nursing courses. They also pay fees that cover the cost of criminal background checks, laboratory equipment, and professional liability insurance.

MANDATORY HEALTH INSURANCE

Upon admission to the College of Nursing and each August afterward, all students must provide verification that they have obtained and currently hold health insurance that satisfies the following minimal standards of coverage (or an equivalent alternative health care plan):

- \$250,000 lifetime benefit;

- coverage for hospitalization, including coverage for room and board, physician visits, surgeon services, X-ray, and lab services;

- inpatient deductible under an individual policy not exceeding \$500 per admission and a 20 percent copayment/coinsurance requirement;

- coverage for medically necessary care, including physician services, X-ray, and lab services for treatment of emergencies, illness, accident, and injury.

PROFESSIONAL LIABILITY INSURANCE

All students in the College of Nursing are required to carry professional liability insurance throughout the duration of their program. Agencies that provide clinical practicums for College of Nursing programs require that students have insurance coverage. The College of Nursing provides students with information about the liability insurance requirement during orientation.

B.S.N. prelicensure students are covered by a group policy supported by student fees.

RN-B.S.N. students must provide verification that they are covered by professional liability insurance for registered nurses with a minimum coverage of \$1 million per single occurrence and \$3 million aggregate coverage.

Admission

Students entering the University who are not licensed registered nurses (RN) apply to the B.S.N. prelicensure program. Registered nurses apply to the RN-B.S.N. program.

All entering first-year and undergraduate transfer students who have earned fewer than 24 s.h. when they apply for admission to The University of Iowa must complete the American College Test (ACT) or the Scholastic Aptitude Test (SAT). For information about the American College Test, visit the ACT web site; for information about the Scholastic Aptitude Test, visit the College Board web site.

Applicants to the B.S.N. and RN-B.S.N. programs whose first language is not English must score at least 550

(paper-based) or 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Registered nurses educated outside the United States are required to present verification of having passed the Commission on Graduates of Foreign Nursing Schools (CGFNS) examination and specified Excelsior baccalaureate nursing examinations.

Applicants admitted to the College of Nursing are expected to be able to meet the curriculum's performance standards; see "Core Performance Standards" below.

A criminal background check is conducted for all prelicensure and undergraduate students before they begin the nursing major. Admission to all programs is conditional pending successful review of criminal background and abuse registry.

ADMISSION TO THE B.S.N. PRELICENSURE PROGRAM

All applicants to the B.S.N. prelicensure program (early decision applicants and competitive admission applicants) must have satisfied the following minimum high school course requirements.

English: four years

Mathematics: three years, including algebra I, algebra II, and geometry

Science: one year of biology, one year of chemistry, and one year of physics

Social science: three years

World languages: four years (fourth-level proficiency) of the same world language or two years (second-level proficiency) in each of two world languages

B.S.N. Early Decision Admission

A select group of highly qualified students are admitted to the College of Nursing directly from high school through the B.S.N. early decision program (EDP). To be considered for the EDP, students must meet three of the following four requirements:

- an ACT composite score of at least 28;

- an ACT science reasoning score of at least 25;

- a g.p.a. of at least 3.80; and

- completion of the minimum high school course requirements listed under "Admission to the B.S.N. Prelicensure Program" above.

Students admitted through the Early Decision Program must maintain a cumulative g.p.a. of at least 3.00 and clean criminal and student life records during their first four semesters in the program. Students who fail to meet these requirements may be subject to probation or dismissal from the EDP.

B.S.N. Competitive Admission

In order to apply for competitive admission to the College of Nursing, students must:

- have a cumulative g.p.a. of at least 3.00;

- have a minimum of 48 s.h. of college credit;

- have completed the minimum high school course requirements listed under "Admission to the B.S.N. Prelicensure Program" above, with any deficiencies satisfied through college course work;

have completed all B.S.N. prerequisite course work listed under "Bachelor of Science in Nursing" above (a maximum of two natural science prerequisites and two social science prerequisites may be in progress or planned at the time of application); and

must have a grade of C (2.00) or higher on all prerequisite course work.

In order to enter the College of Nursing, successful competitive admission applicants must:

maintain a cumulative g.p.a. of at least 3.00;

have a minimum of 64 s.h. of college credit; and

have completed any remaining prerequisite course work listed under "Bachelor of Science in Nursing" above, including any remaining natural science and/or social science prerequisites.

Successful competitive admission students must complete any remaining natural science prerequisite no more than 10 years before they enter the College of Nursing and enroll in course work for the nursing major.

ADMISSION TO THE RN-B.S.N. PROGRAM

Applicants to the RN-B.S.N. program must hold an RN license and an Associate Degree in Nursing or Diploma in Nursing. They must have a cumulative g.p.a. of at least 3.00. Admission is highly competitive, with emphasis on the natural sciences (anatomy, biology, chemistry, microbiology, physiology), writing (composition I and II), and mathematics (statistics).

Applicants must complete prerequisite course work before applying to the RN-B.S.N. program and additional elective course work before entering the program. They may complete these requirements at a community college.

They also must complete course work in one or more world languages; the requirement varies according to the applicant's year of high school graduation:

before 1991: applicant is exempt from the world language requirement;

1991 and after: applicant must demonstrate second-level proficiency in a single world language.

CORE PERFORMANCE STANDARDS

Applicants to the College of Nursing are expected to be capable of completing the entire nursing curriculum and of earning a B.S.N. degree. Nursing is a practice discipline with cognitive, sensory, affective, and psychomotor performance requirements. The college's core performance standards provide an objective measure on which to base informed decisions about whether individual students will be able to participate in the nursing program. The core performance standards also help students determine whether they will need accommodations or modifications in order to participate.

The core performance standards are provided to all students before matriculation and are available online in the B.S.N. Student Handbook; see Section VII: Clinical Course and Health Science Student Requirements. A student with disabilities who believes that he or she may need assistance in meeting the core performance standards should contact Student Disability Services.

SELECTION

The college's admission committee recommends to the dean the applicants who appear to be best qualified. Fulfillment of minimum admission requirements does not guarantee admission to the College of Nursing. The committee may require personal interviews. A physical examination report and specific health screening requirements must be on file at University of Iowa Student Health & Wellness 10 days before the class opens for the first clinical nursing course.

APPLICATION DEADLINES

B.S.N. prelicensure early decision admission: January 1 for fall entry

B.S.N. prelicensure competitive admission: April 1 for spring entry

RN-B.S.N. program: September 1 for spring entry; March 1 for fall entry

Financial Support

In addition to general assistance available to University students, there are assistance programs specifically for nursing students. Information about financial aid is available from the University's Office of Student Financial Aid.

Graduate Programs of Study

- Master of Science in Nursing
- Doctor of Nursing Practice
- Doctor of Philosophy in nursing
- Certificate in Advanced Practice Nursing

Graduate students in the College of Nursing must adhere to all Graduate College policies regarding academic standing, probation, and dismissal; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Master of Science in Nursing

The Master of Science in Nursing requires a minimum of 39 s.h. of graduate credit. The program has a clinical nurse leader focus. It is designed to build on general and professional baccalaureate study.

The M.S.N. curriculum consists of a core component of 28 s.h., which students take with College of Nursing doctoral students, and a specialization component of 11 s.h. that centers on the clinical nurse leader role.

Students must maintain a g.p.a. of at least 2.75 and must successfully complete a thesis, project, or portfolio.

Graduate students in the College of Nursing must adhere to all Graduate College policies regarding academic standing, probation, and dismissal. Transfer credit applicable to the M.S.N. is limited and must be approved by the College of Nursing executive associate dean for academic affairs. Course work taken 10 years or more before the M.S.N. final examination must be updated according to University policy.

The M.S.N. requires the following course work.

NURS:5002 (096:208) Leadership and Management Essentials	3 s.h.
NURS:5007 (096:201) Applied Epidemiology	3 s.h.

NURS:5009 (096:211) Evaluating Evidence for Practice	3 s.h.
NURS:5015 (096:215) Health Systems, Finance, and Economics	3 s.h.
NURS:5016 (096:203) Healthcare Infrastructure and Policy	3 s.h.
NURS:5017 (096:204) Quality and Safety	3 s.h.
NURS:5018 (096:207) Clinical Education in the Care Environment	3 s.h.
NURS:5025 (096:213) Physiology and Pathophysiology for Advanced Clinical Practice	3 s.h.
NURS:5031 (096:217) Health Promotion and Assessment for Advanced Clinical Practice	4 s.h.
NURS:5636 (096:226) Clinical Nurse Leader Seminar	2 s.h.
NURS:5666 (096:227) Leadership in the Microsystem	3 s.h.
NURS:5696 (096:239) CNL Capstone Clinical Immersion	6 s.h.

See the M.S.N. course plan on the College of Nursing web site for a semester-by-semester course schedule.

Doctor of Nursing Practice

The Doctor of Nursing Practice requires a minimum of 72 s.h. of graduate credit. Students may complete the program in three to five years, depending on their focus area. Individuals who have been granted an M.S.N. may complete the D.N.P. with a minimum of 31 s.h. of graduate credit.

The D.N.P. program prepares nurses for leadership and advanced practice roles. Students choose from a number of specialties, including adult/gerontology nurse practitioner, anesthesia nursing, family nurse practitioner, health systems, neonatal nurse practitioner, pediatric nurse practitioner—primary care, and psychiatric/mental health nurse practitioner.

All D.N.P. students complete basic graduate core courses, specialty courses, advanced core courses, and practicums. In didactic courses, they explore clinical leadership, public policy and advocacy, specialty systems, change theory, finance and business, and entrepreneurial tools. Visit D.N.P. Plans of Study on the College of Nursing web site to see required course work for each D.N.P. specialty.

D.N.P. students must complete a minimum of 1,000 practice experience hours. Individuals who enter the program having completed an M.S.N. may transfer approved clinical hours from their M.S.N. program to the D.N.P. program. The clinical hours requirement is evaluated for each student who has completed an M.S.N. with a specialty program. Students who completed more than 1,000 practice experience hours in an M.S.N. advanced practice program still must complete the number of D.N.P. practicum and capstone project hours determined in consultation with their advisor and the D.N.P. program's director.

Transfer credit applicable to the D.N.P. is limited and must be approved by the College of Nursing executive associate dean for academic affairs. Transcripts for individuals who have completed an M.S.N. are evaluated individually.

Graduate students in the College of Nursing must adhere to all Graduate College policies regarding academic standing, probation, and dismissal. Course work taken 10

or more years before a student plans to graduate from the D.N.P. program must be updated according to University policy.

Doctor of Philosophy

The Doctor of Philosophy program in nursing requires a minimum of 74 s.h. of graduate credit. The program prepares students to advance nursing science and contribute to the body of nursing knowledge. It emphasizes student participation with faculty members on research teams; focused course work; presentation and publication of research-based knowledge; and interdisciplinary learning experiences. Graduates are prepared for careers as researchers, college and university faculty members, consultants, and leaders in the profession.

The program is open to individuals who have earned a bachelor's degree in nursing or a master's degree. Applicants who hold a bachelor's degree in nursing and an advanced degree outside nursing may be admitted; their curriculum is based on a review of their transcript.

Graduate students in the College of Nursing must adhere to all Graduate College policies regarding academic standing, probation, and dismissal. Course work taken 10 or more years before a student plans to graduate from the Ph.D. program must be updated according to University policy.

The Ph.D. in nursing requires the following work.

REQUIRED COURSES

Basic core (required for students who enter with a bachelor's degree in nursing):

NURS:5007 (096:201) Applied Epidemiology	3 s.h.
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Advanced core:

NURS:5008 (096:202) Foundations of Nursing Science I	3 s.h.
NURS:6802 (096:330) Health Policy, Law, and Advocacy	3 s.h.
NURS:6811 (096:339) Social Determinants of Health and Health System Inequities	3 s.h.
NURS:7002 (096:338) Designing Research	3 s.h.
NURS:7801 (096:497) Seminar: Research Scholarship Role Development	3 s.h.
Intermediate statistics	3 s.h.
Clinical specialization courses	6 s.h.
Elective course	3 s.h.

Advanced research methods:

NURS:7000 (096:340) Foundations of Nursing Science II	4 s.h.
NURS:7001 (096:342) Qualitative Research	4 s.h.
NURS:7003 (096:344) Quantitative Research	4 s.h.
NURS:7803 (096:490) Research Practicum I	1 s.h.
NURS:7804 (096:491) Research Practicum II	1 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	0-1 s.h.
Advanced statistics	6 s.h.

Content focus:

NURS:7403 (096:423) Advanced Seminar in Health Research (may be taken twice)	3-6 s.h.
Cognate courses	6-9 s.h.
Dissertation (students must earn a minimum of 11 s.h.):	
NURS:7805 (096:499) Dissertation Research	arr.

COMPREHENSIVE EXAM AND DISSERTATION

All Ph.D. students must complete a written and oral comprehensive examination before they begin work on the dissertation. They must write the dissertation and defend it orally.

Certificate

The Certificate in Advanced Practice Nursing program enables D.N.P. students who are certified in a specialty area to pursue clinical training in a second specialty area. Students choose one of four certificate subprograms: adult/gerontological nurse practitioner, family nurse practitioner, pediatric nurse practitioner—primary care, or psychiatric/mental health nurse practitioner. Certificate requirements include advanced clinical core courses and a sequence of specialty courses determined by the coordinator of the specialty area. Students who complete the D.N.P. program and the certificate requirements are qualified to sit for a professional certification examination. Completion of the certificate and specialty area is noted on the student's transcript. Visit DNP—Plans of Study for information about certificate program requirements.

Related Certificate: Informatics

The Graduate College offers the Certificate in Informatics with a health informatics subtrack, which requires 18 s.h. of credit. The subtrack emphasizes the organization, management, and use of health care information; health care research, education, and practice; and information technology developments in the socioeconomic context of health care.

College of Nursing students working toward the certificate complete IGPI:5200 (200:110) Health Informatics I, which explores decision-making processes and technological tools to support health care administration, management, and practice; and IGPI:5210 (200:120) Health Informatics II, which focuses on field projects related to health informatics topics and includes a seminar. Students earn an additional 12 s.h. of credit in courses outside their major program of study, chosen in consultation with their major program advisor and their certificate advisor. Students who earn credit for a thesis, project, or independent study in their major program of study may apply the credit to the Certificate in Informatics if the certificate advisor determines that the subject matter is pertinent.

Completion of the certificate is noted on the student's transcript. To learn more, see "Certificate" in the Informatics (p. 972) (Graduate College) section of the Catalog.

Admission

Applicants to College of Nursing graduate programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. Applicants must have a g.p.a. of at least 3.00.

The College of Nursing has additional application requirements, as follows.

Applicants whose first language is not English must score at least 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL); or they must score at least 7.0 on the International English Language Testing System (IELTS).

A criminal background check is required for all graduate students upon admission.

ADMISSION TO THE M.S.N. AND D.N.P. PROGRAMS

Application requirements specific to the M.S.N. and D.N.P. programs are:

- a bachelor's degree with a major in nursing from an accredited program;
- satisfaction of the legal requirements for the practice of nursing in Iowa;
- current written recommendations from three persons knowledgeable about the applicant's competence in the practice of nursing and potential for leadership and scholarship (forms required);
- a current résumé, goal statement, and supplemental/information form;
- transcripts from all undergraduate and graduate course work;
- completion of an upper-division nursing research course in the undergraduate program; and
- completion of an upper-level statistics course within five years of the application deadline; acceptable University of Iowa courses include BIOS:5110 (171:161), PSQF:4143 (07P:143), STAT:3510 (22S:101), and STAT:4143 (22S:102); see Transfer Courses on ISIS for information about using equivalent courses from other institutions.

Application deadline for the M.S.N. program is February 1.

Application deadline for the D.N.P. program is February 1 for all specialties except anesthesia nursing, which has a June 1 application deadline.

Applications to both programs are reviewed once a year. In order to be reviewed, the application must be complete, with all materials submitted.

Applicant interviews are required for the D.N.P. and M.S.N. programs; in some cases, telephone interviews may be arranged. D.N.P. applicants with master's degrees in nursing from other schools must provide verification of completed clinical hours from their school's graduate director or must submit appropriate course syllabi.

ADMISSION TO THE PH.D. PROGRAM

The Ph.D. program accepts applications from individuals who have earned a bachelor's degree in nursing.

Applicants to the Ph.D. program must have taken the Graduate Record Examination (GRE) General Test, preferably within the preceding five years. They must have completed an accredited basic nursing program and must hold a current license to practice nursing (special license for international students). They also must have a g.p.a. of at least 3.00. Applicants must submit:

a two-to-three-page statement describing their educational objectives, career goals, and an area of research for their doctoral study;

three recommendations from nursing professionals that speak to the applicant's potential as a scholar;

a current résumé or curriculum vitae; and

a complete transcript of all college programs and courses.

Applicants who hold a master's degree must have successfully completed at least one graduate-level course in research and inferential statistics (3 s.h.).

Applicants with a bachelor's degree in nursing who apply directly to the Ph.D. program must have successfully completed an upper-division course in statistics. They also must submit a strong statement of their educational goals, career goals, and potential area of research.

Application deadline for the Ph.D. program is November 15. Applications are reviewed once a year. In order to be reviewed, the applicant's file must be complete, with all materials submitted.

Professional Improvement

Registered nurses who wish to take University of Iowa course work to fulfill professional or personal improvement objectives may request admission in the professional improvement (PI) category. This admission status allows students to take some graduate courses at the University without committing to a degree objective.

Admission as a nursing professional improvement student requires a formal application, including submission of three current written recommendations and all academic transcripts. GRE General Test scores, required by the University, must be submitted before the end of first semester registration.

Application deadlines are July 15 for fall semester admission, December 1 for spring semester admission, and May 1 for summer session admission.

Since acceptance as a PI student does not influence acceptance to the college's graduate degree programs, PI students interested in earning a graduate degree in nursing must apply for admission to the degree program (see "Admission" under "Graduate Programs" above). Students may count a maximum of 6 s.h. or two required nursing core courses that they complete as PI students toward M.S.N. requirements. Professional improvement students may not enroll in Ph.D. courses.

Continuing Education

The college offers nonacademic, short-term continuing education programs for registered nurses. Continuing Education Units (CEUs) are awarded for these programs. The College of Nursing is an Iowa Board of Nursing approved provider of continuing education, Provider Number 1.

Student Organizations

All College of Nursing B.S.N. prelicensure students are members of the National Student Nurses Association and its local chapter, the Iowa Association of Nursing Students (IANS). The University of Iowa Association of Nursing Students (UIANS) provides opportunities for

professional growth and development in nursing. UIANS representatives are members of the University of Iowa Student Government (UISG).

The University of Iowa Minority Student Nurse Association (UIMNSA) provides opportunities for professional growth and development for students from populations underrepresented in nursing. UIMNSA board members are members of the University of Iowa Student Government.

University of Iowa Men in Nursing (UIMiN) provides opportunities for nurses to meet, to recruit, to talk, and to influence the environment for men in nursing. It is open to all nursing students.

The college's Association of Graduate Nursing Students (AGNS) provides opportunities for professional growth, sharing of research, and representation on varied college and University committees.

Facilities

The College of Nursing Building is centrally located on the University's main campus, in close proximity to the Carver College of Medicine, the College of Dentistry, the College of Pharmacy, the College of Public Health, University of Iowa Hospitals and Clinics, Bowen Science Building, and the Hardin Library for the Health Sciences.

The college's building was completed in 1971. Administrative offices are located on the first floor, a research suite is on the second floor, and faculty offices are on the third and fourth floors. The lower level houses the Office of Student Services; a student lounge; a computer lab; and the Ph.D. student office, with desk space, access to computers, a printer, a copier, and a meeting space. Classrooms are located throughout the building.

The Nursing Clinical Education Center provides clinical experiences for nursing students and serves as a resource for the University's professional nursing staff. Opened in 2006 at University of Iowa Hospitals and Clinics, the center offers the latest technology in an 11-room clinical simulation lab. It also has an 86-seat classroom, a resource library, and gathering spaces for private study. The center is operated collaboratively by the College of Nursing and UI Hospitals and Clinics Department of Nursing Services and Patient Care.

Courses

Lower-Level Undergraduate

NURS:1020 (096:029) First-Year Seminar 1 s.h.

Introduces first-year undergraduate students to the intellectual life of the University of Iowa; provides an opportunity to work closely with a faculty member or senior administrator; seminars help students make the transition to college-level learning through active participation in their own learning.

NURS:1030 (096:030) Human Development and Behavior 3 s.h.

Normal developmental transitions experienced by individuals and family systems throughout the lifespan, including physical, cognitive, and social-emotional development. Prerequisites: PSY:1001 (031:001). Requirements: nursing or nursing-interest major.

NURS:1800 (096:085) Basic Aspects of Aging 3 s.h.

Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. GE: Social Sciences. Same as LEIS:1800 (169:085), ASP:1800 (153:085), SSW:1800 (042:085), CSD:1800 (003:085).

Upper-Level Undergraduate and Graduate**NURS:3099 (096:109) Leadership U** 1-3 s.h.

Development of leadership in nursing; application of leadership theory in practice by participating in activities such as attending professional organization meetings, acting as a delegate, writing legislation, holding a board position, or being part of a multidisciplinary or international team to organize events for community involvement. Requirements: nursing major.

NURS:3110 (096:110) Healthcare Finance 3 s.h.

Basic structure of U.S. health care system and how it is funded; tools for making decisions about available financial resources.

NURS:3128 (096:120) Health Assessment and Communication Across the Lifespan 3 s.h.

Assessment and communication skills; development and application of cognitive skills to perform systematic, holistic, and culturally competent health assessments; emphasis on application of clinical reasoning involving assessment, nursing diagnoses, interventions, and outcomes. Corequisites: NURS:3138 (096:121), NURS:3150 (096:122), NURS:3160 (096:123), and NURS:3518 (096:117). Requirements: admission to the College of Nursing.

NURS:3138 (096:121) Nursing and Pharmacological Interventions I 5 s.h.

First of a two-part series focusing on basic biophysical concepts that inform nursing and pharmacological interventions, including sleep, immobility, skin care, wound healing, infection, and human response to illness; selected disorders and/or diseases, including GI disease, disorders of bowel and urine elimination, diabetes, and cancer; introduction to health literacy and principles of health education. Prerequisites: ACB:3110 (060:110), BIOL:1141 (002:002), CHEM:1070 (004:007), CHEM:1080 (004:008), HHP:3500 (027:130), MATH:1440 (22M:015), and MICR:3164 (061:164). Corequisites: NURS:3128 (096:120), NURS:3150 (096:122), NURS:3160 (096:123), and NURS:3518 (096:117). Requirements: 64 s.h. of undergraduate course work, including successful completion of required science courses and general education liberal arts and sciences requirements and electives.

NURS:3150 (096:122) Clinical Simulation Laboratory I 3 s.h.

First of a two-part series focusing on laboratory-based learning and simulation experience involving basic biophysical and psychosocial assessment skills needed to provide safe and effective nursing care across diverse settings and populations; emphasis on development of nurse-patient and intra- and inter-professional communication skills. Requirements: admission to the College of Nursing.

NURS:3160 (096:123) Professional Role I: Professionalism and Patient Safety 3 s.h.

Introduction to inherent nursing values, history, theories, and scope of professional nursing; concepts of safety, risk identification, and clinical decision making; information technologies that promote quality and safety. Requirements: admission to the College of Nursing.

NURS:3198 (096:107) Distance Education: Independent Study 1-3 s.h.

Supervised study designed for individual undergraduate students.

NURS:3199 (096:150) Independent Study arr.

Supervised study designed for individual undergraduate students.

NURS:3438 (096:131) Nursing and Pharmacological Interventions II 5 s.h.

Second of a two-part series focusing on complex biophysical concepts that inform nursing and pharmacological interventions, including fluids and electrolytes, shock, and perioperative care; focus on selected disorders and/or diseases, including neurological, immune, musculoskeletal, cardiovascular, respiratory, renal, and endocrine disorders. Prerequisites: NURS:3138 (096:121) and NURS:3150 (096:122). Corequisites: NURS:3450 (096:132), NURS:3460 (096:133), NURS:3620 (096:148), and NURS:3625 (096:149).

NURS:3450 (096:132) Clinical Simulation Laboratory II 2 s.h.

Second of a two-part series focusing on laboratory-based learning and simulation experience involving complex biophysical and psychosocial assessment skills, critical thinking, and decision making needed to provide safe and effective nursing care across diverse settings and populations; emphasis on development of clinical reasoning skills across the lifespan, including end-of-life care. Prerequisites: NURS:3128 (096:120), NURS:3138 (096:121), NURS:3150 (096:122), NURS:3160 (096:123), and NURS:3518 (096:117). Corequisites: NURS:3438 (096:131).

NURS:3460 (096:133) Professional Role II: Research 3 s.h.

Introduction to concepts and process of research in nursing; primary focus on understanding research and its foundation for nursing practice. Requirements: basic statistics. Recommendations: upper-level statistics.

- NURS:3518 (096:117) Pathology** 3 s.h.
Introduction to abnormal functioning of cells, tissues, organs, and systems over the human lifespan; focus on hematological, immune, neurological, musculoskeletal, cardiovascular, respiratory, renal, gastrointestinal, endocrine, and reproductive system; alterations in metabolic processes and alterations in homeostatic mechanisms impacting the internal milieu; emphasis on critical thinking. Prerequisites: ACB:3110 (060:110), BIOL:1141 (002:002), CHEM:1070 (004:007), CHEM:1080 (004:008), HHP:3500 (027:130), and MICR:3164 (061:164).
- NURS:3520 (096:139) Parent-Child Nursing** 3 s.h.
Health promotion, maintenance, and restoration for parents, infants, children, and adolescents in childbearing and child-rearing families.
- NURS:3521 (096:140) Parent-Child Nursing Practicum** 3 s.h.
Principles of health promotion, maintenance, and restoration applied among parents, infants, children, and adolescents in childbearing and child-rearing families. Corequisites: NURS:3520 (096:139), if not taken as a prerequisite.
- NURS:3531 (096:142) Gerontological Nursing Practicum** 3 s.h.
Nursing process applied to promote, maintain, and restore health of older adults; opportunities to provide nursing care to well elderly and to acutely and/or chronically ill elderly in a variety of settings.
- NURS:3540 (096:153) Community and Public Health Nursing Theory: Generalist** 3 s.h.
Nursing's role in the relationship between community conditions and public health; principles of public health with nursing knowledge and skills to address health needs of individuals, families, communities, populations.
- NURS:3541 (096:154) Community and Public Health Nursing Practicum: Generalist** 3 s.h.
Application of public health principles with nursing knowledge and skills to address the health needs of communities and populations. Corequisites: NURS:3540 (096:153), if not taken as a prerequisite.
- NURS:3550 (096:155) Psychiatric/Mental Health Nursing** 3 s.h.
General principles and practices of psychiatric/mental health nursing; psychiatric disorders, populations at risk, continuity of care, problems in daily living.
- NURS:3551 (096:156) Psychiatric/Mental Health Nursing Practicum** 3 s.h.
Nursing process used to deliver nursing care to individuals and families with mental illness in a variety of clinical settings; focus on promotion, maintenance, restoration of the mental health of individuals and families. Corequisites: NURS:3550 (096:155), if not taken as a prerequisite.
- NURS:3560 (096:163) Information Management and Patient Care Technology in Practice** 3 s.h.
Information management, patient care technology; information systems for quality improvement data, regulatory reporting; range of technologies and infrastructure of evidence-based information for clinical care, including patient monitoring systems, medication administration systems, longitudinal electronic records, clinical decision support tools, and other data gathering devices to support patient care; open to continual learning. Requirements: admission to the prelicensure B.S.N. program.
- NURS:3595 (096:168) Nonprofit Organizational Effectiveness I** 3 s.h.
Operational and financial aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as ENTR:3595 (06T:144), MUSM:3500 (024:147), SSW:3500 (042:157), MGMT:3500 (06J:147), RELS:3700 (032:127).
- NURS:3600 (096:169) Nonprofit Organizational Effectiveness II** 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as MUSM:3600 (024:148), MGMT:3600 (06J:148), SSW:3600 (042:158), RELS:3701 (032:128).
- NURS:3615 (096:173) Adult Medical/Surgical Nursing Practicum** 3 s.h.
In-depth clinical experience; application of basic and complex concepts of nursing care for adults of all ages in a variety of settings, focus on older adults; development and application of critical thinking skills necessary to understand disease process, associated signs and symptoms; emphasis on interventions and outcomes. Prerequisites: NURS:3128 (096:120), NURS:3138 (096:121), NURS:3150 (096:122), NURS:3160 (096:123), and NURS:3518 (096:117). Corequisites: NURS:3438 (096:131), NURS:3450 (096:132), NURS:3460 (096:133), NURS:3620 (096:148), and NURS:3625 (096:149).
- NURS:3620 (096:148) Gerontological Nursing** 3 s.h.
Nurse's role in promoting, maintaining, and restoring the health of aging adults; internal and external influences on older adults, application of nursing science to the care of older adults in diverse settings. Prerequisites: NURS:3128 (096:120), NURS:3138 (096:121), NURS:3150 (096:122), NURS:3160 (096:123), and NURS:3518 (096:117). Corequisites: NURS:3438 (096:131), NURS:3450 (096:132), NURS:3460 (096:133), and NURS:3625 (096:149).
- NURS:3625 (096:149) Gerontological Nursing Practicum** 2 s.h.

In-depth clinical experience designed to apply basic and complex concepts of nursing care for adults of all ages in a variety of settings; focus on older adults; development and application of critical thinking skills necessary to understand disease process and the associated signs and symptoms, interventions, and outcomes. Prerequisites: NURS:3128 (096:120), NURS:3138 (096:121), NURS:3150 (096:122), NURS:3160 (096:123), and NURS:3518 (096:117). Corequisites: NURS:3438 (096:131), NURS:3450 (096:132), NURS:3460 (096:133), NURS:3615 (096:173), and NURS:3620 (096:148).

NURS:3630 (096:144) Parent-Child Nursing 3 s.h.

Promoting, maintaining, and restoring the health of parents, infants, children, and adolescents in childbearing and childrearing families; nursing care prior to and during pregnancy, labor, and delivery; care of newborns, well children, and children with acute and chronic illness examined within the context of family and community. Prerequisites: NURS:3128 (096:120), NURS:3138 (096:121), NURS:3150 (096:122), NURS:3438 (096:131), NURS:3450 (096:132), and NURS:3518 (096:117). Corequisites: NURS:3640 (096:160), NURS:3645 (096:161), and NURS:3660 (096:162).

NURS:3635 (096:174) Parent Child Nursing Practicum 2 s.h.

Application of nursing knowledge to promote, maintain, and restore health; vulnerable populations of interest including persons with mental health disorders, infants, children, adolescents, their families; processes of childbearing and childrearing within context of families. Prerequisites: NURS:3615 (096:173) and NURS:3625 (096:149). Corequisites: NURS:3630 (096:144), NURS:3640 (096:160), NURS:3645 (096:161), and NURS:3660 (096:162). Requirements: successful completion of two semesters in B.S.N. curriculum.

NURS:3640 (096:160) Psychiatric/Mental Health Nursing 3 s.h.

General principles and practices of psychiatric/mental health nursing; psychiatric disorders, populations at risk, continuity of care, and problems in daily living; unique needs of diverse populations. Prerequisites: NURS:3128 (096:120), NURS:3138 (096:121), NURS:3150 (096:122), NURS:3438 (096:131), NURS:3450 (096:132), and NURS:3518 (096:117). Corequisites: NURS:3630 (096:144), NURS:3645 (096:161), and NURS:3660 (096:162).

NURS:3645 (096:161) Mental Health Nursing Practicum 2 s.h.

Application of nursing knowledge to promote, maintain, and restore health; vulnerable populations of interest including persons with mental health disorders, infants, children, adolescents, their families; processes of childbearing and childrearing within context of families. Prerequisites: NURS:3615 (096:173) and NURS:3625 (096:149). Corequisites: NURS:3630 (096:144), NURS:3635 (096:174), NURS:3640 (096:160), and NURS:3660 (096:162). Requirements: successful completion of two semesters in B.S.N. curriculum.

NURS:3650 (096:164) Community and Public Health Nursing 3 s.h.

Role of nursing in the relationship between community conditions and public health; emphasis on principles of public health combined with nursing knowledge and skills to address health needs of individuals, families, communities, and populations. Prerequisites: NURS:3110 (096:110), NURS:3160 (096:123), NURS:3460 (096:133), NURS:3518 (096:117), and NURS:3660 (096:162). Corequisites: NURS:3655 (096:165). Requirements: (for pre-licensure B.S.N. student) successful completion of NURS:3620 (096:148), NURS:3625 (096:149), NURS:3630 (096:144), NURS:3640 (096:160), and NURS:3645 (096:161), and concurrent enrollment in NURS:4155 (096:166) and NURS:4160 (096:167); (for post-licensure RN-B.S.N. student) successful completion of NURS:4160 (096:167) and NURS:4165 (096:170), 6 s.h. of required nursing elective courses, and completion of general education electives.

NURS:3655 (096:165) Community and Public Health Nursing Practicum 2 s.h.

Learning opportunities to apply principles of public health with nursing knowledge and skills to address health promotion, disease and injury prevention, and nursing management of infectious disease and chronic health conditions; nursing activities focus on improvement of health outcomes at individual, family, community, and global levels within the context of population-focused practice. Corequisites: NURS:3650 (096:164). Requirements: (for pre-licensure B.S.N. student) successful completion of NURS:3625 (096:149) and NURS:3645 (096:161), and concurrent enrollment in NURS:4155 (096:166) and NURS:4160 (096:167); (for post-licensure RN-B.S.N. student) successful completion of NURS:3110 (096:110), NURS:3160 (096:123), NURS:3460 (096:133), NURS:3518 (096:117), NURS:3660 (096:162), NURS:3734 (096:116), NURS:4160 (096:167), and NURS:4165 (096:170); 6 s.h. of required nursing electives; completion of general education electives; RN licensure in state of practicum; and concurrent enrollment in NURS:3734 (096:116), if not taken as a prerequisite.

NURS:3660 (096:162) Professional Role III: Improving Health Systems 2-3 s.h.

Legal and regulatory processes that impact health care, how disparities influence health care, and evidence-based approaches for improving quality of care; strategies for working effectively in intra and interdisciplinary teams; integration of a culture of safety. Prerequisites: NURS:3160 (096:123) and NURS:3460 (096:133).

NURS:3685 (096:143) Research for Nursing Practice 1-3 s.h.

Introduction to the concepts and process of nursing research; focus on critique of published research and application to nursing practice. Requirements: nursing major and an approved statistics course.

NURS:3712 (096:112) Human Sexuality, Diversity, and Society 1-3 s.h.

Physiological, psychological aspects; parameters defined by students, instructor. Same as SSW:3712 (042:112).

NURS:3715 (096:125) Health Disparities and Cultural Competence 2-4 s.h.

Characteristics, causes, and effects of health disparities in the U.S. health care system; foundation for development of knowledge, attitudes, and skills required of culturally competent health care providers; definitions and models of cultural competence, characteristics of culturally effective practitioners and workplaces; health disparities among specific populations, evidence for cultural competence as a remedy; taking a culturally appropriate history; working with interpreters; legal and professional imperatives for cultural competence. Same as PHAR:8715 (046:377), CBH:5225 (172:135).

NURS:3728 (096:128) Patient Safety for Health Professional Students 2 s.h.

Interprofessional experience using multiple pedagogic methods, including team-based simulation to teach about patient safety and teamwork; collaboratively taught by representatives from anesthesia, pediatrics, internal medicine, Office of Consultation and Research in Medical Education, College of Nursing, College of Public Health, and office of UIHC chief quality officer. Same as MED:8410 (050:310).

NURS:3730 (096:130) Teaching and Learning Online 3 s.h.

Synthesis and critical evaluation of current knowledge regarding use of online learning as a tool; empirical research, best practices, and available resources to support effective implementation and management of online learning; skill development and practice; web-based course.

NURS:3734 (096:116) Introduction to Human Genetics 3 s.h.

Introduction to organization of the human genome and basic principles of inheritance in humans; cells and development, chromosome structure and function, gene structure and function, genes in pedigrees and populations, implications of genetic variation on health.

NURS:3736 (096:187) Legal Issues for Health Care Providers 3 s.h.

Legal issues faced by health care providers, counselors, and social services providers; administrative and regulatory requirements, civil lawsuits, issues that affect students as providers, advocates, and individuals.

NURS:3737 (096:137) Nursing Care of the Patient in Pain 3 s.h.

Assessment, pharmacological and nonpharmacological nursing intervention, evaluation of acute, chronic-benign, and chronic-malignant pain. Requirements: RN license, or 3rd- or 4th-year standing in nursing B.S.N. program.

NURS:3740 (096:147) End-of-Life Care for Adults and Families 2-4 s.h.

End-of-life issues in care of adults, older adults, and their families. Requirements: RN license. Same as ASP:3740 (153:147), MED:3740 (050:147), PHAR:3740 (046:146).

NURS:3742 (096:179) Selected Topics in Nursing 1-2 s.h.

In-depth study of topics in professional nursing practice and health care; workshop format.

NURS:3781 (096:181) Clinical Instruction in Nursing Education 3 s.h.

Role and functions of the nurse educator in the clinical setting; development of teaching strategies and learning activities that support effective clinical and laboratory instruction; evidence-based teaching and evaluation practices; how to incorporate the core concepts of critical thinking for clinical decision-making, effective communication, and cultural competence into clinical experiences; learners with diverse learning styles and backgrounds; ethical and legal implications in clinical teaching and evaluation of learning; technology and emerging trends that impact teaching in the clinical setting. Requirements: RN-B.S.N. or graduate standing.

NURS:4030 (096:159) Contemporary Nursing Practice Issues 3 s.h.

Identification, exploration, analyses of selected issues in nursing and health care; impact of significant historical, social, political, genetic, legal, and ethical factors on development of the nursing discipline. Requirements: senior standing in the College of Nursing.

NURS:4040 (096:157) Nursing Leadership and Care Management 3 s.h.

Analysis of nursing leadership, care management, and models of care in the context of society and the interdisciplinary health care system. Requirements: senior standing in the College of Nursing.

NURS:4050 (096:158) Clinical Nursing Internship 5 s.h.

Independent internship in one of a variety of health care settings to promote role transition, lifelong learning; emphasis on integration and application of knowledge and skills to design, provide, manage, and coordinate care. Requirements: senior standing in the College of Nursing.

NURS:4096 (096:113) Distance Education: Honors Independent Study 1-3 s.h.

Supervised study designed for individual honors undergraduate students.

NURS:4098 (096:152) Honors Seminar 1 s.h.

Supervised study designed for individual honors students.

NURS:4099 (096:151) Honors Independent Study 1-3 s.h.

Supervised study designed for individual honors students.

NURS:4155 (096:166) Senior Nursing Internship 5 s.h.

Immersion capstone experience to engage in practice under direct supervision of a professional registered nurse mentor; design, provide, coordinate, and evaluate care; work with teams to deliver evidence-based care; improve quality, patient safety, and outcomes. Prerequisites:

NURS:3128 (096:120), NURS:3138 (096:121), NURS:3150 (096:122), NURS:3160 (096:123), NURS:3438 (096:131), NURS:3450 (096:132), NURS:3460 (096:133), NURS:3518 (096:117), NURS:3620 (096:148), NURS:3625 (096:149), NURS:3630 (096:144), NURS:3640 (096:160), NURS:3645 (096:161), and NURS:3660 (096:162). Corequisites: NURS:3650 (096:164), NURS:3655 (096:165), and NURS:4160 (096:167).

NURS:4160 (096:167) Professional Role IV: Leadership and Professional Engagement 3,5 s.h.

Concepts of leadership, followership, management, informatics, and professional engagement; quality improvement strategies and skills; professional development, career trajectory, and role transitions. Prerequisites: NURS:3160 (096:123) and NURS:3460 (096:133). Corequisites: NURS:3660 (096:162), if not taken as a prerequisite.

NURS:4165 (096:170) Professional Role IV: Leadership and Professional Engagement Practicum 2 s.h.

Completion of a change project that contributes value to a health care organization using evidence-based quality improvement tools. Prerequisites: NURS:3160 (096:123), NURS:3460 (096:133), and NURS:3660 (096:162). Corequisites: NURS:3660 (096:162), if not taken as a prerequisite, and NURS:4160 (096:167). Requirements: RN licensure in state of practicum.

NURS:4205 (096:192) Communication for the Professional Nurse 0 s.h.

Communication with all members of a health care team to deliver safe, high quality care; introduction to transition stages, survival strategies, journaling and reflecting; how to develop a professional growth plan; first in a three-part series. Requirements: enrollment in online nurse residency program.

NURS:4210 (096:193) Responsibilities of the Professional Nurse 0 s.h.

Understanding and application of concepts of safety, quality improvement, and evidence-based practice to improve patient care; second in a three-part series. Prerequisites: NURS:4205 (096:192). Requirements: enrollment in online nurse residency program.

NURS:4215 (096:197) Decision Making at the Point of Care 0 s.h.

Making the right decision when providing care to all patients to deliver safe and high quality care; third in a three-part series. Prerequisites: NURS:4205 (096:192) and NURS:4210 (096:193). Requirements: enrollment in online nurse residency program.

NURS:4216 (096:216) Group Facilitation in Human Sexuality 0-3 s.h.

Principles of group dynamics, group process; leadership skills for small, task-oriented discussion groups on human sexuality. Prerequisites: SSW:3712 (042:112). Same as SSW:4216 (042:216).

Graduate

Graduate courses are offered only if minimum enrollments are maintained.

NURS:5002 (096:208) Leadership and Management Essentials 3 s.h.

Roles and strategies for leading and managing others in health care environments to influence health care delivery and provide a healthy, innovative working environment; focus on selected leadership and organizational concepts essential to leaders in health care. Requirements: graduate standing.

NURS:5007 (096:201) Applied Epidemiology 3 s.h.

Basic principles and methods of epidemiology; application to field of nursing and nursing research; historical perspective of epidemiology, epidemiological models of health and disease, measures of disease occurrence and association, disease screening, causal inference, study design and application of epidemiological approaches to clinical practice, program planning and evaluation.

NURS:5008 (096:202) Foundations of Nursing Science I 3 s.h.

Integration of interdisciplinary theories and philosophies of science relevant to nursing; emphasis on application of theory and philosophy in advanced nursing practice and research. Requirements: doctoral standing.

NURS:5009 (096:211) Evaluating Evidence for Practice 3 s.h.

Opportunity for clinicians to develop proficiency in use of research- and evidence-based practice; essentials of the research process, qualitative and quantitative research, components of evidence-based practice; acquisition of knowledge and skills necessary for research (knowledge) utilization initiatives and application of evidence-based practice principles in clinical settings; identification of appropriate research questions, synthesis of knowledge base for evidence-based practice, revision of clinical practice guidelines, and evaluation of research utilization and evidence-based practice initiatives.

NURS:5015 (096:215) Health Systems, Finance, and Economics 3 s.h.

Global, economic, organizational, legal, political, and technological contexts in advanced nursing practice; knowledge and skills necessary for understanding the evolution of health services organizations, financing of health care, and relationships among socioeconomic systems influencing health care and nursing practice; impact of macrosystems on distribution, acquisition, and use of financial and economic principles in delivery of health care services. Prerequisites: NURS:5002 (096:208).

NURS:5016 (096:203) Healthcare Infrastructure and Policy 3 s.h.

Health care infrastructure; health care reform and its implementation; political theories, policy definition, role of health professionals in policy-making process, information technology and its role in patient care, cultural factors affecting access and quality of care.

NURS:5017 (096:204) Quality and Safety 3 s.h.

Foundation for understanding concepts of safety and quality across health care settings; providing a safe environment; elevating staff performance and clinical outcomes related to safety and quality; methods for continuous improvement.

NURS:5018 (096:207) Clinical Education in the Care Environment 3 s.h.

Preparation to assume role of educator with individuals, groups, and communities, including staff and students; teaching/learning process for providing client education; knowledge and skills needed to effectively fill role of preceptor/mentor.

NURS:5019 (096:233) Role Development: Educator in a Practice Discipline 3 s.h.

Becoming an educator in a practice discipline; unique knowledge, skills, approaches to didactic and clinical teaching; overview of curriculum development process that affects revision/development; faculty role in curriculum development and evaluation; knowledge and skills to create a learner-centered environment for professional students; key facilitation and evaluation strategies; application of concepts during field experience working directly with experienced faculty.

NURS:5025 (096:213) Physiology and Pathophysiology for Advanced Clinical Practice 3-4 s.h.

Regulation of cellular, organ, and system function; regulation of internal milieu; functional interrelationships among body systems; cellular and body-wide mechanisms of self-defense; illustrative examples of pathological phenomena.

NURS:5029 (096:224) Pharmacotherapeutics for Advanced Clinical Practice 4 s.h.

Pharmacologic, pharmacokinetic, and pharmacodynamic principles essential for advanced clinical practice; classes of drugs frequently used in management of common clinical conditions; legal considerations in prescriptive authority. Prerequisites: NURS:5025 (096:213).

NURS:5031 (096:217) Health Promotion and Assessment for Advanced Clinical Practice 3-5 s.h.

Didactic and clinical laboratory instruction; emphasis on knowledge and skills necessary for advanced health assessment and health promotion interventions for individuals and families across the lifespan.

NURS:5032 (096:218) Mental Disorders in Advanced Practice 3 s.h.

Foundation for advanced practice nurse to provide care for common mental health disorders; presentation of neurophysiological, genomic, environmental/social, and developmental theories to understand etiology and presentation of common mental health conditions; psychopharmacological and nonpharmacological principles and modalities for treatment of common mental health problems. Requirements: admission to direct care DNP program.

NURS:5401 (096:241) The Care of the Frail Elderly 3 s.h.

Clinical management of the elderly; emphasis on economic considerations, principles of gerontological care, common syndromes, ethical issues; clinical application experience in a long-term care setting. Prerequisites: NURS:5029 (096:224). Same as ASP:5401 (153:241).

NURS:5500 (096:228) Advanced Practice Genetic Nursing I 1-3 s.h.

Advanced practice genetic nursing for those at risk for genetic conditions or a condition with a genetic component; application of genetic/genomic science to nursing practice including chromosomal variations; Mendelian and nontraditional inheritance; preconception and prenatal health care in genetics; dysmorphology examinations; developmental delay associated with genetic conditions; application of molecular methodology to clinical and research practice; beliefs about race and ethnicity in the genomic era; ethical, legal, and social implications of genetic nursing. Corequisites: NURS:3734 (096:116). Requirements: enrollment in APN-Genetics M.S.N. program.

NURS:5501 (096:230) Advanced Practice Genetic Nursing II 1-3 s.h.

Advanced practice genetic nursing for individuals, families, and populations who are at risk for genetic conditions or who have a condition with a genetic component; application of genetic science to nursing assessments, interventions, and outcomes; genomics and the delivery of health care in primary and public health; pharmacogenetics; genomic therapeutics; childhood onset genetic disorders; adult onset genetic disorders; part two of the Advanced Practice Nursing Genetics course series. Prerequisites: NURS:3734 (096:116) and NURS:5500 (096:228). Requirements: enrollment in APN-Genetics M.S.N. program.

NURS:5636 (096:226) Clinical Nurse Leader Seminar 2 s.h.

Evolution of clinical nurse leader (CNL) role, eight core role functions, and the process of integration of CNL role into health care system. Requirements: admission to M.S.N.-CNL program.

NURS:5666 (096:227) Leadership in the Microsystem 3 s.h.

Assessment of the microsystem of practice, clinical nurse leader role as leader embedded in a microsystem, and identification of opportunities to enhance care delivery in the microsystem. Requirements: admission to M.S.N.-CNL program.

NURS:5696 (096:239) CNL Capstone Clinical Immersion 6 s.h.

Intensive immersion in role and practice expectations of the CNL; experienced leaders within the microsystem, who are experts in the provision of clinical services at the point of care/services, serve as mentors. Requirements: concurrent enrollment in master's portfolio.

NURS:5800 (096:296) Independent Study arr.

Supervised study and/or clinical practice adjusted to needs of master's degree students. Requirements: M.S.N. enrollment.

NURS:5801 (096:298) Master's Project 2-3 s.h.

Opportunity for in-depth analysis and synthesis of a chosen topic that contributes to some aspect of nursing practice.

- NURS:5802 (096:249) Master's Portfolio** 0 s.h.
Opportunity for clear and cohesive synthesis of clinical or professional experiences and competencies, including those gained in graduate study, that portray students' clinical or professional strengths and career goals.
- NURS:5803 (096:245) Distance Education: Master's Independent Study** arr.
Supervised study and/or clinical practice adjusted to needs of master's degree students. Requirements: M.S.N. enrollment.
- NURS:5804 (096:248) Distance Education: Master's Portfolio** 0 s.h.
Clear and cohesive synthesis of clinical or professional experiences and competencies, including those gained in graduate study; students' clinical or professional strengths and career goals. Requirements: M.S.N. enrollment.
- NURS:5805 (096:299) Thesis** arr.
Opportunity for systematic investigation of a nursing problem of student's choice under guidance of faculty.
- NURS:6000 (096:270) Human Anatomy for Advanced Practice** 3 s.h.
Interrelationships between anatomic structure and physiological function in health and disease; clinical assessment of functional integrity of organ systems; implications of pathophysiology for anesthesia. Requirements: admission to anesthesia nursing program. Same as ACB:6000 (060:270).
- NURS:6001 (096:269) Human Physiology and Pathophysiology for Advanced Practice** 3 s.h.
Detailed study of normal and abnormal human physiology, including mechanisms that govern and support cell, organ, and system function; builds on basic sciences required for undergraduate nursing curriculum and on clinical skills from experience in intensive care setting. Requirements: admission to anesthesia nursing program.
- NURS:6005 (096:271) Chemical and Physical Principles of Anesthesia Practice** 3 s.h.
Chemistry and physics, as applied to anesthesia. Requirements: admission to anesthesia nursing program. Same as ANES:6005 (116:271).
- NURS:6006 (096:273) Pharmacology of Anesthesia Practice II** 3 s.h.
Continuation of PCOL:6204 (071:115); vascular, hepatic, renal, GI, endocrine aspects; cellular mechanisms, electrolytes alterations, anesthesia specific implications. Prerequisites: PCOL:6204 (071:115). Requirements: grade of 2.75 or higher in PCOL:6204 (071:115) and enrollment in anesthesia nursing program. Same as ANES:6006 (116:273).
- NURS:6007 (096:274) Basic Principles of Anesthesia Practice** 5 s.h.
Overview of anesthesia as a nursing specialty; patient assessment, anesthetic planning and management, pertinent regulations; principles of general and regional anesthesia for surgical specialties. Requirements: for NURS:6007 (096:274) — grades of 3.00 or higher in PCOL:6204 (071:115) and NURS:6005 (096:271); for ANES:6007 (116:274) — grades of 3.00 or higher in PCOL:6204 (071:115) and ANES:6005 (116:271). Same as ANES:6007 (116:274).
- NURS:6010 (096:275) Advanced Principles of Anesthesia Practice I** 4 s.h.
Special needs and intraoperative management of obstetric, pediatric, and neurological patients; emphasis on pathophysiology, monitoring, ancillary requirements. Prerequisites: NURS:6007 (096:274) or ANES:6007 (116:274). Requirements: grade of 3.00 or higher in NURS:6006 (096:273) or ANES:6006 (116:273). Same as ANES:6010 (116:275).
- NURS:6012 (096:277) Advanced Principles of Anesthesia Practice II** 1 s.h.
Acute and chronic pain management; anesthetic problems with concurrent multisystem disease, advanced age, altered physical and/or mental status. Prerequisites: NURS:6007 (096:274) or ANES:6007 (116:274). Requirements: grade of 3.00 or higher in NURS:6006 (096:273) or ANES:6006 (116:273). Same as ANES:6012 (116:277).
- NURS:6016 (096:279) Equipment and Technological Principles of Anesthesia Practice** 3 s.h.
Anesthesia delivery systems, ancillary equipment, monitoring devices; correlation of applicable chemical and physical principles for use, safe operation, care, and cleaning of anesthesia-related equipment. Prerequisites: ANES:6005 (116:271). Requirements: anesthesia nursing program enrollment. Same as ANES:6016 (116:279).
- NURS:6050 (096:290) Introductory Clinical Anesthesia** 1 s.h.
Initial anesthesia preceptorship; development of basic clinical skills for work as a nurse anesthetist. Requirements: for NURS:6050 (096:290) — grades of 3.00 or higher in NURS:6006 (096:273) and NURS:6016 (096:279); for ANES:6050 (116:290) — grades of 3.00 or higher in ANES:6006 (116:273) and ANES:6016 (116:279). Recommendations: basic science core courses and anesthesia nursing program enrollment. Same as ANES:6050 (116:290).
- NURS:6051 (096:291) Clinical Anesthesia I** 1 s.h.
Supervised anesthesia clinical experience for general, orthopedic, gynecologic, pediatric, urologic, dental, EENT, ambulatory surgery, or invasive diagnostic procedures. Prerequisites: NURS:6050 (096:290) or ANES:6050 (116:290). Requirements: for NURS:6051 (096:291) — grade of S (satisfactory) in NURS:6050 (096:290); for ANES:6051 (116:291) — grade of S (satisfactory) in ANES:6050 (116:290). Recommendations: anesthesia nursing program enrollment. Same as ANES:6051 (116:291).

- NURS:6052 (096:292) Clinical Anesthesia II** 1 s.h.
Clinical anesthesia experience under faculty supervision at University Hospitals and Clinics, in surgical subspecialty rotations not completed in NURS:6051 (096:291) or ANES:6051 (116:291). Prerequisites: NURS:6051 (096:291) or ANES:6051 (116:291). Requirements: for NURS:6052 (096:292) — grade of S (satisfactory) in NURS:6051 (096:291); for ANES:6052 (116:292) — grade of S (satisfactory) in ANES:6051 (116:291). Recommendations: anesthesia nursing program enrollment. Same as ANES:6052 (116:292).
- NURS:6053 (096:293) Advanced Clinical Anesthesia** 1 s.h.
Clinical anesthesia experiences in neurologic surgery, cardiovascular/thoracic surgery; experience providing anesthesia for patients with complex pathophysiology in varied surgical settings. Requirements: for NURS:6053 (096:293) — anesthesia nursing program senior standing, anesthesia nursing concentration courses, and grade of S (satisfactory) in NURS:6052 (096:292); for ANES:6053 (116:293) — anesthesia nursing program enrollment, anesthesia nursing concentration courses, and grade of S (satisfactory) in ANES:6052 (116:292). Same as ANES:6053 (116:293).
- NURS:6054 (096:294) Obstetrical Anesthesia** 1 s.h.
Experience providing anesthesia for the parturient, initial neonatal care; two one-month rotations off campus. Requirements: for NURS:6054 (096:294) — anesthesia nursing program enrollment and grade of S (satisfactory) in NURS:6052 (096:292); for ANES:6054 (116:294) — anesthesia nursing courses, anesthesia nursing program enrollment, and grade of S (satisfactory) in ANES:6052 (116:292). Same as ANES:6054 (116:294).
- NURS:6055 (096:295) Rural Anesthesia** 1 s.h.
Anesthesia experience in community hospitals; three one-month rotations at UI-affiliated clinical sites in rural Iowa. Requirements: for NURS:6055 (096:295) — anesthesia nursing program enrollment and grade of S (satisfactory) in NURS:6052 (096:292); for ANES:6055 (116:295) — anesthesia nursing courses, anesthesia nursing program enrollment, and grade of S (satisfactory) in ANES:6052 (116:292). Same as ANES:6055 (116:295).
- NURS:6100 (096:219) Primary Care: Infants, Children, and Adolescents I** 3 s.h.
Enhancement of clinical knowledge and skills for infant, child, adolescent care. Prerequisites: NURS:5025 (096:213) and NURS:5029 (096:224).
- NURS:6101 (096:220) Primary Care: Infants, Children, and Adolescents II** 3 s.h.
Enhancement of clinical knowledge and skills for infant, child, adolescent care; development and refinement of knowledge and skills in primary health care delivery. Requirements: for NURS:6101 (096:220) — NURS:6100 (096:219) or NURS:6200 (096:280); for PEDS:6101 (070:201) — NURS:6100 (096:219) and NURS:6200 (096:280). Same as PEDS:6101 (070:201).
- NURS:6200 (096:280) Primary Care: Adults and Older Individuals I** 3 s.h.
Pathophysiologic alterations and clinical management of associated health care problems in adults, the elderly. Prerequisites: NURS:5025 (096:213) and NURS:5029 (096:224).
- NURS:6201 (096:284) Primary Care: Adults and Older Individuals II** 3 s.h.
Continuation of NURS:6200 (096:280). Prerequisites: NURS:6200 (096:280).
- NURS:6500 (096:250) Psychiatric/Mental Health Nursing Theory I** 4 s.h.
Introduction to psychological principles and theories as related to mental health across the life span, intersections between physical and mental health, and role of advanced practice nurse in psychiatric/mental health care; examination of psychological theory in a life span developmental framework from infancy to older adult; role of cultural diversity in mental health; emphasis on assessment, diagnosis, and management of mental disorders common in adults. Prerequisites: NURS:5029 (096:224) and NURS:5032 (096:218). Corequisites: NURS:6701 (096:315).
- NURS:6501 (096:251) Psychiatric/Mental Health Nursing Theory II** 4 s.h.
Builds on prior life span content with specific focus on selected populations, families, and groups; define and expand practice of psychiatric/mental health nursing based on integration of theory, standardized languages, and research; varied approaches and issues of service delivery; emphasis on methods and skills for completing a comprehensive mental health assessment and managing common psychiatric illness in childhood/adolescence and late life. Prerequisites: NURS:6500 (096:250) and NURS:6701 (096:315). Corequisites: NURS:6702 (096:316).
- NURS:6550 (096:262) Executive Leadership and Management** 3-4 s.h.
Leadership and management concepts and theories; application to roles unique to executive nurse leader in health care organizations in institutional and community settings; emphasis on executive leadership roles for facilitating, integrating, and coordinating complex structures, processes, and outcomes in health care systems.
- NURS:6551 (096:264) Financial Management** 3-4 s.h.
Preparation for nurse leaders and practitioners to use techniques for financial analysis and decision making for patient care programs across the health care continuum; focus on efficient and effective management of resources for delivery of quality health care services.
- NURS:6552 (096:265) Managing Care in an Organizational Environment** 3-4 s.h.
Manage operations of patient care services across health care continuum within the framework of an established health care organization; focus on efficient and effective management of the structure, governance, patient care delivery system of care, and outcomes of care.
- NURS:6553 (096:267) Seminar on Innovations** 4 s.h.

Strategizing about taking meaningful action, disrupting stable processes, diffusing innovation, and sustaining change; emerging innovations in nursing and health care systems that impact the functions and responsibilities of nurse leaders.

NURS:6554 (096:268) Seminar on Healthy Work Environments 3 s.h.

Application of leadership and management knowledge specific to creating and sustaining healthy work environments in health care; current and emerging issues focused on health care work environments.

For Doctoral Students

The following courses are open to doctoral students; others must have the instructor's consent in order to enroll.

NURS:5806 (096:301) Distance Education: Master's Project 2-3 s.h.

In-depth analysis and synthesis of a chosen topic that contributes to some aspect of nursing practice. Requirements: M.S.N. enrollment.

NURS:5807 (096:319) Distance Education: Master's Thesis arr.

Systematic investigation of a nursing problem of student's choice under guidance of faculty. Requirements: M.S.N. enrollment.

NURS:6701 (096:315) Advanced Practice Clinical Practicum I 3-4 s.h.

Application of advanced physical assessment, pathophysiology, and diagnostic reasoning in a clinical setting appropriate to a specific population.

NURS:6702 (096:316) Advanced Practice Clinical Practicum II 3-4 s.h.

Continuation of NURS:6701 (096:315); emphasis on diagnostic reasoning and formulation of treatment plans.

NURS:6703 (096:317) Advanced Practice Clinical Practicum III 3-4 s.h.

Synthesis of role expectations for advanced practice with focus on clinical competencies appropriate to the specialization.

NURS:6704 (096:318) Practicum in Executive Leadership and Management 4 s.h.

Immersion experience in application of principles and methods of leadership, management, and evaluation to facilitate health care operations in various settings; student collaboration with a preceptor for mentored in-depth immersion in systems practice.

NURS:6800 (096:302) Emerging Science 3 s.h.

Emerging science to prepare leaders, advanced practice practitioners, and researchers to meet challenges of today's workforce and health care environment; opportunities to apply emerging health care science that influence health care policy, education, research, and practice.

NURS:6802 (096:330) Health Policy, Law, and Advocacy 3 s.h.

Issues that shape health care economics and policy development; framework for understanding work of legislators and other policy makers; emphasis on state and national level; health issues in developing countries; health care system, its economics, financing, role of government, not-for-profit entities, and nongovernmental organizations. Requirements: doctoral standing.

NURS:6803 (096:303) DNP: Advanced Role Development I 3 s.h.

Organizational and leadership skills that enhance practice and emphasize clinical care, ongoing improvement of health outcomes, and patient safety; case management, business practices, multidisciplinary role setting, leadership and ethics, conflict resolution, community or aggregate populations, vulnerable populations. Corequisites: NURS:6804 (096:304). Requirements: admission to Doctor of Nursing Practice program.

NURS:6804 (096:304) DNP: Advanced Role Development Practicum I 3 s.h.

Opportunities to apply advanced leadership and clinical knowledge in health care systems; application of content from NURS:6803 (096:303); identification of needs and/or interests to define student's clinical practice; experience in selected clinical or agency sites to increase competencies in areas such as clinical acumen, case management, leadership, business practices. Requirements: admission to Doctor of Nursing Practice program.

NURS:6805 (096:306) DNP: Advanced Role Development II 3 s.h.

Builds on NURS:6804 (096:304); continued development of in-depth clinical knowledge and skills in student's interest area; advanced levels of interprofessional collaborative skills and team building. Prerequisites: NURS:6803 (096:303). Corequisites: NURS:6806 (096:307).

NURS:6806 (096:307) DNP: Advanced Role Development Practicum II 3 s.h.

Builds on NURS:6804 (096:304); advanced leadership skills and clinical knowledge applied at practicum site; enhancement of competencies in areas such as clinical acumen, case management, leadership, business practices. Prerequisites: NURS:6803 (096:303) and NURS:6804 (096:304). Corequisites: NURS:6805 (096:306).

NURS:6808 (096:331) Clinical Decision Making for Advanced Practice 3 s.h.

Coordination and integration of care delivery for population health and clinical effectiveness across the continuum of care; management of optimized outcomes; emphasis on informatics infrastructure and translation of evidence-based practice to managing care provision and achieving desired outcomes as a result of care provision.

NURS:6809 (096:332) DNP Role Integration I 4 s.h.

Application of leadership skills to enhance practice and incorporate evidence-based clinical care, improve health outcomes, and ensure safety in a patient-centered and cost-effective environment. Requirements: doctoral standing.

- NURS:6810 (096:333) DNP Role Integration II** 4 s.h.
Application of in-depth knowledge of complexity science and leadership skills to prepare students for transforming patient care delivery models of care. Prerequisites: NURS:6809 (096:332). Requirements: doctoral standing.
- NURS:6811 (096:339) Social Determinants of Health and Health System Inequities** 3 s.h.
Social determinants of health outcomes and inequities; social and economic forces that shape them using various perspectives and lenses; conceptualization and measurement of variables representing risk and inequities that serve as the organizing framework for course discussions, including individual and social factors; critical analysis of research studies for social bias. Requirements: doctoral standing.
- NURS:6825 (096:308) Clinical Leadership Project** 1-5 s.h.
Opportunity for in-depth analysis and synthesis of a topic that contributes to an aspect of advanced nursing practice; students relate projects to evidence-based practice/translational science courses and/or NURS:6809 (096:332) and NURS:6810 (096:333).
- NURS:6900 (096:313) Computational Intelligence** 3 s.h.
Concepts, models, algorithms, and tools for development of intelligent systems; data mining, expert systems, neural networks for engineering, medical and systems applications. Prerequisites: IE:3700 (056:171). Same as IE:6350 (056:235).
- NURS:7000 (096:340) Foundations of Nursing Science II** 4 s.h.
Introduction to philosophical, historical, and conceptual underpinnings of contemporary nursing scholarship; students read primary sources on development of nursing knowledge and classic and contemporary works in philosophy of science; how these ideas influence development of nursing thought; two critical concepts of research (cause and validity); laboratory tools for synthesis of existing literature (integrative review, systematic review, concept analysis); synthesis of literature in student's interest area to identify and apply selected approach. Prerequisites: NURS:5008 (096:202). Requirements: Ph.D. standing.
- NURS:7001 (096:342) Qualitative Research** 4 s.h.
Qualitative research; ethnography, grounded theory, narrative, phenomenology, philosophical underpinnings, and research designs across traditions; current and emerging issues (i.e., mixed methods, meta-synthesis, working with vulnerable populations); guided exercises, peer sharing, collaborative group projects; qualitative interviewing and transcription, field work, participant observation; use of software for managing qualitative data; data coding, analysis and interpretation; critique of qualitative research proposals and manuscripts. Prerequisites: NURS:7000 (096:340) and NURS:7002 (096:338).
- NURS:7002 (096:338) Designing Research** 3 s.h.
Introduction to designing research studies; issues related to research design as a set of choices influenced by aims, research questions, styles/traditions of research; conceptual frameworks/theories. Requirements: Ph.D. standing.
- NURS:7003 (096:344) Quantitative Research** 4 s.h.
Refinement of students' understanding of the application of scientific logic; criteria for causality, its application in health-related research; various quantitative methods; sampling theory and approaches to sample selection, recruitment, and methods; issues related to instrument selection, reliability and validity considerations; management of large data sets and maintenance of data integrity; guided exercises, peer sharing, and collaborative groups provide experiences integrated with content in didactic section. Prerequisites: NURS:7000 (096:340) and NURS:7002 (096:338).
- NURS:7202 (096:415) Genetic Nursing Research** 3 s.h.
Concepts in human genetics integrated with nursing research; methodological issues in study of populations with specific genetic problems; generation of testable hypotheses.
- NURS:7310 (096:412) Methods and Measurement in Clinical Pain Research** 2 s.h.
Basic theoretical models for understanding pain; insight into the state of science of clinical pain research; issues and challenges related to conduction of clinical pain research; designs, vulnerable populations, methodology, and measurement strategies relevant to clinical trials; comparative effectiveness and translational research studies; interdisciplinary presentations of research experiences, issues, and solutions to provide a foundation for discussion and analysis of best practices for clinical pain research. Corequisites: PTRS:6133 (101:133). Requirements: Ph.D. standing. Recommendations: graduate-level research methods/design course and pathophysiology.
- NURS:7400 (096:410) State of the Science in Biobehavioral Research on Aging** 3 s.h.
Analysis and evaluation of science in biobehavioral aging research; overview of aging research and interdisciplinary contributions; biobehavioral phenomena pertinent to aging populations; relevant epidemiologic research, population/community-based research, primary prevention research, qualitative and quantitative analyses, instrumentation, intervention research, measurement studies; ethical and methodological issues, context of care; identification of literature gaps and future research agendas that promote successful aging. Requirements: for NURS:7400 (096:410) — doctoral standing; for ASP:7400 (153:410) — Ph.D. enrollment. Recommendations: knowledge of pathophysiology, research design, and statistics. Same as ASP:7400 (153:410).
- NURS:7401 (096:420) State of the Science in Geriatric Mental Health Research** 3 s.h.

Analysis and evaluation of science in geriatric mental health research in nursing and other disciplines; cognitive and affective function, substance abuse, and caregiver health/support; relevant epidemiologic research, population/community-based research, primary prevention research, qualitative and quantitative analyses, instrumentation, intervention research, and measurement studies; review and analysis of program evaluation and services research, emphasis on ethical and methodological issues; identification of literature gaps and future research agendas that promote successful aging. Requirements: for NURS:7401 (096:420) — doctoral standing; for ASP:7401 (153:420) — Ph.D. enrollment. Recommendations: knowledge of psychopathology, research design, and statistics. Same as ASP:7401 (153:420).

NURS:7403 (096:423) Advanced Seminar in Health Research 3 s.h.

Health research across the lifespan and health care continuum; specific topics based on the state of the science and emerging science initiatives put forth by NIH and other funding agencies. Requirements: doctoral standing.

NURS:7509 (096:485) Research Residency 3 s.h.

Participation in a research project based on an individualized plan of study, under guidance of a preceptor.

NURS:7800 (096:496) Independent Study arr.

Supervised study adjusted to needs of doctoral degree students. Requirements: Ph.D. enrollment.

NURS:7801 (096:497) Seminar: Research Scholarship Role Development 3 s.h.

Preparation for successful completion of doctoral course work, comprehensive examination, and dissertation; faculty-guided structure provides opportunities for students to assimilate knowledge and behavior of a scholar and activities that facilitate and optimize socialization and success as nurse scientists and academic faculty. Requirements: Ph.D. standing.

NURS:7803 (096:490) Research Practicum I 1 s.h.

First of two practicums that serve as a system of apprenticeship by which students are mentored through selected aspects of scientific processes, methodologies, analysis, and dissemination of results; projects relevant to student's area of study. Requirements: Ph.D. standing.

NURS:7804 (096:491) Research Practicum II 1 s.h.

Second of two practicums that serve as a system of apprenticeship by which students are mentored through selected aspects of scientific processes, methodologies, analysis, and dissemination of results; project relevant to student's area of study. Requirements: Ph.D. standing.

NURS:7805 (096:499) Dissertation Research arr.

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- Michael W. Duffel

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- Michael J. Brownlee

Assistant dean, Iowa City Veterans Affairs Medical Center

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Chair, pharmacy practice and science

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Head, applied clinical sciences

- Gary Milavetz

Head, health services research

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Head, medicinal and natural products chemistry

- Robert J. Kerns

Head, pharmaceuticals and translational therapeutics

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Lecturer

- Mark D. Feldick

Associate

- Nicole K. Brogden

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Associate professors emeriti

- Ting Fong Chin, Vijay Kumar

Assistant professors emeriti

- Harold J. Black, Ruth A. Kellems

Professional degree: Pharm.D.

Graduate degrees: M.S. in pharmacy; Ph.D in pharmacy

Web site: <http://pharmacy.uiowa.edu/>

The pharmacy profession is concerned with a wide variety of activities, from developing new drug products to caring for patients. An important concept in the delivery of pharmacy services is medication therapy management—the responsible provision of drug therapy to achieve defined outcomes that improve patients' quality of life. These outcomes include preventing, arresting, or curing a disease, and/or eliminating or reducing its symptoms.

In order to carry out these activities, pharmacists specialize in the science of drugs and drug information.

The dispensing of medications and information at the corner pharmacy is just one aspect of the profession. Pharmacists work in many health care settings, engaging in research, clinical practice, teaching, and counseling. Along with their training in science and drug preparation, they learn the business and communication skills necessary for their multifaceted careers.

Demand for qualified pharmacists is high. Iowa's pharmacy students study with professors who, in many cases, are pioneering the development of new drugs and are defining the appropriate use of others to solve chronic health problems. They also enjoy advanced research facilities, including those of Iowa's drug research and manufacturing area, where experimental drugs are produced for testing and licensing by manufacturers before being introduced worldwide.

The University of Iowa College of Pharmacy is accredited by the Accreditation Council for Pharmacy Education.

College Organization

The College of Pharmacy's faculty and programs are organized in two academic departments, each with two divisions. These units provide course work for the Doctor of Pharmacy curriculum and for the college's graduate programs.

PHARMACY PRACTICE AND SCIENCE DEPARTMENT

Faculty in the Pharmacy Practice and Science Department provide expertise and education in the professional practice of pharmacy. They specialize in a wide variety of clinical pharmacy practices; conduct research on patient and population outcomes related to medication therapy; and provide instruction in the pharmacist's professional role and the safe, effective use of medications.

The department offers Master of Science and Doctor of Philosophy curricula in pharmaceutical socioeconomics, which encompasses the behavioral, economic, social, and administrative sciences; elements of pharmacy practice; and health services research. It offers course work through its Applied Clinical Sciences Division and its Health Services Research Division.

Applied Clinical Sciences Division: Teaching and research in this division focus on the delivery of care and related services to patients and the education of student and resident pharmacists in practice settings. Courses are offered in pharmacotherapy, communication and practice skill development, clinical problem solving, and patient care. Professional practice mentoring and education are provided in introductory and advanced pharmacy practice experiences.

Health Services Research Division: Teaching and research in this division involve economic, social, behavioral, and administrative components of pharmacy

practice and medication use. Courses are offered on the health care system, practice management, the professional and business aspects of pharmacy practice, and on learning and applying economic and social psychological theories to the study of health services and medication use.

To learn more about the department and its two divisions, visit the Pharmacy Practice and Science web site.

PHARMACEUTICAL SCIENCES AND EXPERIMENTAL THERAPEUTICS DEPARTMENT

Faculty in the Pharmaceutical Sciences and Experimental Therapeutics Department provide expertise and education in clinical pharmaceutical sciences, medicinal and natural products chemistry, and pharmaceuticals. Their interests include dosage form development and performance, industrial and manufacturing pharmacy, pharmacokinetics and pharmacodynamics, and the chemistry of drugs and their action on human systems. The department offers courses through its Medicinal and Natural Products Chemistry Division and its Pharmaceutics and Translational Therapeutics Division.

Medicinal and Natural Products Chemistry Division:

Course work in this division relates to understanding the chemistry of drugs and their action on human systems, principles of drug discovery and drug design, natural product chemistry, and biotechnology and genomic strategies for producing new drug molecules. The division's curricula for the M.S. and Ph.D. programs provide abundant opportunities for interface with researchers in other areas, including medicine, pharmacology, biochemistry, chemistry, and pharmaceuticals.

Pharmaceutics and Translational Therapeutics

Division: This division prepares students to become leaders in developing and evaluating drugs, drug products, and drug delivery systems. It offers two M.S. and Ph.D. subtracks: the pharmaceutics subtrack, which focuses on characterization of pharmaceuticals and their component materials, development of delivery systems for optimal human or veterinary use, and the pharmacokinetic and pharmacodynamic evaluation of drug actions and interactions; and the clinical pharmaceutical sciences subtrack, which focuses on investigating drug therapy outcomes in patients and identifying factors responsible for specific drug actions in individual patients, related patient groups, and large patient populations. The division also offers multidisciplinary opportunities with programs in chemistry, engineering, biomedical science, dentistry, and veterinary medicine. Its national and international collaborations enhance the breadth of research activities available to students.

To learn more about the divisions, visit the Medicinal and Natural Products Chemistry and Pharmaceutics and Translational Therapeutics web sites.

Professional Program of Study (Pharm.D.)

- Doctor of Pharmacy

The College of Pharmacy collaborates with the College of Public Health to offer the joint Master of Public Health/Doctor of Pharmacy (M.P.H./Pharm.D.) program.

Doctor of Pharmacy

The Doctor of Pharmacy program requires 151 s.h. of professional program credit. The program prepares students for careers in pharmacy. It provides professional education in a number of areas, including pharmaceutical technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomics, pharmacotherapy, patient care, clinical and hospital pharmacy, and aspects of biotechnology. Graduates of the program are qualified to take the Iowa Board of Pharmacy examination that is required for licensure as a pharmacist.

The program requires four years of full-time pharmacy study preceded by at least two years of pre-pharmacy study in the College of Liberal Arts and Sciences at The University of Iowa or at an accredited community or liberal arts college in the United States or Canada.

During pre-pharmacy study, students complete the prerequisites to admission to the Pharm.D. program (see "Admission" below for a list of prerequisite course work). Pharm.D. students complete a total of 20 s.h. of general education course work. They complete 12 s.h. of general education courses as part of their pre-pharmacy study, but if possible, they should complete all 20 s.h. of their general education work before they enter the Pharm.D. program. Courses in moral reasoning or ethics, communication, computer science, and business are recommended for general education; courses in behavioral and social sciences and the humanities are accepted. Courses in physical education skills, applied music, and studio art do not count toward the general education requirement.

Pharm.D. students must maintain a cumulative g.p.a. of at least 2.00 and a pharmacy g.p.a. of at least 2.00. The pharmacy grade-point average is computed from grades earned in all required courses that students have completed while enrolled in the College of Pharmacy, excluding general education courses and professional electives.

Students must earn a grade of C-minus or higher in transfer courses applied to the Pharm.D.

For rules and regulations concerning academic probation, pass/nonpass, credit by examination, maximum schedule, second-grade-only option, waiver or substitution of courses, cancellation of registration, drop date, and Guided Independent Study, see Student Resources on the College of Pharmacy web site.

The Tippie College of Business (p. 657), the Carver College of Medicine (p. 1038), the College of Dentistry (p. 723), and the College of Liberal Arts and Sciences (p. 22) contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, the humanities, and the social sciences.

The College of Pharmacy provides students with the highest possible quality in the professional experiential program. Faculty and adjunct faculty serve as preceptors, providing introductory and advanced practice experience at institutions and pharmacies in Iowa, nationwide, and around the world.

Professional Curriculum

The Pharm.D. degree requires the course work listed below, including at least 12 s.h. of professional electives. In addition, students must complete all prerequisites to

admission to the Pharm.D. program, including 12 s.h. of general education courses chosen from behavioral, social, humanistic, and business disciplines (see "Admission" below). They also must complete an additional 8 s.h. of general education work either before or after admission to the Pharm.D. program.

FIRST YEAR

Students must complete one semester of PHAR:8100 (046:001) Introduction to Pharmacy Practice during the first professional year. They also complete PHAR:8205 (046:004) Student Pharmacist Professionalism throughout the first, second, and third professional years.

First Semester

PHAR:8100 (046:001) Introduction to Pharmacy Practice	1 s.h.
PHAR:8101 (046:050) Pharmacy Practice Lab I	2 s.h.
PHAR:8103 (046:103) Fundamentals of Evaluating Clinical Research	1 s.h.
PHAR:8111 (046:123) Pharmaceutics I: Solutions	4 s.h.
BIOC:8102 (099:162) Biochemistry for Pharmacy Students	3 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.

Second Semester

PHAR:8100 (046:001) Introduction to Pharmacy Practice (if not taken first semester)	1 s.h.
PHAR:8102 (046:051) Pharmacy Practice Lab II	2 s.h.
PHAR:8105 (046:122) Social Aspects of Pharmacy Care	2 s.h.
PHAR:8112 (046:124) Pharmaceutics II: Solids and Semi-Solids	4 s.h.
PHAR:8121 (046:128) Medicinal and Natural Products Chemistry I: Biotechnology and Chemotherapy	3 s.h.
PCOL:8180 (071:180) Pharmacology for Pharmacy Students I	3 s.h.

SECOND YEAR

Students must complete PHAR:8200 (046:002) Introduction to Community Pharmacy Practice and PHAR:8206 (046:008) Introduction to Hospital Pharmacy Practice during the second professional year. These practice experiences are delivered in set time blocks over the winter break or during the summer before or after the P2 year.

First Semester

PHAR:8122 (046:131) Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents	3 s.h.
PHAR:8200 (046:002) Introduction to Community Pharmacy Practice	3 s.h.
PHAR:8203 (046:116) Pharmacy Practice Lab III	2 s.h.
PHAR:8213 (046:138) Pharmacokinetics and Biopharmaceutics	3 s.h.
PHAR:8240 (046:149) Introduction to Therapeutics/Special Populations	2 s.h.

PHAR:8241 (046:154) Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics	2 s.h.
PCOL:8181 (071:181) Pharmacology for Pharmacy Students II	3 s.h.

Second Semester

PHAR:8201 (046:106) Clinical Practice Skills I: Theory and Application	2 s.h.
PHAR:8204 (046:117) Pharmacy Practice Lab IV	2 s.h.
PHAR:8206 (046:008) Introduction to Hospital Pharmacy Practice	2 s.h.
PHAR:8123 (046:132) Medicinal and Natural Products Chemistry III: Medicinal Neurochemistry	3 s.h.
PHAR:8230 (046:170) Clinical Pharmacokinetics	3 s.h.
PHAR:8242 (046:155) Respiratory and Dermatologic Therapeutics	2 s.h.
PHAR:8243 (046:156) Cardiovascular Therapeutics	2 s.h.
Professional electives	3 s.h.

THIRD YEAR

Students must complete one semester of PHAR:8300 (046:003) Introduction to Clinical Pharmacy Practice during the third professional year.

First Semester

PHAR:8300 (046:003) Introduction to Clinical Pharmacy Practice (may be taken either fall or spring semester)	1 s.h.
PHAR:8302 (046:107) Clinical Practice Skills II: Critical Patient Analysis	2 s.h.
PHAR:8305 (046:118) Pharmacy Practice Lab V	2 s.h.
PHAR:8308 (046:129) Pharmaceutical Economics and Insurance	3 s.h.
PHAR:8313 (046:115) Drug Literature Evaluation	2 s.h.
PHAR:8340 (046:158) FEN, GI, and Renal Therapeutics	2 s.h.
PHAR:8341 (046:159) Rheumatology, Immunology, Hematology, Oncology, and Transplantation Therapeutics	2 s.h.
Professional electives	4 s.h.

Second Semester

PHAR:8104 (046:104) Pharmacy Law and Ethics	2 s.h.
PHAR:8205 (046:004) Student Pharmacist Professionalism	1 s.h.
PHAR:8303 (046:108) Clinical Practice Skills III: Applied Patient Management	2 s.h.
PHAR:8306 (046:119) Pharmacy Practice Lab VI	2 s.h.
PHAR:8309 (046:139) Pharmacy Management and Marketing	2 s.h.
PHAR:8342 (046:164) Neurology/Psychiatry Therapeutics	2 s.h.

PHAR:8343 (046:165) Infectious Disease Therapeutics	2 s.h.
Professional electives	5 s.h.

FOURTH YEAR: ADVANCED PHARMACY PRACTICE ROTATIONS

During the fourth year, students are required to complete eight advanced pharmacy practice rotations. All students must complete the first four rotations listed below (24 s.h.); they also must complete an additional four rotations of their choice (24 s.h.).

All of these (24 s.h.):

PHAR:9401 (046:196) Ambulatory Care Rotation	6 s.h.
PHAR:9404 (046:179) Community Pharmaceutical Care Rotation	6 s.h.
PHAR:9410 (046:178) Hospital Pharmacy Rotation	6 s.h.
PHAR:9413 (046:180) Acute Care Medicine Rotation	6 s.h.

Four of these (24 s.h.):

PHAR:9402 (046:140) Elective Ambulatory Care Rotation	6 s.h.
PHAR:9403 (046:187) Elective Nuclear Pharmacy Rotation	6 s.h.
PHAR:9406 (046:161) Elective: Drug Information Rotation	6 s.h.
PHAR:9407 (046:181) Elective Family Medicine Rotation	6 s.h.
PHAR:9408 (046:197) Elective Hematology/Oncology Rotation	6 s.h.
PHAR:9409 (046:193) Elective Home Health Care Rotation	6 s.h.
PHAR:9411 (046:192) Elective Long Term Care Rotation	6 s.h.
PHAR:9412 (046:194) Elective Managed Care Rotation	6 s.h.
PHAR:9414 (046:185) Elective Neurology Rotation	6 s.h.
PHAR:9415 (046:182) Elective: Pediatrics Rotation	6 s.h.
PHAR:9416 (046:189) Elective: Pharmacy Rotation	6 s.h.
PHAR:9417 (046:184) Elective Psychiatry Rotation	6 s.h.
PHAR:9418 (046:199) Elective Research Rotation	6 s.h.
PHAR:9419 (046:186) Elective: Surgery Rotation	6 s.h.
PHAR:9420 (046:188) Elective Pharmacy Practice Underserved Population Rotation	6 s.h.
PHAR:9422 (046:142) Elective: Compounding/Complimentary Alternative Medicine Rotation	6 s.h.
PHAR:9423 (046:143) Elective: Critical Care Medicine Rotation	6 s.h.
PHAR:9424 (046:300) Elective Emergency Medicine Rotation	6 s.h.
PHAR:9425 (046:301) Elective Hospital Management Rotation	6 s.h.
PHAR:9426 (046:302) Elective Infectious Disease Rotation	6 s.h.

PHAR:9427 (046:303) Elective Medication Use Evaluation Rotation	6 s.h.
PHAR:9428 (046:304) Elective Pharmacy Industry Rotation	6 s.h.
PHAR:9429 (046:305) Elective: Pharmacy Regulatory Rotation	6 s.h.
PHAR:9430 (046:306) Elective: Professional Association Rotation	6 s.h.
PHAR:9431 (046:307) Elective: Veterinary Pharmacy Rotation	6 s.h.
PHAR:9432 (046:308) Elective: Advanced Community Pharmacy Rotation	6 s.h.
PHAR:9433 (046:136) Elective Academic Rotation	6 s.h.

PROFESSIONAL ELECTIVES

Pharm D. students must complete 12 s.h. of professional electives, which they may choose from the following list.

PHAR:3740 (046:146) End-of-Life Care for Adults and Families	2-4 s.h.
PHAR:3745 (046:110) Drug Delivery I	2 s.h.
PHAR:3746 (046:111) Drug Delivery II	arr.
PHAR:5515 (046:135) Perspectives in MNPC Research	1 s.h.
PHAR:8702 (046:006) Dean's Pharmacy Forum II	2 s.h.
PHAR:8703 (046:011) Web 2.0 and Pharmacy Drug Information	2 s.h.
PHAR:8706 (046:101) Pharmacy Projects	1-3 s.h.
PHAR:8708 (046:121) Substance Abuse	2 s.h.
PHAR:8710 (046:169) Introduction to Pharmacogenomics	2 s.h.
PHAR:8712 (046:171) Nonprescription Pharmacotherapy	2 s.h.
PHAR:8715 (046:377) Health Disparities and Cultural Competence	2-4 s.h.
PHAR:8717 (046:013) Ambulatory Care Pharmacy	2 s.h.
PHAR:8718 (046:014) Special Topics in Acute Care	2 s.h.
PHAR:8719 (046:190) Overview of Pediatric Pharmacotherapy	2 s.h.
PHAR:8720 (046:191) Health Coaching and Wellness	2 s.h.
PHAR:8721 (046:195) Leadership and Political Advocacy	arr.
PHAR:8722 (046:151) Current Topics in Health Policy	2 s.h.
PHAR:8724 (046:398) Hospital Pharmacy Practice Management Elective	2 s.h.
PHAR:8725 (046:007) Career Pathways in Pharmacy	1 s.h.
PHAR:8788 (046:126) International Perspectives: Xicotepec	2 s.h.
PHAR:8790 (046:357) Topics in Community Pharmacy Management	2 s.h.
PHAR:8791 (046:012) Survey of Basic Pharmaceutical Sciences	1 s.h.

Joint M.P.H./Pharm.D.

The College of Pharmacy and the College of Public Health offer the joint Master of Public Health/Doctor of Pharmacy program. The joint M.P.H./Pharm.D. requires 42 s.h. of graduate credit in addition to the requirements of the Pharm.D. degree. Students who complete the program are granted both degrees.

The M.P.H./Pharm.D. program helps students develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. Its graduates may work in areas of interest common to pharmacy and public health, such as spread and treatment of disease, community health, and immunology; bioterrorism, terrorism, and preparedness; genetics; insurance; managed care; family and juvenile health; and protection of special populations. Employment opportunities are available in hospitals and clinics and with health care providers; private practice; insurance and managed care organizations; local, county, state, and federal government; public health governmental agencies; and colleges and universities.

Separate admission to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the joint degree program.

See "Joint M.P.H./Pharm.D." in the Master of Public Health Program (p. 1225) section of the Catalog to learn about curriculum and admission requirements for the joint program.

Admission

Individuals apply to the Pharm.D. program using PharmCAS, the American Association of College of Pharmacy application service. Applicants also must submit a supplemental application, including a \$100 application fee, to the University of Iowa College of Pharmacy; see Iowa Graduate Admissions—College of Pharmacy for more information.

All application materials must be received by December 1 of the year before the applicant intends to enter the College of Pharmacy. Entry is for fall semester.

All Pharm.D. applicants must take the Pharmacy College Admission Test (PCAT); they must take PCAT before December 31 of the year before they wish to enter the College of Pharmacy in order to be considered by the admissions committee.

Applicants must complete the college-level work listed under "Prerequisites to Admission to the Pharm.D. Program" below. They also must have an overall cumulative g.p.a. of at least 2.50 and must submit two letters of recommendation. Applicants considered for admission must have a personal interview; the college contacts applicants to arrange interview appointments.

Fulfillment of the admission requirements listed above does not ensure admission to the College of Pharmacy. The admissions committee considers applicants who meet these requirements and selects individuals who, in their judgment, appear to be best qualified for the study and practice of pharmacy.

Applicants who are accepted for admission are required to submit to a criminal background check and pay a \$250 admission acceptance fee. The fee is applied to tuition for the student's first semester of enrollment in the college.

The deposit is not refunded to applicants who do not enroll in the College of Pharmacy.

Entering health sciences students are required to have an annual tuberculin skin test (TST) and proof of immunization against mumps, measles and rubella (2 MMRs), tetanus, diphtheria and varicella before classes begin. The usual regimen of three doses of Hepatitis B vaccine and a Hepatitis B titre must be completed by the second semester of the first year. All students are required to have hospitalization and health insurance.

PREREQUISITES FOR ADMISSION TO THE PHARM.D. PROGRAM

Applicants to the Pharm.D. program must have completed the following college-level work.

Rhetoric: 4 s.h. [RHET:1030 (010:003) Rhetoric] or 6 s.h. of transfer credit in English composition and rhetoric and 3 s.h. in speech

Human anatomy: 3 s.h. [ACB:3110 (060:110) Principles of Human Anatomy]

General biology: 8 s.h. [BIOL:1411 (002:031) Foundations of Biology and BIOL:1412 (002:032) Diversity of Form and Function]

General chemistry: 8 s.h. [CHEM:1110 (004:011) Principles of Chemistry I and CHEM:1120 (004:012) Principles of Chemistry II]

Organic chemistry: 6 s.h. [CHEM:2210 (004:121) Organic Chemistry I and CHEM:2220 (004:122) Organic Chemistry II]

Mathematics: 3-4 s.h. of a satisfactory differential and integral calculus course [MATH:1460 (22M:016) Calculus for the Biological Sciences]

Microbiology: 4 s.h. [MICR:3112 (061:112) Pharmacy Microbiology]

Microeconomics: 3-4 s.h. [ECON:1100 (06E:001) Principles of Microeconomics]

Physics: one year of high school physics or one semester of college-level physics with a lab [PHYS:1400 (029:008) Basic Physics]

Human physiology: 3 s.h. [HHP:3500 (027:130) Human Physiology]

Statistics: 3 s.h.

General education electives: at least 12 s.h.

Courses in moral reasoning or ethics, communications, computer science, and business are recommended for general education; courses in the behavioral and social sciences and the humanities are accepted. Courses in physical education skills, applied music, and studio art do not count toward the general education requirement.

Financial Support

All second-, third-, and fourth-year pharmacy students are encouraged to apply for College of Pharmacy scholarships. Applications are available each April from the College of Pharmacy Office of Academic Affairs. Students complete a single application form in order to be considered for all scholarships. Award amounts vary. The Awards and Recognition Committee selects the best-qualified applicant for each scholarship.

Steve and Teresa Berge Scholarship: for a pharmacy student who is a U.S. citizen and has a g.p.a. of at least 3.00; experience doing volunteer work highly desirable.

Seymour M. Blaug Memorial Award: for a pharmacy student with above-average academic achievement.

Dennis and Bev Boussetol Scholarship: life insurance gift bequest.

Ilse O. Buckner Scholarship: for a pharmacy student who maintains satisfactory academic progress; nonrenewable, financial need is considered.

Burroughs-Wellcome Scholarship Fund: for a student of the committee's choice.

David and James Carlson Scholarship: for two pharmacy students interested in clinical or hospital practice; preference given to students from north of U.S. Interstate 80 and west of U.S. Interstate 35 who show financial need.

Jordan and Jana Cohen Doctor of Pharmacy Scholarship: for a pharmacy student in good academic standing; based on merit and need; renewable.

Vernon Conzemius Scholarship: for a pharmacy student who demonstrates financial need; preference is given to students in the upper half of their class.

Ben M. Cooper Memorial Award: for an academically outstanding pharmacy student; preference is given to students from Scott County, Iowa; financial need is considered.

CVS Scholarships: for five pharmacy students in good academic standing who are interested in community pharmacy.

John and Margo Daniel Scholarship: preference is given to a student from Webster County, Iowa.

Max Eggleston Scholarship: for a student who has completed one year; preference is given to students from Iowa; based on financial need.

Alice Gates Coxon Memorial Scholarship: for a student in good academic standing; essay required.

Lori A. Grimes Memorial Scholarship: based on financial need; renewable.

Gary Hadley Scholarship: for a student of the committee's choice.

Dick and Brenda Hartig Scholarship: for a student who demonstrates financial need; preference is given to students from Dubuque, Waukon, Dyersville, and Iowa City, Iowa; and Galena and Stockton, Illinois.

Thomas D. Hill Scholarship: for a pharmacy student in good academic standing.

Janet Hinderliter Scholarship: for a P3 or P4 student with a g.p.a. of at least 3.00 and demonstrated involvement in campus and community affairs.

Frances T. and Charles Holub Memorial Award: for a third-year pharmacy student; financial need is considered; renewable once.

Iowa Pharmacy Foundation Scholarships: for selected pharmacy students who are residents of Iowa and who demonstrate outstanding academic ability; financial need is considered.

R.A. Kuever Scholarship Fund: for a pharmacy student from Iowa who is in good academic standing.

Ernest Kyle Memorial Scholarship: for a student of the committee's choice.

Ronald Madden Scholarship: for an Iowa high school graduate in good academic standing.

Charles J. Malecek Pharmacy Scholarship: for a student of the committee's choice.

Virgil R. McCutchan Memorial Scholarship: for a deserving pharmacy student.

Carleton Mikkelsen Scholarship: for the top P4 student based on final P3 grade-point average; in case of a tie, the committee chooses the recipient.

Miller-Ruegnitz Scholarships: based on financial need, non-renewable.

NACDS Scholarship: for a student interested in community pharmacy.

Petersen Linder Scholarship: for a pharmacy student in excellent academic standing who has outstanding leadership skills; based on financial need.

Pharmacists Mutual Scholarship: for a student of the committee's choice.

Pharmacy Student Aid Scholarship: for a student of the committee's choice.

Quad Cities Area Pharmacists Association Scholarships: for students who demonstrate financial need; preferably one student from Iowa and one from Illinois.

Sattler Family Scholarship: for a student of the committee's choice, alternates with the Carver College of Medicine.

Scherling Scholarship: for a student who demonstrates superior academic achievement in organic chemistry.

Chuck and Jacqueline Schwenke Scholarship: for a student of the committee's choice.

Gordon H. Sheffield Scholarship: for a P3 or P4 student from Iowa; preference given to a student who demonstrates leadership and financial need.

ShopKo Scholarship: preference given to students who reside or have resided in a state where Shop-Ko is located.

Shutt Pharmacy Scholarship: preference is given to Iowa residents; based on financial need.

H. Curtis Snyder Award: for a pharmacy student in good standing.

Supervalue Scholarship: for a student in good academic standing who is employed in a community pharmacy setting.

Wilber J. Teeters Scholarship: for a pharmacy student who has completed at least one year in the college; financial need is considered.

Teeters/Wahl Scholarship: for pharmacy students based on outstanding academic ability, U.S. citizenship, and financial need.

John Stanley Thor Memorial Award: for a pharmacy student in good standing.

Colonel Thomas C. Veach Class of 1952 Scholarship Fund: preference given to a student interested in compounding or industrial pharmacy.

Walgreens Diversity Scholarship: for a student who has made significant efforts toward raising awareness about matters of diversity that affect the pharmacy profession.

Wal-Mart Scholarship: for a P3 or P4 student with high scholastic standing who demonstrates strong leadership, desire to enter a community pharmacy practice, and financial need.

Louis C. Zopf Memorial Award: for a pharmacy student who is academically qualified; financial need is considered.

John D. Zuelke Scholarship: for a pharmacy student (preferably P3 or P4) from Wapello County, Iowa.

Graduate Programs of Study

- Master of Science in pharmacy
- Doctor of Philosophy in pharmacy

The College of Pharmacy offers graduate programs in four areas: clinical pharmaceutical science, medicinal and natural products chemistry, pharmaceutical socioeconomics, and pharmaceuticals.

Advanced study in the pharmaceutical sciences prepares students for research, teaching, and administrative positions in the pharmaceutical industry, in colleges and universities, in government agencies, and in health-related institutions and organizations.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog. Academic requirements for maintaining graduate registration are determined by the Graduate College and by the individual divisions of the College of Pharmacy.

For more information about graduate study, visit the College of Pharmacy web site.

Facilities and Resources

Pharmacy Building

The Pharmacy Building is located on the University's health sciences campus, in close proximity to the Carver College of Medicine, College of Dentistry, College of Nursing, and College of Public Health. Also nearby are University of Iowa Hospitals and Clinics, the Bowen Science Building, and the Hardin Library for the Health Sciences.

The Pharmacy Building is a five-story structure designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms and auditoriums, there are well-equipped separate laboratories for instruction at the professional and graduate levels.

The college operates small and large classrooms with state-of-the-art technology. The student practice lab is a technologically advanced licensed pharmacy that provides real and simulated practice experiences. The Banker Student Activity Center provides quiet individual and small-group study environments and houses offices for College of Pharmacy Student Organizations.

The building also houses a fully supported Instructional Technology Center (Pharmacy ITC) in the Learning

Resource Center. The ITC provides state-of-the-art desktop workstations and laptop computers are available for student checkout. Both desktop and laptop computers have secure connections to the University network for online drug information searching and printing.

University of Iowa Pharmaceuticals

University of Iowa Pharmaceuticals is a pharmaceutical manufacturing facility registered with the U.S. Food and Drug Administration that develops pharmaceutical dosage forms and has manufactured clinical supplies in compliance with Good Manufacturing Practices since 1974. University of Iowa Pharmaceuticals has clients worldwide, including pharmaceutical companies, biotechnology firms, medical departments, and government agencies. Its staff works closely with clients and pharmaceuticals faculty members to produce virtually every type of pharmaceutical dosage form, supplying new pharmaceutical agents for use in clinical trials and other research. The facility combines the former Center for Advanced Drug Development and Division of Pharmaceutical Service. For more information, visit the University of Iowa Pharmaceuticals web site.

Division of Drug Information Service

The Division of Drug Information Service publishes the IDIS (Iowa Drug Information Service), a bibliographical database that provides full-text access to specialized information related to drugs and drug therapy. IDIS reaches subscribers throughout the world. The division also is home to the Iowa Drug Information Network, which serves a network of community pharmacies and family practice sites with drug information resources, educational programs, and direct-response consultations that support the pharmaceutical care initiatives at the network's sites. In addition, the Division of Drug Information Service plays an important educational role for pharmacy students by providing both didactic and experiential teaching in drug information. The division is located on the University of Iowa Research Park campus.

Courses

Students must be enrolled in the College of Pharmacy to take the college's courses. Undergraduate and graduate students in other colleges must have the instructor's consent to take College of Pharmacy courses.

Lower-Level Undergraduate

PHAR:1000 (046:029) First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

PHAR:1100 (046:112) Introduction to Pharmaceutical Sciences 1 s.h.

Graduate

PHAR:8000 (046:020) Introduction to Pharmaceutics Projects 3 s.h.
Introduction to pharmaceutics.

Pharmacy Practice and Science for Pharm.D. Students

PHAR:3740 (046:146) End-of-Life Care for Adults and Families 2-4 s.h.

End-of-life issues in care of adults, older adults, and their families. Requirements: RN license. Same as NURS:3740 (096:147), ASP:3740 (153:147), MED:3740 (050:147).

PHAR:8100 (046:001) Introduction to Pharmacy Practice 1 s.h.

Exposure to the pharmacy profession through varied shadowing experiences in practice settings. Requirements: P1 standing.

PHAR:8101 (046:050) Pharmacy Practice Lab I 2 s.h.

Practical application of scientific and clinical knowledge used in the provision of pharmaceutical care; activities include communication with patient and members of the healthcare team, sterile product and prescription compounding, pharmacy calculations, and use of drug information resources. Requirements: P1 standing.

PHAR:8102 (046:051) Pharmacy Practice Lab II 2 s.h.

Practical application of scientific and clinical knowledge used in the provision of pharmaceutical care; activities include prescription compounding, pharmacy calculations, communication skills, prescription counseling, and applications of drug information skills through secondary searching of the primary literature. Prerequisites: PHAR:8101 (046:050). Requirements: P1 standing.

PHAR:8103 (046:103) Fundamentals of Evaluating Clinical Research 1 s.h.

Basic concepts for evaluation of clinical trials published in primary biomedical and pharmacy literature; design, methods, outcomes, statistical analysis, and generalizability of results. Requirements: P1 standing.

PHAR:8104 (046:104) Pharmacy Law and Ethics 2 s.h.

Legal and moral aspects involved in the practice of pharmacy. Requirements: P3 standing.

PHAR:8105 (046:122) Social Aspects of Pharmacy Care 2 s.h.

Conceptual issues related to social and behavioral components of pharmacy care; social construction of health and illness, medication use process, health communications, cultural competence, health disparities, public health. Requirements: P1 standing.

PHAR:8200 (046:002) Introduction to Community Pharmacy Practice 3 s.h.

Exposure to community pharmacy through activities focusing on drug distribution, legal requirements, communication, patient interaction; during breaks in P2 year. Requirements: P2 standing.

PHAR:8201 (046:106) Clinical Practice Skills I: Theory and Application 2 s.h.

Exploration and development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Corequisites: PHAR:8242 (046:155).

PHAR:8203 (046:116) Pharmacy Practice Lab III 2 s.h.

Practical application of scientific and clinical knowledge in the provision of patient-centered care; activities include prescription interpretation and counseling, compounding, applications of drug information, use of patient screening tools, physical assessment, and pharmacy law. Corequisites: PHAR:8240 (046:149) and PHAR:8241 (046:154), if not taken as prerequisites.

PHAR:8204 (046:117) Pharmacy Practice Lab IV 2 s.h.

Practical application of scientific and clinical knowledge in the provision of patient-centered care; activities include providing medication therapy management for patients, prescription and self-care counseling, and application of drug information skills. Corequisites: PHAR:8242 (046:155) and PHAR:8243 (046:156), if not taken as prerequisites. Requirements: P2 standing.

PHAR:8205 (046:004) Student Pharmacist Professionalism 1 s.h.

Participation in activities promoting leadership and professional learning, and service learning; required participation P1 through P3 years.

PHAR:8206 (046:008) Introduction to Hospital Pharmacy Practice 2 s.h.

Exposure to hospital pharmacy through activities focusing on drug distribution, legal requirements, communication, patient interaction; during breaks in P2 year. Requirements: P2 standing.

PHAR:8240 (046:149) Introduction to Therapeutics/Special Populations 2 s.h.

Treatment modalities that promote health and treat common diseases; common laboratory and diagnostic procedures used to diagnose and monitor diseases; basic types of adverse drug reactions. Requirements: P2 standing.

PHAR:8241 (046:154) Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics 2 s.h.

Pharmacotherapy for endocrine and ophthalmologic disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Requirements: P2 standing.

PHAR:8242 (046:155) Respiratory and Dermatologic Therapeutics 2 s.h.

Pharmacotherapy for respiratory and dermatology disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Requirements: P2 standing.

PHAR:8243 (046:156) Cardiovascular Therapeutics 2 s.h.

Pharmacotherapy for cardiovascular disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Requirements: P2 standing.

PHAR:8300 (046:003) Introduction to Clinical Pharmacy Practice 1 s.h.

Clinical practice experience observing and participating in clinical activities with P4 students, faculty, and other health care providers. Requirements: P3 standing.

PHAR:8302 (046:107) Clinical Practice Skills II: Critical Patient Analysis 2 s.h.

Continuation of PHAR:8201 (046:106); development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral) skills. Corequisites: PHAR:8340 (046:158). Requirements: P3 standing.

PHAR:8303 (046:108) Clinical Practice Skills III: Applied Patient Management 2 s.h.

Continuation of PHAR:8302 (046:107); development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Corequisites: PHAR:8342 (046:164). Requirements: P3 standing.

PHAR:8305 (046:118) Pharmacy Practice Lab V 2 s.h.

Practical application of scientific and clinical knowledge in the provision of patient-centered care; activities include medication therapy management for patients, prescription and self-care counseling, and application of drug information skills. Corequisites: PHAR:8340 (046:158) and PHAR:8341 (046:159), if not taken as prerequisites.

PHAR:8306 (046:119) Pharmacy Practice Lab VI 2 s.h.

Practical application of scientific and clinical knowledge in the provision of patient-centered care; activities include medication therapy management for patients, prescription and self-care counseling, and application of drug information skills. Corequisites: PHAR:8342 (046:164) and PHAR:8343 (046:165), if not taken as prerequisites. Requirements: P3 standing.

PHAR:8308 (046:129) Pharmaceutical Economics and Insurance 3 s.h.

Financing of health care in the U.S.; insurance and reimbursement in pharmacy and pharmacoeconomics. Requirements: P3 standing.

PHAR:8309 (046:139) Pharmacy Management and Marketing 2 s.h.

Application of management principles to pharmacy practice; marketing techniques for pharmacy practice; operations, human resources, finance, quality improvement and service marketing management.

PHAR:8313 (046:115) Drug Literature Evaluation 2 s.h.

Study design methods, drug information techniques and skills; skill development in critical analysis and evaluation of published reports of drug use and drug trials, assessment of validity of reports, trials and studies, assessment of generalizability of results to individual patients and patient groups; laboratory experience in biomedical literature analysis, evaluation.

PHAR:8340 (046:158) FEN, GI, and Renal Therapeutics 2 s.h.

Pharmacotherapy for fluid/electrolyte/nutrition disorders; gastrointestinal and renal diseases; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Requirements: P3 standing.

PHAR:8341 (046:159) Rheumatology, Immunology, Hematology, Oncology, and Transplantation Therapeutics 2 s.h.

Pharmacotherapy for rheumatology, immunology, hematology, oncology, and transplantation; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Requirements: P3 standing.

PHAR:8342 (046:164) Neurology/ Psychiatry Therapeutics 2 s.h.

Pharmacotherapy for psychiatric and neurologic disorders; review of disorders, therapeutic goals, treatment plans, patient counseling, monitoring of patient outcomes. Requirements: P3 standing.

PHAR:8343 (046:165) Infectious Disease Therapeutics 2 s.h.

Pharmacotherapy for infectious diseases; review of disease, therapeutic goals, treatment plans, patient counseling, monitoring of patient outcomes. Requirements: P3 standing.

PHAR:8702 (046:006) Dean's Pharmacy Forum II 2 s.h.

Contemporary issues in pharmacy practice, pharmacy education, and health care.

PHAR:8703 (046:011) Web 2.0 and Pharmacy Drug Information 2 s.h.

Introduction to challenges and opportunities of social Internet applications, electronic drug information sources, and mobile technologies available to healthcare providers and patients; creation, use, and critical evaluation of web-based products; lectures, class discussions, required readings, reflection blogs, and group projects. Requirements: P1, P2, or P3 standing.

PHAR:8706 (046:101) Pharmacy Projects arr.

Basic and applied research problems of pharmaceutical interest.

PHAR:8708 (046:121) Substance Abuse 2 s.h.

Themes and concepts in substance abuse and treatment; stimulants, depressants, alcohol, opiates, hallucinogenics, steroids; drug abuse prevention and treatment, including dual diagnosis, from cradle to the grave.

PHAR:8712 (046:171) Nonprescription Pharmacotherapy 2 s.h.

Introduction to nonprescription medications; development of patient assessment and consultation skills; understanding of pharmacist's role in patient self-care. Requirements: P3 standing.

PHAR:8715 (046:377) Health Disparities and Cultural Competence 2-4 s.h.

Characteristics, causes, and effects of health disparities in the U.S. health care system; foundation for development of knowledge, attitudes, and skills required of culturally competent health care providers; definitions and models of cultural competence, characteristics of culturally effective practitioners and workplaces; health disparities among specific populations, evidence for cultural competence as a remedy; taking a culturally appropriate history; working with interpreters; legal and professional imperatives for cultural competence. Same as NURS:3715 (096:125), CBH:5225 (172:135).

PHAR:8717 (046:013) Ambulatory Care Pharmacy 2 s.h.

Additional experience in the practice of clinical pharmacy; focus on key therapeutic areas where ambulatory care clinical pharmacists currently have a significant impact improving patient care, including anticoagulation management, hyperlipidemia management, and diabetes management; opportunity to develop expertise in clinical decision making, improve problem solving abilities, and continued development in writing and oral presentation skills. Prerequisites: PHAR:8241 (046:154) and PHAR:8243 (046:156). Requirements: P3 standing.

PHAR:8718 (046:014) Special Topics in Acute Care 2 s.h.

Pharmacology for common but varied acute care medicine topics; review of disorder, therapeutic goals, treatment plans, patient counseling, monitoring patient outcomes; lecture or case-based classes; acute and chronic renal failure; peritoneal and hemodialysis; diabetic ketoacidosis; rabies; shock, vasopressors, fluids; ACLS; deep venous thrombosis, stress ulcer prophylaxis; burns; sedation, neuromuscular blockade; opioids; multiple sclerosis. Prerequisites: PHAR:8240 (046:149), PHAR:8241 (046:154), PHAR:8242 (046:155), PHAR:8243 (046:156), PHAR:8340 (046:158), and PHAR:8341 (046:159). Corequisites: PHAR:8342 (046:164) and PHAR:8343 (046:165). Requirements: B.L.S. certification.

PHAR:8719 (046:190) Overview of Pediatric Pharmacotherapy 2 s.h.

Discussion of issues and problems in pediatric pharmacotherapy; clinical practicum. Prerequisites: PHAR:8230 (046:170) and PHAR:8240 (046:149). Requirements: P3 standing.

PHAR:8720 (046:191) Health Coaching and Wellness 2 s.h.

Develop expertise in health coaching and wellness to care for patients with chronic diseases; in-depth look at lifestyle changes recommended for patients with chronic diseases; discuss and investigate nutrition and exercise guidelines for patients with chronic diseases; motivational interviewing technique and incorporation of chronic care model for patients. Requirements: P2 or P3 standing.

PHAR:8721 (046:195) Leadership and Political Advocacy arr.

Contemporary issues in pharmacy; role of leadership and advocacy in shaping profession; becoming effective advocates within political and policy making process; development of advocacy and leadership skills essential to improve self, profession, and community. Requirements: P1, P2, or P3 standing. Recommendations: PHAR:8702 (046:006) and PHAR:8722 (046:151).

PHAR:8722 (046:151) Current Topics in Health Policy 2 s.h.

Legislative process and broad range of current issues in health policy; general- and pharmacy-specific health policy topics at state and federal levels. Requirements: P1, P2, P3, or graduate standing.

PHAR:8723 (046:177) Infectious Disease for Acute Care Practice 1 s.h.

Contemporary issues related to infectious diseases; unusual pathogens such as Ebola, tropical medicine, bioterrorism, resistance, travel medicine, epidemiology.

PHAR:8724 (046:398) Hospital Pharmacy Practice Management Elective 2 s.h.

Organizational structure of pharmacy departments in hospitals and health care systems; models for delivery of pharmaceutical care; pharmacy's role in drug-policy decision making; provision of drug information; clinical and distributive pharmacy services; control of pharmacy and pharmacy costs; use of information technology and automation for service delivery; supervisory management; quality improvement. Requirements: P3 standing.

PHAR:8725 (046:007) Career Pathways in Pharmacy 1 s.h.

Career preparation through writing, speaking, reading, and listening; writing résumés, curricula vitae, cover letters; interviewing techniques; electronic portfolios; web-based career information; guest speakers from pharmacy associations, major chains; workshop approach. Requirements: P3 standing.

PHAR:8788 (046:126) International Perspectives: Xicotepec 2-3 s.h.

Introduction to providing service to a community in a less developed country; student projects intended to improve community life in Xicotepec. Requirements: P3 standing. Same as CEE:4788 (053:126), GHS:4126 (152:126).

PHAR:8790 (046:357) Topics in Community Pharmacy Management 2 s.h.

Focus on building practical knowledge and understanding of business principles.

PHAR:9401 (046:196) Ambulatory Care Rotation 6 s.h.

Clinical experience in providing pharmaceutical care in outpatient clinic settings. Requirements: P4 standing.

PHAR:9402 (046:140) Elective Ambulatory Care Rotation 6 s.h.

Clinical experience providing pharmaceutical care in specialty outpatient settings. Requirements: P4 standing.

PHAR:9403 (046:187) Elective Nuclear Pharmacy Rotation 6 s.h.

Practical experience in the handling and clinical use of radiopharmaceuticals. Requirements: P4 standing.

PHAR:9404 (046:179) Community Pharmaceutical Care Rotation 6 s.h.

Clinical experience in the community setting; emphasis on delivery of pharmaceutical care. Requirements: P4 standing.

PHAR:9406 (046:161) Elective: Drug Information Rotation 6 s.h.

Practice experience applying drug information knowledge to service and research projects. Requirements: P4 standing.

PHAR:9407 (046:181) Elective Family Medicine Rotation 6 s.h.

Clinical practice experience applying primary care therapeutics in family medicine practice settings. Requirements: P4 standing.

PHAR:9408 (046:197) Elective Hematology/Oncology Rotation 6 s.h.

Drug therapy management of oncology patients and patients with hematologic malignancies, aplastic anemia, sickle cell disease, hemophilia. Requirements: P4 standing.

PHAR:9409 (046:193) Elective Home Health Care Rotation 6 s.h.

Clinical experience in the team approach to health care delivery, including total parenteral nutrition, chemotherapy, intravenous antibiotics, lab analysis, hospice care, and pain management. Requirements: P4 standing.

PHAR:9410 (046:178) Hospital Pharmacy Rotation 6 s.h.

Instruction and practical experience in various components of hospital pharmacy; emphasis on hospital organization, inpatient and outpatient services, IV admixtures, unit dose, and clinical services. Requirements: P4 standing.

PHAR:9411 (046:192) Elective Long Term Care Rotation 6 s.h.

Practice in consulting and providing services to varied long-term patient care environments. Requirements: P4 standing.

PHAR:9412 (046:194) Elective Managed Care Rotation 6 s.h.

Practice experience in providing pharmaceutical care or pharmacy-related services in a managed care organization. Requirements: P4 standing.

PHAR:9413 (046:180) Acute Care Medicine Rotation 6 s.h.

Clinical experience applying therapeutic skills for the pharmacotherapeutic management of patients on general medicine or specialty inpatient areas. Requirements: P4 standing.

PHAR:9414 (046:185) Elective Neurology Rotation 6 s.h.

Clinical experience in the pharmacotherapeutic and pathophysiologic considerations of neurological disorders. Requirements: P4 standing.

PHAR:9415 (046:182) Elective: Pediatrics Rotation 6 s.h.

Clinical experience in drug therapy management of general and specialty pediatric patients. Requirements: P4 standing.

PHAR:9416 (046:189) Elective: Pharmacy Rotation 6 s.h.

Selected practice experiences in various pharmacy practice settings. Requirements: P4 standing.

PHAR:9417 (046:184) Elective Psychiatry Rotation 6 s.h.

Clinical experience in the rational use of drugs in psychiatric disorders. Requirements: P4 standing.

PHAR:9418 (046:199) Elective Research Rotation 6 s.h.

Practice experience in basic pharmaceutical or clinical research; proposal, study design, data collection and analysis, presentation of results. Requirements: P4 standing.

PHAR:9419 (046:186) Elective: Surgery Rotation 6 s.h.

Clinical experience in drug therapy management on a surgery unit. Requirements: P4 standing.

PHAR:9420 (046:188) Elective Pharmacy Practice Underserved Population Rotation 6 s.h.

Opportunity to learn the best practices for pharmaceutical management; approaches to enhance access to and appropriate use of medicines in underserved and resource-limited environments. Requirements: P4 standing.

PHAR:9421 (046:141) Elective Community Management Rotation 6 s.h.

Practice exposure to community pharmacy operations and management at the store, district, or corporate level. Requirements: P4 standing.

PHAR:9422 (046:142) Elective: Compounding/Complimentary Alternative Medicine Rotation 6 s.h.

Clinical work in a community setting with focus on team approach; experience developing extemporaneous compounds to optimize patient care and/or integrating traditional and nontraditional medicine. Requirements: P4 standing.

PHAR:9423 (046:143) Elective: Critical Care Medicine Rotation 6 s.h.

Practice experience providing pharmaceutical services to intensive care unit patients. Requirements: P4 standing.

PHAR:9424 (046:300) Elective Emergency Medicine Rotation 6 s.h.

Clinical experience providing pharmaceutical care for patients treated in the emergency department. Requirements: P4 standing.

PHAR:9425 (046:301) Elective Hospital Management Rotation 6 s.h.

Practice experience in hospital pharmacy operations and management. Requirements: P4 standing.

PHAR:9426 (046:302) Elective Infectious Disease Rotation 6 s.h.

Clinical experience providing pharmacotherapeutic management of patients receiving antimicrobial medications. Requirements: P4 standing.

PHAR:9427 (046:303) Elective Medication Use Evaluation Rotation 6 s.h.

Practical experience in drug use evaluation to improve patient outcomes. Requirements: P4 standing.

PHAR:9428 (046:304) Elective Pharmacy Industry Rotation 6 s.h.

Practice experience in an area of the pharmaceutical industry. Requirements: P4 standing.

PHAR:9429 (046:305) Elective: Pharmacy Regulatory Rotation 6 s.h.

Practice experience with a pharmacy regulatory body. Requirements: P4 standing.

PHAR:9430 (046:306) Elective: Professional Association Rotation 6 s.h.

Practice experience in professional association management environment at the state or national level. Requirements: P4 standing.

PHAR:9431 (046:307) Elective: Veterinary Pharmacy Rotation 6 s.h.

Practice experience in managing drug therapy for animals. Requirements: P4 standing.

PHAR:9432 (046:308) Elective: Advanced Community Pharmacy Rotation 6 s.h.

Community pharmacy experience emphasizing patient-centered care. Requirements: P4 standing.

PHAR:9433 (046:136) Elective Academic Rotation 6 s.h.

Practice experience delivering pharmacy education with a College of Pharmacy faculty member. Requirements: P4 standing.

Pharmaceutical Sciences and Experimental Therapeutics for Pharm.D. Students

PHAR:3745 (046:110) Drug Delivery I arr.

Advanced design and development of drug delivery systems; emphasis on selection of materials and designs suitable for specific applications; comparison and evaluation of available and emerging technologies. Requirements: introductory-level courses in biochemistry and anatomy/physiology.

PHAR:3746 (046:111) Drug Delivery II arr.

Continuation of PHAR:3745 (046:110). Prerequisites: PHAR:3745 (046:110).

PHAR:4740 (046:153) Materials in Drug and Gene Delivery	3 s.h.	Qualitative and quantitative description of kinetics of drug absorption, distribution, and elimination, including physiological factors that influence each process; adjustment of dosing regimens for optimizing therapeutic drug levels in the body; dosing considerations in special populations. Prerequisites: PHAR:8111 (046:123) and PHAR:8112 (046:124).
Different types of materials used in drug and gene delivery including synthetic and natural polymers (poly lactic-co-glycolic acid and chitosan respectively); different forms of delivery systems including (but not limited to) liposomes, micelles, biodegradable nanoparticles, nondegradable nanoparticles, and solid porous scaffolds; applications of these material-based delivery systems from targeted chemotherapy to bone regeneration to vaccination applications.		
PHAR:8111 (046:123) Pharmaceutics I: Solutions	4 s.h.	
Application of physical and chemical principles to formulation, preparation of liquid dosage forms, including solution, colloids, ointments, emulsions. Requirements: P1 standing.		
PHAR:8112 (046:124) Pharmaceutics II: Solids and Semi-Solids	4 s.h.	
Properties of solids; formulation, preparation, evaluation of solid dosage forms. Requirements: P1 standing.		
PHAR:8121 (046:128) Medicinal and Natural Products Chemistry I: Biotechnology and Chemotherapy	3 s.h.	
Organic and inorganic medicinal and therapeutic agents of natural and synthetic origin; physical, chemical, biological, and biochemical properties as they relate to medicinal and therapeutic effects; comparative biological activity and toxicity; detoxication mechanisms; functional group chemistry; nomenclature; chemistry of radiodiagnostic and therapeutic agents; introduction to biopharmaceutical analysis. First in a three-course sequence. Prerequisites: BIOC:8102 (099:162), CHEM:2220 (004:122), and MICR:3112 (061:112). Requirements: P1 standing.		
PHAR:8122 (046:131) Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents	3 s.h.	
Medicinal chemistry of pharmacodynamic agents; introduction to peptides and proteins, thyroid hormone, diabetes, vaccines, gene therapeutics, NSAIDs, cardiovascular drugs, antihistamines, anticancer drugs. Second in a three-course sequence. Prerequisites: PHAR:8121 (046:128). Requirements: P2 standing.		
PHAR:8123 (046:132) Medicinal and Natural Products Chemistry III: Medicinal Neurochemistry	3 s.h.	
Receptor site theory; steroids, lipids, and prostaglandins; sedatives and hypnotics; drugs of abuse; cholinergics; excitatory amino acids and anticonvulsants; major analgesics; adrenergics; psychotherapeutics. Third in a three-course sequence. Prerequisites: PHAR:8121 (046:128) and PHAR:8122 (046:131). Requirements: P2 standing.		
PHAR:8213 (046:138) Pharmacokinetics and Biopharmaceutics	3 s.h.	
PHAR:8230 (046:170) Clinical Pharmacokinetics	3 s.h.	Application of pharmacokinetics to the clinical setting. Requirements: P2 standing.
PHAR:8710 (046:169) Introduction to Pharmacogenomics	2 s.h.	Introduction to pharmacogenetics in pharmacy; laboratory techniques, application of pharmacogenetics to clinical pharmacy.
PHAR:8791 (046:012) Survey of Basic Pharmaceutical Sciences	1 s.h.	Aspects of drug discovery and development; seminar with guest speakers from industry. Requirements: admission to Pharm.D. program.
Pharmacy Practice and Science for Graduate Students		
PHAR:5310 (046:213) Pharmaceutical Socioeconomics Seminar	1-2 s.h.	Recent research in pharmacy administration.
PHAR:5335 (046:255) Social Aspects of Pharmacy Care	2 s.h.	Conceptual issues related to social and behavioral components of pharmacy care; social construction of health and illness, medication use process, health communications, cultural competence, public health.
PHAR:5350 (046:147) Introduction to Research Methods	3 s.h.	Scientific inquiry, experimental design, data collection, statistical methods used in the study of health services and clinical investigations; focus on understanding the research process and evaluating published studies. Recommendations: introductory statistics.
PHAR:6305 (046:257) Foundation Literature in Pharmaceutical Socioeconomics	arr.	Issues related to pharmacy administration, social and behavioral pharmacy, pharmacy education.
PHAR:6320 (046:251) Pharmaceutical Socioeconomics Research	arr.	
PHAR:6330 (046:263) Models of Patient Behavior and Choice	3 s.h.	Theoretical models used to describe behavior and choice in pharmaceutical socioeconomic research; models from economics, health services research, health behavior, clinical decision making.
PHAR:6331 (046:264) Models of Provider Behavior and Choice	3 s.h.	

Theoretical background for study of provider decision making and behavior; models based on a classic economic approach, models used to study provider behavior.

PHAR:7330 (046:261) Analytic Issues in Health Services Research I 3 s.h.

Analytic tools used in health services research; focus on applications in nonexperimental research settings, such as analyses using administrative claims data or preexisting public use data sets. Prerequisites: BIOS:5120 (171:162). Same as HMP:7960 (174:261).

PHAR:7331 (046:262) Analytic Issues in Health Services Research II 3 s.h.

Continuation of HMP:7960 (174:261); advanced applications, including panel data and qualitative response models. Prerequisites: HMP:7960 (174:261). Same as HMP:7965 (174:262).

Pharmaceutical Sciences and Experimental Therapeutics for Graduate Students

PHAR:3748 (046:223) Quantitative Research Methods II: Materials Characterization 2 s.h.

Introduction to physical methods of pharmaceutical materials characterization; thermal, electrochemical, and spectrophotometric methods; lecture, discussion, and laboratory activities.

PHAR:5110 (046:280) Clinical Pharmaceutical Sciences Seminar 1-2 s.h.

Research by faculty, graduate students.

PHAR:5135 (046:269) Introduction to Clinical Pharmacogenomics 3 s.h.

Basic pharmacogenetic techniques; use of pharmacogenomics in clinical pharmacy. Prerequisites: BIOL:2512 (002:128).

PHAR:5510 (046:227) Medicinal and Natural Products Chemistry Seminar 1-2 s.h.

PHAR:5512 (046:209) Drug Discovery and Mechanisms 3 s.h.

Process of modern drug discovery, focus on high throughput screening strategies, target validation, pharmacological characterization of new compounds; mechanism of drugs targeting G protein coupled receptors, ion channels and transporters, targets in biological systems. Requirements: graduate standing.

PHAR:5515 (046:135) Perspectives in MNPC Research 1 s.h.

Contemporary research in medicinal chemistry and natural products.

PHAR:5520 (046:217) Medicinal and Natural Products Chemistry Research arr.

PHAR:5521 (046:210) High Throughput Screening for Pharmaceutical and Biomedical Sciences 1 s.h.

Broad introduction to high throughput screening (HTS) and its application in pharmaceutical and biomedical sciences; HTS as a modern technology platform integrated with robust detection systems and robotic liquid handling instruments; use of HTS platforms to identify biologically active small organic molecules to validate drug targets, screen compound libraries; identification of biologically active small molecules for use as probes, tool compounds, drug leads; systematic, unbiased, and/or focused hypothesis-based approaches for mechanistic studies in biological and medical sciences. Recommendations: bachelor degree in biochemistry, chemistry, molecular biology, pharmacology, or equivalent.

PHAR:5537 (046:137) Enzymatic Basis of Drug Metabolism 3 s.h.

Current literature on catalytic and physical properties, distribution, and substrate specificity of enzymes involved in mammalian drug metabolism. Prerequisites: BIOC:8102 (099:162) and CHEM:2220 (004:122).

PHAR:5541 (046:211) Total Synthesis of Natural Products 3 s.h.

Total synthesis of natural products; use of strategies, tactics, efficiency, selectivity, synthetic maneuvering.

PHAR:5544 (046:214) Pharmaceutical and Chemical Toxicology 3 s.h.

Principles and mechanisms of chemical toxicology related to drugs and environmental agents; modern toxicological research methods.

PHAR:5545 (046:215) Current Medicinal Chemistry 3 s.h.

Modern techniques used in drug discovery; important drug classes, their chemical mechanism of action.

PHAR:5549 (046:219) Analytical Biochemistry 3 s.h.

Application of modern chromatographic and detection methods used to isolate, characterize, and quantify drugs and macromolecules.

PHAR:5550 (046:150) Synthetic Strategies in Medicinal Chemistry 3 s.h.

Modern chemical methods for construction of carbon-carbon bonds commonly used in synthesis of natural products; strategic disconnections for the syntheses of these molecules.

PHAR:5566 (046:266) Enzyme Kinetics and Enzyme Mechanisms: Biophysical Chemistry Module 5 1 s.h.

Enzymes as unparalleled catalysts and representing a unique class of drug targets; organic chemistry of enzyme catalyzed reactions with emphasis on physical organic logic of sources of enzyme-catalytic power; enzyme inhibition by small molecules from a medicinal chemistry perspective; taken alone or as part of BIOC:5242 (099:242). Requirements: introductory course in biochemistry. Same as BIOC:5246 (099:246).

PHAR:5700 (046:157) Quantitative Research Methods in Pharmacy I 3-4 s.h.

Collection and interpretation of analytical data; instrumental analysis and separation techniques.

PHAR:5745 (046:238) Drug Delivery: Principles and Applications I	arr.	PHAR:6710 (046:231) Pharmaceutics Graduate Seminar	1-2 s.h.
Advanced design and development of drug delivery systems with emphasis on selection of materials and designs suitable for specific applications; comparison and evaluation of available and emerging technologies.			
PHAR:5746 (046:239) Drug Delivery: Principles and Applications II	arr.	PHAR:6720 (046:233) Pharmaceutics Research	arr.
Continuation of PHAR:5745 (046:238). Prerequisites: PHAR:5745 (046:238).			
PHAR:5875 (046:275) Perspectives in Biocatalysis	1-3 s.h.	PHAR:7100 (046:378) Translational Research and Clinical Drug Development	3 s.h.
Applied enzymology, protein design, structure-activity relationships, biosensor technology, microbial transformations, biodegradation of environmental pollutants. Requirements: graduate standing in a participating department supported by the Predoctoral Training Program in Biotechnology. Same as CHEM:5875 (004:275), CBE:5875 (052:275), CEE:5875 (053:275), MICR:5875 (061:275), BIOC:5875 (099:275).		Clinical drug development; preclinical studies and clinical trials; phase I, II, and III clinical trials, including regulatory considerations.	
PHAR:5930 (046:284) Introduction to Pharmaceutical Sciences Research	2 s.h.	PHAR:7101 (046:379) Principles of Experimental Therapeutics	3 s.h.
Key principles and methods in pharmaceutical sciences research.		Introduction to key principles and concepts for research in experimental therapeutics; basic principles related to drug disposition, toxicity, and efficacy.	
PHAR:6120 (046:243) Clinical Pharmaceutical Sciences Research	arr.	PHAR:7102 (046:380) Applied Clinical and Translational Science	3 s.h.
		Application of clinical and translational science in a multidisciplinary collaborative environment to develop, conduct, and report research.	
PHAR:6130 (046:245) Analytical Techniques in Therapeutics	2 s.h.	PHAR:7700 (046:229) Advanced Pharmacokinetics and Pharmacodynamics	3 s.h.
Basic concepts of cell culture, animal models, and biochemical techniques for mechanistic evaluation of drug actions.		Selected topics, including nonlinear curve fittings. Prerequisites: PHAR:6700 (046:148).	
PHAR:6700 (046:148) Pharmacokinetics and Pharmacodynamics	3 s.h.	PHAR:7701 (046:236) Surface Phenomena	arr.
Kinetics of drug absorption, distribution, and elimination, including development of mathematical models. Requirements: two semesters of calculus and one semester of statistics.		Behavior of matter in phase boundaries, especially adsorptive processes at liquid-solid and vapor-solid interfaces. Prerequisites: CHEM:4431 (004:131).	
PHAR:6701 (046:206) Stability of Pharmaceuticals	3 s.h.	PHAR:7702 (046:237) Transport Phenomena	3 s.h.
Mechanisms of degradation of pharmaceuticals; prediction of shelf life of pharmaceuticals, stabilization. Prerequisites: CHEM:4432 (004:132).		Diffusion and mass transport phenomena related to pharmaceutical systems. Prerequisites: CHEM:4431 (004:131).	
PHAR:6703 (046:225) Product Development	3 s.h.		
Application of physico-chemical principles to formulation and design of pharmaceutical dosage forms.			
PHAR:6705 (046:202) Selected Topics in Pharmaceutical Sciences	1-4 s.h.		
Recent advances and contemporary research in pharmaceuticals.			
PHAR:6706 (046:235) Equilibria Processes	3 s.h.		
Equilibria pertaining to ionic systems, complexation, partitioning, solubility. Prerequisites: CHEM:4431 (004:131).			

College of Public Health

Dean

- Susan J. Curry

Associate dean, faculty affairs

- Jeffrey Dawson

Associate dean, research

- Corinne Peek-Asa

Associate dean, education and student affairs

- Tanya Uden-Holman

Associate dean, public health practice

- Christopher G. Atchison

Associate dean, M.P.H. and undergraduate programs

- Mary Lober Aquilino

Associate dean, administration

- Ann M. Coady

Undergraduate certificate: public health

Graduate degrees: M.H.A.; M.P.H.; M.S.; Ph.D.

Graduate certificates: agricultural safety and health; biostatistics; emerging infectious disease epidemiology; public health; translational and clinical investigation

Web site: <http://www.public-health.uiowa.edu/>

The College of Public Health, established in 1999, is a partner with the Carver College of Medicine and the Colleges of Dentistry, Nursing, and Pharmacy in striving to improve human health and well-being. Consistent with the interdisciplinary traditions of public health, the college also collaborates with non-health science colleges across the University and with other Board of Regents, State of Iowa institutions, state and local agencies, and the private sector.

A population-based approach to health is a distinguishing feature of public health and of the college. For public health practitioners—a wide range of professionals including physicians, nurses, dentists, pharmacists, social workers, nutritionists, environmental scientists, health educators, and health service administrators—the primary focus is on the health of entire communities rather than individual patients. Tools that public health professionals use to improve and enhance quality of life include analytical methods to identify, describe, and monitor the health of communities and populations at risk; education and prevention programs, methods of assuring access to appropriate and cost-effective care; and formulation of sound public policies.

The public health approach has led to many important health improvements over the past century. Vaccination campaigns, improved sanitation, fluoridation of drinking water, and efforts to reduce tobacco use are among the most recognizable public health initiatives. Public health programs also have led to safer workplaces, reduction of deaths from coronary heart disease and stroke, improved motor vehicle safety, and creation of effective health systems to provide care to those who need it. Today, public health professionals play an important role worldwide in seeking better approaches to complex issues such as

quality of life for the elderly, drug and alcohol abuse, teen pregnancy, new and reemerging infectious diseases, bioterrorism, health literacy, nutrition, and food safety.

The College of Public Health provides educational opportunities to students campuswide. In addition to training and educating public health students, the college welcomes students from the Tippie College of Business, the Carver College of Medicine, the Graduate College, and the Colleges of Dentistry, Education, Engineering, Law, Nursing, and Pharmacy who enroll in public health courses. Undergraduate students in the College of Liberal Arts and Sciences and graduate students from programs such as anthropology, microbiology, and statistics also register for public health courses. The college's faculty members, staff members, and graduate and postdoctoral students contribute to teaching and research activities throughout the health sciences campus and provide services to Iowa and the nation. Partnerships for teaching and research extend across the campus. This background provides a rich array of educational opportunities.

The college includes the Departments of Biostatistics (p. 1194), Community and Behavioral Health (p. 1201), Epidemiology (p. 1208), Health Management and Policy (p. 1218), and Occupational and Environmental Health (p. 1233). It offers programs leading to four graduate degrees: Master of Health Administration (M.H.A.), Master of Public Health (M.P.H.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). It also offers the Certificate in Agricultural Safety and Health (p. 1193), the Certificate in Biostatistics (p. 1194), the Certificate in Emerging Infectious Disease Epidemiology (p. 1207), the Certificate in Public Health (p. 1200), and the Certificate in Translational and Clinical Investigation (p. 1208).

The college is accredited by the Council on Education for Public Health (CEPH), the accrediting body for the nation's schools and colleges of public health. Three programs in the college currently are accredited: the industrial hygiene M.S. training program is accredited by ABET, the Master of Health Administration is accredited by the Commission on Accreditation of Healthcare Management Education (CAHME), and the Occupational Medicine Residency is accredited by the Accreditation Council for Graduate Medical Education (ACGME).

Admission

Each department in the College of Public Health has an admission committee. Admission criteria usually include a satisfactory cumulative grade-point average; Graduate Record Examination (GRE) General Test scores; references; résumés; and for applicants whose first language is not English, scores on the Test of English as a Foreign Language (TOEFL). Other evaluation criteria may include oral and on-campus interviews, written statements, special emphasis on science and math courses, and a match of available faculty mentors with student interests. Application deadlines vary by program.

Applicants to College of Public Health programs must meet the admission requirements of the Graduate College. For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Faculty

The college's faculty includes members with single appointments in the College of Public Health as well as those with joint appointments in other University of Iowa colleges, including the Carver College of Medicine and the Colleges of Dentistry, Engineering, Law, Liberal Arts and Sciences, Nursing, and Pharmacy. In addition, the college's faculty includes adjunct members from Drake University, Iowa State University, the University of Northern Iowa, the Iowa State Department of Public Health, the State Hygienic Laboratory at The University of Iowa, the Iowa Heart Center (in Des Moines), University of Iowa Hospitals and Clinics, and the National Institutes of Health.

Research Centers and Institutes

The College of Public Health is home to 27 centers and institutes that conduct research and provide public service. These multidisciplinary centers and institutes—most of which are supported by federal grants—focus their investigative efforts on important public health topics. They conduct an array of outreach, service, and policy activities through which the College of Public Health engages with agencies, communities, and organizations throughout Iowa, the Midwest, the nation, and the world. Students are encouraged to explore opportunities for involvement with any of the college's centers and institutes.

For more information, see Research Centers and Programs on the college's web site.

Facilities

The College of Public Health Building, a state-of-the-art facility that opened in early 2012 on the University's health sciences campus, houses the college's administrative, departmental, and faculty offices. The college's research centers, institutes, and specialized laboratories are located in Westlawn, on the health sciences campus; in University Capitol Centre, on the main campus east; and at the University of Iowa Research Park.

Eight student computer laboratories are housed at the college. More than 55 software packages are available for student use, most without charge. Software includes Microsoft Office products, SAS, and S+. Some specialty labs are equipped with RedHat Linux and are loaded with R, Macanova, Xlispstat, Mathematica, and other software.

Students, faculty, and staff draw on extensive library resources available across campus. Hardin Library for the Health Sciences serves as a central resource for all of the health sciences colleges. Hardin Library's Information Commons, a state-of-the-art health sciences educational technology facility, provides central support and delivery for courseware development, classroom instruction, health-related research, and independent learning. It offers high-end multimedia development workstations, networked electronic classrooms, a case-based learning and conference room, and information research workstations for searching health-related databases and the Internet.

Interdepartmental Degree

Master of Public Health Program (p. 1225)

Departments

Biostatistics (p. 1194)

Community and Behavioral Health (p. 1201)

Epidemiology (p. 1208)

Health Management and Policy (p. 1218)

Occupational and Environmental Health (p. 1233)

Certificate Programs

Agricultural Safety and Health (p. 1193)

Certificate in Public Health (p. 1200)

Emerging Infectious Disease Epidemiology (p. 1207)

Translational and Clinical Investigation (p. 1241)

Agricultural Safety and Health

Director

- Kelly Donham

Graduate certificate: agricultural safety and health

Web site: <http://www.public-health.uiowa.edu/certificate-ash/>

The College of Public Health offers the Certificate in Agricultural Safety and Health by distance education.

Graduate Program of Study

- Certificate in Agricultural Safety and Health

The certificate program trains students to detect safety and illness hazards and to treat and prevent farm-related illnesses, injuries, and deaths. It is intended for health and safety professionals nationwide as well as for students at The University of Iowa and at other postsecondary institutions who are enrolled in health or safety programs and would like to add an agricultural health component to their training. The certificate may enhance employment opportunities in health care delivery, government, and the private sector.

The program is accredited by the Council on Education for Public Health.

Certificate

The Certificate in Agricultural Safety and Health requires 12 s.h. of graduate credit. Completion of the certificate is noted on the student's transcript.

The certificate is offered by distance education, but students are encouraged to take OEH:6110 (175:209) Rural Health and Agricultural Medicine on campus; the course is offered twice yearly, once during spring semester and again as an intensive five-day workshop in June. Students may be able to complete OEH:7040 (175:203) Preceptorship in Occupational and Environmental Health in their own communities.

The Certificate in Agricultural Safety and Health requires the following course work.

All of these:

OEH:4110 (175:196) Agricultural Safety: Theories and Practice	2 s.h.
OEH:6110 (175:209) Rural Health and Agricultural Medicine	3 s.h.
OEH:7020 (175:172) Independent Study in Occupational and Environmental Health	arr.
OEH:7040 (175:203) Preceptorship in Occupational and Environmental Health	arr.

One of these:

OEH:5010 (175:180) Occupational and Environmental Health Seminar	1 s.h.
OEH:6120 (175:210) Current Topics in Agricultural Health	1 s.h.

One of these:

OEH:5410 (175:192) Occupational Safety	3 s.h.
OEH:5620 (175:230) Occupational Health	3 s.h.

Applicants to the certificate program should hold a bachelor's degree from an accredited university with a g.p.a. of at least 2.50; or they should have equivalent experience and education. Application materials must include the program's application form, a résumé, and a letter of interest explaining the applicant's current position and education objectives.

For more information about the program's curriculum or faculty, visit the Certificate in Agricultural Safety and Health web site.

Biostatistics

Head

- Kathryn Chaloner

Deputy head

- William R. Clarke

Professors

- Stephan Arndt (Iowa Consortium for Substance Abuse/Psychiatry/Biostatistics), Joseph E. Cavanaugh (Biostatistics/Statistics and Actuarial Science), Kathryn Chaloner (Biostatistics/Statistics and Actuarial Science), William R. Clarke, Christopher S. Coffey, Deborah V. Dawson (Dows Institute for Dental Research/Biostatistics), Jeffrey J. Dawson, Stephen Hillis (Radiology/Biostatistics), Jian Huang (Biostatistics/Statistics and Actuarial Science), Michael P. Jones (Biostatistics/Public Policy Center/Statistics and Actuarial Science), Philip C. Kutzko (Mathematics/Biostatistics), Joseph B. Lang (Biostatistics/Statistics and Actuarial Science), Jeffrey D. Long (Psychiatry/Biostatistics), Jane F. Pendergast, Bruce Pfohl (Psychiatry/Biostatistics), Kai Wang, Ying Zhang, Dale Zimmerman (Biostatistics/Statistics and Actuarial Science), M. Bridget Zimmerman

Associate professors

- M. Kathryn Cowles (Biostatistics/Statistics and Actuarial Science), Jacob J. Oleson, Brian J. Smith, Gideon K.D. Zamba

Assistant professors

- Emine O. Bayman (Anesthesia/Biostatistics), Patrick J. Breheny, Eric D. Foster

Adjunct professor

- Daniel J. Sargent

Adjunct assistant professors

- C. Laura Acion, Knute D. Carter, Yu-Hui H. Chang, Michelle A. Larson

Professors emeriti

- Leon F. Burmeister, George Woodworth, Robert F. Woolson

Graduate degrees: M.S. in biostatistics; Ph.D. in biostatistics

Graduate certificate: biostatistics

Web site: <http://www.public-health.uiowa.edu/biostat/>

The Department of Biostatistics prepares students for professional and academic careers in biostatistics. Graduates find positions in pharmaceutical, health care, and research companies and institutions; in universities and government agencies; and as consultants. The department also provides training for non-biostatistics students.

Current research interests in the Department of Biostatistics include computer intensive statistics, Bayesian methods, design and analysis of clinical trials, longitudinal data analysis, survival analysis, spatial modeling, analysis of data subject to missingness, time series, model selection, quality control, survey sampling, statistical genetics, and public health statistics. Biostatistics faculty members work closely with both

clinical and basic science investigators on the University of Iowa health sciences campus in the design and analysis of research projects.

Graduate Programs of Study

- Master of Science in biostatistics
- Doctor of Philosophy in biostatistics
- Certificate in Biostatistics

In addition to offering graduate degree programs in biostatistics, the department offers the quantitative methods subprogram for the Master of Public Health; see "M.P.H. Subprogram" below.

Master of Science

The Master of Science program in biostatistics requires a minimum of 38 s.h. of graduate credit. The program provides training in the design of experiments and in analysis of data related to biomedical or public health problems. It emphasizes mathematical, statistical, and computer methods for dealing with quantitative information and provides opportunities for students to gain statistical consulting experience with a variety of problems.

Graduates find career opportunities in many areas, including pharmaceuticals, health care, research companies and institutions, consulting firms, universities, and government agencies.

All M.S. students are required to complete an in-depth preceptorship under the direction of a departmental faculty member and a final comprehensive-style examination.

Graduate students in biostatistics must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program.

The Master of Science in biostatistics requires the following course work.

CORE COURSES

All of these:

BIOS:5510 (171:178) Biostatistical Computing	3 s.h.
BIOS:5710 (171:201)-BIOS:5720 (171:202) Biostatistical Methods I-II	8 s.h.
BIOS:5730 (171:203) Biostatistical Methods in Categorical Data	3 s.h.
BIOS:6610 (171:266) Statistical Methods in Clinical Trials	3 s.h.
BIOS:7500 (171:280) Preceptorship in Biostatistics	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.

One of these sequences:

STAT:4100 (22S:153)-STAT:4101 (22S:154) Mathematical Statistics I-II	6 s.h.
STAT:5100 (22S:193)-STAT:5101 (22S:194) Statistical Inference I-II (preferred for students who intend to earn a Ph.D.)	6 s.h.

Public health requirement:

MPH:6100 (170:200) Essentials of Public Health	1 s.h.
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Electives

One of these:

BIOL:4213 (002:170) Bioinformatics	4 s.h.
CBH:5105 (172:101) Introduction to Health Promotion and Disease Prevention	3 s.h.
ECE:5220 (055:122) Computational Genomics	3 s.h.
GENE:7191 (127:191) Human Molecular Genetics	3 s.h.
HMP:4000 (174:102) Introduction to the U.S. Health Care System	3 s.h.
OEH:4240 (175:197) Global Environmental Health	3 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.
PCOL:2120 (071:120) Drugs: Their Nature, Action, and Use	2 s.h.
Another approved biology/public health course	

At least 6 s.h. from these:

BIOS:5310 (171:164) Research Data Management	3 s.h.
BIOS:6210 (171:242) Applied Survival Analysis	3 s.h.
BIOS:6310 (171:174) Introductory Longitudinal Data Analysis	3 s.h.
BIOS:6810 (171:268) Bayesian Methods and Design	3 s.h.
BIOS:7110 (171:251) Theory of Biostatistics I	4 s.h.
BIOS:7120 (171:252) Theory of Biostatistics II	4 s.h.
BIOS:7210 (171:261) Survival Data Analysis	3 s.h.
BIOS:7310 (171:264) Longitudinal Data Analysis	3 s.h.
BIOS:7410 (171:262) Analysis of Categorical Data	3 s.h.
BIOS:7700 (171:282) Problems/Special Topics in Biostatistics	1 s.h.
CS:3110 (22C:104) Introduction to Informatics	3 s.h.
STAT:4520 (22S:138) Bayesian Statistics	3 s.h.
STAT:6540 (22S:161) Applied Multivariate Analysis	3 s.h.
STAT:7200 (22S:255) Linear Models	4 s.h.
STAT:7400 (22S:248) Computer Intensive Statistics	3 s.h.

M.P.H. Subprogram

The Department of Biostatistics offers the quantitative methods subprogram for the Master of Public Health. The subprogram is designed to train public health professionals for leadership in the analysis of public health data and the design of studies for public health investigations. See Master of Public Health Program (p. 1225) in the Catalog.

Doctor of Philosophy

The Doctor of Philosophy program in biostatistics requires a minimum of 79 s.h. of graduate credit, including credit from a master's degree. The program prepares students for professional and academic careers in biostatistics, especially for positions that emphasize developing and applying statistical methodology to solve important biological and public health problems.

All Ph.D. students must successfully complete a qualifying examination, a comprehensive examination, and a

dissertation—a substantial scholarly treatise. The research topic and content, which vary depending on the program of study, must be approved by the student's dissertation committee. Other degree requirements include approved electives chosen from Department of Biostatistics and other University of Iowa courses.

Graduate students in biostatistics must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program.

The Doctor of Philosophy in biostatistics requires the following work.

MASTER OF SCIENCE BACKGROUND

Ph.D. students must take the following courses (26 s.h.) required for the Master of Science in biostatistics. Students who have completed equivalent course work at other institutions may request waivers and/or transfers of credit. Students who earned a Master of Science in biostatistics at The University of Iowa automatically receive credit for these courses.

One of these sequences:

STAT:4100 (22S:153)-STAT:4101 (22S:154)	6 s.h.
Mathematical Statistics I-II	
STAT:5100 (22S:193)-STAT:5101 (22S:194)	6 s.h.
Statistical Inference I-II	

All of these:

BIOS:5710 (171:201)-BIOS:5720 (171:202)	8 s.h.
Biostatistical Methods I-II	
BIOS:5730 (171:203) Biostatistical Methods in Categorical Data	3 s.h.
BIOS:7500 (171:280) Preceptorship in Biostatistics	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
MPH:6100 (170:200) Essentials of Public Health	arr.

One approved biology/public health course

CORE COURSES

BIOS:7110 (171:251) Theory of Biostatistics I	4 s.h.
BIOS:7120 (171:252) Theory of Biostatistics II	4 s.h.
BIOS:7210 (171:261) Survival Data Analysis	3 s.h.
BIOS:7310 (171:264) Longitudinal Data Analysis	3 s.h.
BIOS:7410 (171:262) Analysis of Categorical Data	3 s.h.
STAT:7200 (22S:255) Linear Models	4 s.h.

ELECTIVES

With approval of their advisors, students choose 15-22 s.h. of graduate-level courses in biostatistics, statistics, genetics, microbiology, and so forth. They may count a maximum of 5 s.h. earned in nonquantitative courses (e.g., community and behavioral health, epidemiology, microbiology) toward the requirement. They also may count courses required for the Master of Science that are not listed under "Master of Science Background," above, toward the requirement.

Ph.D. students may take the following courses.

BIOS:6210 (171:242) Applied Survival Analysis	3 s.h.
BIOS:6220 (171:243) Cohort Data Analysis	1 s.h.

BIOS:7500 (171:280) Preceptorship in Biostatistics (in addition to the Master of Science preceptorship)	3 s.h.
BIOS:7600 (171:290) Advanced Biostatistics Seminar	0-3 s.h.
BIOL:4213 (002:170) Bioinformatics	4 s.h.
STAT:4520 (22S:138) Bayesian Statistics	3 s.h.
STAT:6300 (22S:195) Probability and Stochastic Processes I	3 s.h.
STAT:6540 (22S:161) Applied Multivariate Analysis	3 s.h.
STAT:6560 (22S:156) Applied Time Series Analysis	3 s.h.
STAT:7400 (22S:248) Computer Intensive Statistics	3 s.h.

DISSERTATION

BIOS:7900 (171:300) Thesis/Dissertation (at least two semesters in residence)	10-17 s.h.
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Certificate

The Certificate in Biostatistics requires a minimum of 15 s.h. of graduate credit. It is designed for students who would like to add a formal biostatistics emphasis to their graduate programs. Completion of the certificate is noted on the student's transcript.

The certificate program is open to students enrolled in a University of Iowa graduate degree program outside biostatistics. It is also open to individuals who hold graduate degrees in science disciplines or professional degrees in the health sciences and are admitted to the Graduate College as nondegree students (contact the Department of Biostatistics for more information).

Enrollment is limited; applicants who have completed at least one of the certificate's required courses and whose research will be advanced by biostatistics training are given priority for admission. Visit the Certificate in Biostatistics web site for an application form.

The certificate requires two core courses (6 s.h.) and three electives (9 s.h.). Students should work with an advisor to plan their course work carefully, since some certificate courses have prerequisites, require permission for enrollment, or are not offered every year. Students must earn a grade of at least B-minus in each certificate course and must maintain a cumulative g.p.a. of at least 3.00 in order to earn the certificate. They must complete at least 6 s.h. of the required course work after being admitted to the certificate program, and they may count a maximum of 6 s.h. of certificate credit toward a degree or another certificate earned at the University.

The Certificate in Biostatistics requires the following course work.

CORE COURSES

Both of these:

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.

ELECTIVES

Three of these (total of 9 s.h.):

BIOS:5310 (171:164) Research Data Management	3 s.h.
BIOS:6110 (171:241) Applied Categorical Data Analysis	3 s.h.
BIOS:6210 (171:242) Applied Survival Analysis	3 s.h.
BIOS:6220 (171:243) Cohort Data Analysis	1 s.h.
BIOS:6310 (171:174) Introductory Longitudinal Data Analysis	3 s.h.
BIOS:6610 (171:266) Statistical Methods in Clinical Trials	3 s.h.
BIOS:7850 (171:295) Research in Biostatistics	arr.

Other courses may be approved as electives by the Department of Biostatistics director of graduate studies.

Admission

Applicants to the M.S. and Ph.D. programs in biostatistics must apply through the Schools of Public Health Application Service (SOPHAS); they also must apply for admission to the Graduate College through the University of Iowa Office of Admissions. For detailed application information, visit Prospective Students/Application Process on the Department of Biostatistics web site.

The biostatistics faculty considers several factors when evaluating applications for admission, including Graduate Record Examination (GRE) General Test scores, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests.

All M.S. and Ph.D. program applicants must hold a bachelor's degree, have a cumulative g.p.a. of at least 3.00, and have taken the Graduate Record Examination (GRE) General Test. Applicants whose first language is not English and who do not hold a bachelor's degree from an accredited institution in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants with lower scores are not considered for admission. In place of TOEFL scores, the department accepts International English Testing System (IELTS) scores of 7.0 or higher, with no subscore below 6.0.

All biostatistics applicants are required to have strong written and oral communication skills.

All M.S. applicants must be competent in at least one computer programming language. They also must have mathematical sciences training in methods and techniques of single variable and multivariable differential and integral calculus, and in linear algebra.

Completion of an M.S. program in statistics or biostatistics generally is required for admission to the Ph.D. program.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Students may enter the M.S. and Ph.D. programs in fall; the priority application deadline for both programs is December 1.

Financial Support

A limited number of teaching and research assistantships are available. Assistantships offer financial support and

resident tuition with a tuition scholarship. They also provide valuable on-the-job training experience.

For information on financing education through jobs, grants, and loans, contact the University's Office of Student Financial Aid.

Resources

Department of Biostatistics resources and activities include three centers. The Biostatistics Consulting Center provides opportunities for students to gain valuable experience working with faculty and staff in the health sciences at The University of Iowa. The Clinical Trials Statistical and Data Management Center serves the statistical design, data management, and analysis needs of a variety of multicenter clinical trials, including studies of new treatments for acute ischemic stroke and studies of islet transportation. The Center for Public Health Statistics facilitates the collection, statistical analyses, and dissemination of health data in support of the University's research, teaching, and service missions and in partnership with the Iowa Department of Public Health.

Courses

- BIOS:4110 (171:121) General Biostatistics** 4 s.h.
Biostatistics and biostatistical computation; biostatistical aspects of health-related areas—clinical trials, disease modeling, disease mapping, genetics, and epidemiology; brief introduction to survival and longitudinal analyses.
- BIOS:4710 (171:199) Biostatistical Methods Laboratory** 1 s.h.
Computational aspects of one-sample and two-sample problems; analysis of frequency data, linear regression, and correlation analysis; examples using these computational methods in public health. Offered fall semesters. Prerequisites: STAT:2010 (22S:030) and STAT:3200 (22S:152).
- BIOS:5050 (171:151) Biostatistics for Biomedical Research** 1 s.h.
Application of statistical techniques to biological data analysis; normal distribution, sampling distribution of the mean, variance, nonparametric methods, linear regression, power, and sample size. Same as BISC:5204 (156:204).
- BIOS:5110 (171:161) Introduction to Biostatistics** 3 s.h.
Application of statistical techniques to biological data, including descriptive statistics; probability; normal, binomial, and Poisson distributions; sampling distributions; tests of significance; confidence intervals; analysis of frequency data; simple linear regression. Requirements: college algebra.
- BIOS:5120 (171:162) Design and Analysis of Biomedical Studies** 3 s.h.
Simple and multiple linear regression and correlation; one- and two-way layout considerations in planning experiments; factorial experiments; multiple comparison techniques; orthogonal contrasts. Offered spring semesters. Prerequisites: BIOS:5110 (171:161). Same as STAT:5610 (22S:140).
- BIOS:5310 (171:164) Research Data Management** 3 s.h.
Overview of problems encountered in gathering and processing data from biomedical investigations; introduction to data management techniques useful in biomedical studies; introduction to Microsoft Access. Offered fall semesters. Requirements: Python or Java or C programming capability. Same as STAT:5810 (22S:201).
- BIOS:5510 (171:178) Biostatistical Computing** 3 s.h.
Groundwork in SAS and R programming; emphasis on data management, Monte Carlo simulations, and expectation maximization techniques. Offered fall semesters. Corequisites: BIOS:5710 (171:201). Recommendations: C and C++ skills.
- BIOS:5710 (171:201) Biostatistical Methods I** 4 s.h.
Problem-oriented probability distributions, moments, estimation, parametric and nonparametric inference for one-sample and two-sample problems, analysis of frequency data, linear regression, and correlation analysis, with emphasis on use of computers. Offered fall semesters. Requirements: two semesters of calculus.
- BIOS:5720 (171:202) Biostatistical Methods II** 4 s.h.
Continuation of BIOS:5710 (171:201); linear regression and correlation, multiple linear regression, multiple factor experiments, multiple comparisons, orthogonal contrasts, block and split-plot designs, confounding interactions, and mixed models. Offered spring semesters. Prerequisites: BIOS:5710 (171:201).
- BIOS:5730 (171:203) Biostatistical Methods in Categorical Data** 3 s.h.
Introduction to methods for allied categorical data analysis; estimation of proportions, rates, and risks; measures of relative risk and odds ratios, stratified analysis, case control studies, logistic regression. Offered spring semesters. Prerequisites: BIOS:5510 (171:178) and BIOS:5710 (171:201). Corequisites: BIOS:5720 (171:202), and STAT:4101 (22S:154) or STAT:5101 (22S:194).
- BIOS:6110 (171:241) Applied Categorical Data Analysis** 3 s.h.
Overview of methods to analyze categorical data from health science investigations; estimation of rates and risks, measures of relative risk, stratified analysis, logistic regression analysis. Offered fall semesters. Prerequisites: BIOS:5120 (171:162).
- BIOS:6210 (171:242) Applied Survival Analysis** 3 s.h.
Nonparametric, parametric, and semi-parametric methods for time to event data; censoring of event times into analysis; types of censoring; Kaplan-Meier estimation; Weibull model estimation; Cox proportional hazards models, including methods for assessing adequacy of proportional hazards assumption; time varying covariates; sample size calculations for comparison of two or more groups; focus on analysis of real data sets and examples using statistical software. Offered spring semesters. Prerequisites: BIOS:5710 (171:201) or BIOS:6110 (171:241).

- BIOS:6220 (171:243) Cohort Data Analysis** 1 s.h.
Methods of comparing direct standardized rates and standardized mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: BIOS:6110 (171:241).
- BIOS:6310 (171:174) Introductory Longitudinal Data Analysis** 3 s.h.
Statistical models and estimation methods used to analyze correlated data (e.g., same subject measured repeatedly); emphasis on use of statistical software. Offered fall semesters of odd years. Prerequisites: STAT:3200 (22S:152) or STAT:6510 (22S:162) or BIOS:5730 (171:203) or BIOS:6110 (171:241). Same as STAT:6550 (22S:160).
- BIOS:6610 (171:266) Statistical Methods in Clinical Trials** 3 s.h.
Survey of statistical methods commonly used in clinical trials; methodologic perspective on the design, conduct, and analysis of trials; emphasis on Phase III randomized controlled clinical trials. Offered spring semesters. Prerequisites: BIOS:5720 (171:202), and STAT:3101 (22S:131) or STAT:4101 (22S:154) or STAT:5101 (22S:194).
- BIOS:6650 (171:269) Comparative Effectiveness Research Methods for Observational Data** 3 s.h.
Concepts of internal/external validity, counterfactuals, confounding, causal inference, and heterogeneity of treatment effect; methods including propensity scores, graphical models, inverse probability weighting, double robustness, marginal structural models, direct and indirect effects, instruments. Prerequisites: BIOS:5710 (171:201), BIOS:5720 (171:202), and BIOS:5730 (171:203); and STAT:4100 (22S:153) and STAT:4101 (22S:154), or STAT:5100 (22S:193) and STAT:5101 (22S:194).
- BIOS:6810 (171:268) Bayesian Methods and Design** 3 s.h.
Theory and application of Bayesian methods in biomedical research; foundations of Bayesian statistics, including axiomatic development of subjective probability and decision theory, study design, model development, inference, and implementation of computational algorithms. Prerequisites: BIOS:5510 (171:178), BIOS:5720 (171:202), BIOS:5730 (171:203), STAT:4100 (22S:153), and STAT:4101 (22S:154).
- BIOS:7110 (171:251) Theory of Biostatistics I** 4 s.h.
Intermediate study of sufficiency, exponential families, methods of estimation, uniform minimum variance unbiasedness, information, likelihood theory, confidence intervals, the Neyman-Pearson lemma, asymptotic theory and its applications. Offered fall semesters of even years. Prerequisites: BIOS:5720 (171:202), and STAT:4101 (22S:154) or STAT:5101 (22S:194).
- BIOS:7120 (171:252) Theory of Biostatistics II** 4 s.h.
- Nonparametric hypothesis tests, semiparametric estimation, generalized linear models, generalized estimation equations, generalized linear mixed models, EM algorithm, computer-intensive methods; application of theory learned in BIOS:7110 (171:251) to classical and new methods in biostatistics. Offered spring semesters of odd years. Prerequisites: BIOS:7110 (171:251).
- BIOS:7210 (171:261) Survival Data Analysis** 3 s.h.
Types of censoring and truncation; survival function estimation; life tables; parametric inference using exponential, Weibull, and accelerated failure time models; nonparametric tests; sample size calculation; Cox regression with stratification and time-dependent covariates; regression diagnostics; competing risks; analysis of correlated survival data. Offered fall semesters. Prerequisites: BIOS:5720 (171:202), and STAT:4101 (22S:154) or STAT:5101 (22S:194). Same as STAT:7570 (22S:225).
- BIOS:7220 (171:271) Advanced Survival Analysis** 3 s.h.
Counting process/martingale theory leading to asymptotic results of survival methods; semiparametric regression of accelerated failure time and additive hazard models; multivariate survival models for clustered, multiple event, and recurrent event data; special topics. Prerequisites: BIOS:7210 (171:261).
- BIOS:7270 (171:285) Scholarly Integrity in Biostatistics** 1 s.h.
Responsible conduct of research training; emphasis on issues of particular relevance to biostatisticians including authorship, communication, student/mentor relationships, plagiarism, fabrication and falsification of data, bias, Type I/II errors, reproducible research, data confidentiality and security, conflicts of interest, and human/animal subjects. Requirements: graduate standing in biostatistics.
- BIOS:7310 (171:264) Longitudinal Data Analysis** 3 s.h.
Introduction to statistical methodology for analyzing data from observational and experimental studies in which the response variable from each subject is measured repeatedly; emphasis on use of statistical software packages and specialized programs. Offered spring semesters of odd years. Prerequisites: BIOS:5720 (171:202), and STAT:4101 (22S:154) or STAT:5101 (22S:194).
- BIOS:7410 (171:262) Analysis of Categorical Data** 3 s.h.
Models for discrete data, distribution theory, maximum likelihood and weighted least squares estimation for categorical data, tests of fit, models selection. Offered spring semesters. Prerequisites: STAT:4101 (22S:154) or STAT:5101 (22S:194), and STAT:5200 (22S:164) or BIOS:5720 (171:202). Same as STAT:7510 (22S:220).
- BIOS:7500 (171:280) Preceptorship in Biostatistics** arr.

Work experience using knowledge and skill acquired in classroom; arranged in conjunction with ongoing departmental or collegiate activities or with governmental agencies or private industry; preparation of prospectus and presentation of research results in a department seminar.

BIOS:7600 (171:290) Advanced 0-3 s.h.

Biostatistics Seminar

Current topics; supervised experience in reading and interpreting biostatistical literature. Offered spring semesters.

BIOS:7604 (171:286) Scholarly Integrity in 0 s.h.

Biostatistics for Postdocs

Responsible conduct of research training; emphasis on issues of particular relevance to biostatisticians and statisticians including authorship, communication, student/mentor relationships, plagiarism, fabrication and falsification of data, bias, Type I/II errors, reproducible research, data confidentiality and security, conflicts of interest, human/animal subjects. Requirements: postdoctoral research scholar/fellow standing in biostatistics or statistics.

BIOS:7700 (171:282) Problems/Special arr.

Topics in Biostatistics

Didactic material in biostatistics; may include tutorials, seminars, faculty-directed independent work (e.g. literature search, project, short research project).

BIOS:7800 (171:281) Independent Study in arr.

Biostatistics

In-depth pursuit of an area of special interest in biostatistics requiring substantial creativity and independence.

BIOS:7850 (171:295) Research in arr.

Biostatistics

Research that may lead to a dissertation.

BIOS:7900 (171:300) Thesis/Dissertation arr.

Certificate in Public Health

Coordinator

- Katie Boland

Undergraduate certificate: public health

Graduate certificate: public health

Web site: <http://www.public-health.uiowa.edu/certificate-in-public-health/>

The College of Public Health offers the Certificate in Public Health for undergraduates and for graduate students. The certificate program is designed to improve public health practice and public health workforce capacity in Iowa and the upper Midwest. It is intended primarily for individuals in public health practice, those in the workforce, and those interested in strengthening their knowledge and skills in basic public health competencies.

Undergraduate Program of Study

- Certificate in Public Health

The College of Public Health administers and awards the undergraduate Certificate in Public Health.

Certificate

The undergraduate Certificate in Public Health requires 12 s.h. of credit and may be completed by distance education. Completion of the certificate is noted on the student's transcript.

All certificate courses are offered on the Internet at least once a year. All courses except EPID:2999 (173:099) Evidence-Based Public Health Methods also are offered on the University of Iowa campus. Certificate students must have access to a computer and the Internet. Students who are enrolled only in the Certificate in Public Health program may not register for courses other than those required for the certificate.

Students must complete the certificate's required course work within five years of entering the program and must maintain a g.p.a. of at least 2.75 in work for the certificate.

The undergraduate Certificate in Public Health requires the following course work.

This course:

EPID:2999 (173:099) Evidence-Based Public Health Methods	3 s.h.
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One of these:

MPH:3000 (170:099) Fundamentals of Public Health	3 s.h.
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MPH:5100 (170:101) Introduction to Public Health	3 s.h.
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Two of these:

CBH:5105 (172:101) Introduction to Health Promotion and Disease Prevention	3 s.h.
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HMP:4000 (174:102) Introduction to the U.S. Health Care System	3 s.h.
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OEH:4240 (175:197) Global Environmental Health	3 s.h.
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Applicants to the undergraduate certificate program must have completed at least 60 s.h. of postsecondary

education course work and must have a cumulative g.p.a. of at least 2.75. They must submit official transcript(s), a statement of purpose, two reference letters, a résumé, and an application form.

For more information about the program and how to apply, visit the Certificate in Public Health web site.

Graduate Program of Study

- Certificate in Public Health

The College of Public Health administers the graduate Certificate in Public Health; the certificate is conferred by the Graduate College.

Certificate

The graduate Certificate in Public Health requires 12 s.h. of credit. Completion of the certificate is noted on the student's transcript.

All certificate courses are offered on the Internet at least once a year. All courses except EPID:2999 (173:099) Evidence-Based Public Health Methods also are offered on the University of Iowa campus. Certificate students must have access to a computer and the Internet. Students who are enrolled only in the Certificate in Public Health program may not register for courses other than those required for the certificate.

Students must complete the certificate's required course work within five years of entering the program and must maintain a g.p.a. of at least 2.75 in work for the certificate. Students who are admitted to the M.P.H. program after they complete the certificate may apply a maximum of 9 s.h. of certificate credit toward the M.P.H. degree.

The graduate Certificate in Public Health requires the following course work.

Both of these:

EPID:2999 (173:099) Evidence-Based Public Health Methods	3 s.h.
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MPH:5100 (170:101) Introduction to Public Health	3 s.h.
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Two of these:

CBH:5105 (172:101) Introduction to Health Promotion and Disease Prevention	3 s.h.
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HMP:4000 (174:102) Introduction to the U.S. Health Care System	3 s.h.
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OEH:4240 (175:197) Global Environmental Health	3 s.h.
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Applicants to the graduate certificate program must hold a bachelor's degree and must have a cumulative g.p.a. of at least 2.75. They must submit official transcript(s), a statement of purpose, two reference letters, a résumé, and an application form.

For more information about the program and how to apply, visit the Certificate in Public Health web site.

Community and Behavioral Health

Head

- Edith A. Parker

Professors

- Elizabeth Altmaier (Community and Behavioral Health/Psychological and Quantitative Foundations), Julie Andsager (Journalism and Mass Communication/Community and Behavioral Health), Leslie Baxter (Community and Behavioral Health/Communication Studies), Joe D. Coulter (Anatomy and Cell Biology/Community and Behavioral Health), Kristi Ferguson (Community and Behavioral Health/Internal Medicine), Paul Greenough (International Programs/Community and Behavioral Health/History), Ann Marie McCarthy (Community and Behavioral Health/Pediatrics/Nursing), Edith A. Parker, Michael Teague (Community and Behavioral Health/Health and Human Physiology)

Associate professors

- Mary Aquilino, Shelly Campo, Faryle Nothwehr, Erica Prussing (Anthropology/Community and Behavioral Health), Anne Helene Skinstad, Nancy Thompson, Deb Waldron (Community and Behavioral Health/Pediatrics)

Assistant professors

- Sato Ashida, Barbara Baquero, Briana Woods-Jaeger

Adjunct professors

- Frank Boster, Gene Lutz

Adjunct associate professors

- Kevin Kelly, Connie Kohler, Mary Losch, Jingzhen Ginger Yang

Adjunct assistant professor

- Vanessa Simonds

Adjunct lecturer

- Laurie Walkner

Professors emeriti

- Melanie Dreher, Peter Nathan, Jerry Suls

Graduate degrees: M.S. in community and behavioral health; Ph.D. in community and behavioral health

Web site: <http://www.public-health.uiowa.edu/cbh/>

The Department of Community and Behavioral Health examines the relationship between human behavior and community health and focuses on creating effective strategies for change. Its faculty members come from a variety of disciplines within the social and health sciences, drawn together by an interest in health behavior and promoting healthy communities.

Community and behavioral health students learn how to design, implement, and evaluate interventions directed toward identified public health problems in communities. They learn how public and institutional policy, the media, and community organizations can promote healthy behavior and effect positive change.

Graduate Programs of Study

- Master of Science in community and behavioral health
- Doctor of Philosophy in community and behavioral health

Graduate students in community and behavioral health may earn degrees with or without subprograms. The Master of Science program offers an optional subprogram in health communication. The Doctor of Philosophy program offers two optional subprograms: addiction studies and health communication.

The department also offers two subprograms for the Master of Public Health: the community and behavioral health subprogram and the health communication subprogram. See "M.P.H. Subprograms" below.

Master of Science

The Master of Science program in community and behavioral health requires 35 s.h. of graduate credit, including a thesis. The program prepares students for research and professional positions in community and behavioral health or for Ph.D. study in community and behavioral health. The degree is offered with an optional subprogram in health communication; see "M.S. Subprogram in Health Communication" below.

During the first semester, M.S. students work with their academic advisor to develop a plan of study that satisfies their interests and professional goals as well as the program's requirements. Students are required to attend departmental seminars and to complete all courses required for the degree.

The Master of Science in community and behavioral health requires the following course work.

COLLEGE OF PUBLIC HEALTH CORE

All of these (9-10 s.h.):

CBH:5105 (172:101) Introduction to Health Promotion and Disease Prevention	3 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
MPH:6100 (170:200) Essentials of Public Health (for students without an M.P.H.)	1 s.h.

BEHAVIORAL AND SOCIAL SCIENCES CORE

Three of these (9 s.h.):

CBH:5205 (172:130) Social Determinants of Health	3 s.h.
CBH:5220 (172:150) Health Behavior and Health Education	3 s.h.
CBH:5225 (172:135) Health Disparities and Cultural Competence	2-4 s.h.
CBH:5420 (172:185) Communicating with the Community	3 s.h.
CBH:6205 (172:106) Designing and Implementing Interventions	3 s.h.
CBH:6210 (172:240) Health Communication	3 s.h.
CBH:6215 (172:242) Persuasion and Health	3 s.h.
CBH:6220 (172:246) Health Communication Campaigns	3 s.h.

RESEARCH METHODS CORE

Two of these (6 s.h.):

CBH:5305 (172:181) Evaluation I: Theory and Applications	3 s.h.
CBH:5310 (172:183) Qualitative Research for Public Health	3 s.h.
CBH:6115 (172:202)/ANTH:6115 (113:202) Ethnographic Field Methods	3 s.h.
CBH:6305 (172:282) Evaluation II: Design and Methods	3 s.h.
CBH:6335 (172:285) Research Methods in Community and Behavioral Health	3 s.h.
BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
BIOS:6110 (171:241) Applied Categorical Data Analysis	3 s.h.
GEOG:3505 (044:106) Foundations of GIS	3 s.h.
PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.
PSQF:6249 (07P:249) Factor Analysis and Structural Equation Models	3 s.h.
PSQF:6252 (07P:252) Introduction to Multivariate Statistical Methods	3 s.h.

CONTENT AREA ELECTIVES

Students work with their advisors to select at least 5 s.h. of course work appropriate to their educational goals and emphasis areas. They may choose from any community and behavioral health courses not already taken, other College of Public Health courses, or other University of Iowa graduate-level courses.

THESIS

The thesis requirement is 6 s.h.

M.S. Subprogram in Health Communication

The M.S. subprogram in health communication is designed for students who wish to gain knowledge and skill in designing, evaluating, and implementing effective communication strategies and messages that use mediated and interpersonal channels to address the health needs of diverse audiences. The program focuses on clinician-patient interaction, family communication, group and organizational communication, and mass media and web-based campaigns.

The health communication subprogram combines the M.S. core course work with additional concentrated learning opportunities. Students fulfill the regular M.S. requirements, using the health communication core to satisfy the content area electives requirement.

HEALTH COMMUNICATION CORE

Four of these (12 s.h.):

CBH:3150 (172:140)/JMC:3150 (019:160) Media and Health	3 s.h.
CBH:6210 (172:240)/COMM:6210 (036:270) Health Communication	3 s.h.
CBH:6215 (172:242) Persuasion and Health	3 s.h.
CBH:6220 (172:246)/COMM:6220 (036:379) Health Communication Campaigns	3 s.h.
COMM:6371 (036:371) Communication Theory	3 s.h.

M.P.H. Subprograms

The Department of Community and Behavioral Health offers two subprograms for the Master of Public Health: the community and behavioral health subprogram and the health communication subprogram.

The M.P.H. subprogram in community and behavioral health prepares public health practitioners for a variety of positions in community development, health program implementation, and health education.

The M.P.H. subprogram in health communication prepares public health practitioners for a variety of employment opportunities in health communication strategies, health communication in groups and organizations, and mass media/web-based campaigns in health promotion.

For detailed information about the M.P.H. degree, see Master of Public Health Program (p. 1225) in the Catalog.

Doctor of Philosophy

The Doctor of Philosophy program in community and behavioral health requires at least 75 s.h. of graduate credit, including credit from a master's degree. The program prepares individuals for academic, research, and policy-making work in the social and behavioral health sciences. This fast-growing academic specialty offers many career opportunities in academic and research institutions. The Ph.D. is offered with optional subprograms in addiction studies and in health communication; see "Ph.D. Subprogram in Addiction Studies" and "Ph.D. Subprogram in Health Communication" below.

Ph.D. students must successfully complete a qualifying exam, a comprehensive exam, and a dissertation—a substantial scholarly treatise. The research topic must be approved by the student's dissertation committee.

During the first semester, students work with their academic advisors to develop a plan of study that satisfies their interests and professional goals as well as the program's requirements. Students are required to attend departmental seminars and to complete all courses required for the degree.

The Doctor of Philosophy in community and behavioral health requires the following work.

COLLEGE OF PUBLIC HEALTH CORE

All of these (9-10 s.h.):

CBH:5105 (172:101) Introduction to Health Promotion and Disease Prevention	3 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
MPH:6100 (170:200) Essentials of Public Health (for students without an M.P.H.)	1 s.h.

BEHAVIORAL AND SOCIAL SCIENCES CORE

Seven of these (21 s.h.):

CBH:5125 (172:173)/ANTH:3102 (113:185) Medical Anthropology	3 s.h.
CBH:5205 (172:130) Social Determinants of Health	3 s.h.
CBH:5220 (172:150) Health Behavior and Health Education	3 s.h.

CBH:5225 (172:135) Health Disparities and Cultural Competence	2-4 s.h.
CBH:5420 (172:185) Communicating with the Community	3 s.h.
CBH:6205 (172:106) Designing and Implementing Interventions	3 s.h.
CBH:6210 (172:240) Health Communication	3 s.h.
CBH:6215 (172:242) Persuasion and Health	3 s.h.
CBH:6220 (172:246) Health Communication Campaigns	3 s.h.

RESEARCH METHODS CORE

Five of these (15 s.h.):

CBH:5305 (172:181) Evaluation I: Theory and Applications	3 s.h.
CBH:5310 (172:183) Qualitative Research for Public Health	3 s.h.
CBH:6115 (172:202)/ANTH:6115 (113:202) Ethnographic Field Methods	3 s.h.
CBH:6305 (172:282) Evaluation II: Design and Methods	3 s.h.
CBH:6335 (172:285) Research Methods in Community and Behavioral Health	3 s.h.
BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
BIOS:6110 (171:241) Applied Categorical Data Analysis	3 s.h.
GEOG:3505 (044:106) Foundations of GIS	3 s.h.
PSQF:6243 (07P:243) Intermediate Statistical Methods	4 s.h.
PSQF:6249 (07P:249) Factor Analysis and Structural Equation Models	3 s.h.
PSQF:6252 (07P:252) Introduction to Multivariate Statistical Methods	3 s.h.
SOC:5160 (034:215) Sampling, Measurement, and Observation Techniques	3 s.h.
SOC:6170 (034:214) Introduction to Sociological Data Analysis	3 s.h.
SOC:6180 (034:216) Linear Models in Sociological Research	3 s.h.
SOC:7170 (034:218) Advanced Statistical Modeling of Data	3 s.h.
SOC:7180 (034:219) Structural Equation Modeling	3 s.h.

CONTENT AREA ELECTIVES

Students work with their advisors to select at least 18 s.h. of course work appropriate to their educational goals and emphasis areas. They may choose from any Department of Community and Behavioral Health courses they have not already taken, other College of Public Health courses, or other University of Iowa graduate-level courses.

DISSERTATION

The dissertation requirement is 12 s.h.

Ph.D. Subprogram in Addiction Studies

The Ph.D. subprogram in addiction studies is designed for students who wish to gain skill in developing and evaluating addiction prevention and intervention programs. This area of study and practice examines

addiction prevention and treatment from both a public health and a biopsychosocial perspective.

The addiction studies subprogram combines core course work from the Ph.D. curriculum with additional specialized training. Students fulfill the regular Ph.D. requirements, using the addiction studies core to satisfy the content area electives requirement.

ADDICTION STUDIES CORE

Students work with their advisor to select 18 s.h. of addictions studies course work offered by the department. Courses focusing on treatment of substance abuse and comorbid psychopathology, prevention of substance abuse and comorbid psychopathology, and assessment and diagnosis of addiction and comorbid psychopathology are under development.

Ph.D. Subprogram in Health Communication

The Ph.D. subprogram in health communication is designed for students who wish to prepare for academic, research, and policy-making careers in the area of health communication.

The health communication subprogram combines the core course work from the Ph.D. curriculum with additional specialized training. Students fulfill the regular Ph.D. requirements, using the health communication core to satisfy the content area electives requirement.

HEALTH COMMUNICATION CORE

Four of these (12 s.h.):

CBH:3150 (172:140)/JMC:3150 (019:160) Media and Health	3 s.h.
CBH:6210 (172:240)/COMM:6210 (036:270) Health Communication	3 s.h.
CBH:6215 (172:242) Persuasion and Health	3 s.h.
CBH:6220 (172:246)/COMM:6220 (036:379) Health Communication Campaigns	3 s.h.
COMM:6371 (036:371) Communication Theory	3 s.h.

Admission

Applicants to the M.S. and Ph.D. programs in community and behavioral health must apply through the Schools of Public Health Application Service (SOPHAS); they also must apply for admission to the Graduate College through the University of Iowa Office of Admissions. Applications must include academic transcripts, three letters of recommendation, and a completed statement of purpose form. For detailed application information, visit Prospective Students/Application Process on the Department of Community and Behavioral Health web site.

The community and behavioral health faculty considers several factors when evaluating applications for admission, including scores on the Graduate Record Exam (GRE) General Test, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

Applicants to the M.S. program must have a cumulative g.p.a. of at least 3.00 and should hold a bachelor's degree from an accredited college or university. No specific undergraduate major is required. Preference is given to

applicants with Graduate Record Exam (GRE) General Test verbal scores of at least 154, quantitative scores of at least 150, and analytical writing scores of at least 4.0 (GRE scores must be less than five years old).

Applicants to the Ph.D. program must have a graduate g.p.a. of at least 3.40 and should hold a graduate degree from an accredited college or university—ideally, an M.S. in community and behavioral health, or another public health degree, or a related social science degree, or a clinical health degree. Applicants who do not hold a graduate degree should apply to the M.S. program. Preference is given to applicants with Graduate Record Exam (GRE) General Test verbal scores of at least 154, quantitative scores of at least 150, and analytical writing scores of at least 4.0 (GRE scores must be less than five years old). Ph.D. program applicants also must submit their master's thesis, or if no thesis is available, a sample of their scholarly writing.

Applicants whose first language is not English and who do not hold a bachelor's degree from an accredited institution in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 81-99 (Internet-based) are required to take English fluency courses if they are admitted. Applicants who score below 81 are not considered for admission.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Students enter the program in fall. The application deadline is January 15.

Financial Support

Several forms of financial support are available, including scholarships and awards, student loans, and graduate assistantships.

Graduate assistantships provide a stipend and entitle students to resident tuition and reduced health insurance costs. Research assistantships are competitive and are awarded according to department need and student merit.

Scholarships and fellowships are available through federal agencies, such as the Centers for Disease Control and the National Institutes of Health, and from private foundations.

Resources

The department houses two centers. The Prevention Research Center for Rural Health focuses on improving the health of rural Iowans. The National American Indian and Alaska Native Addiction Technology Transfer Center disseminates culturally legitimate evidence-based practice in substance abuse and behavioral health, and provides technical assistance, training, and systems change assistance to urban as well as tribal providers across the country.

Graduate students may have opportunities to work with ongoing research projects in the centers.

Courses

CBH:3150 (172:140) Media and Health 3 s.h.

Potential and limits of mass media's ability to educate the public about health; research and theory on the influence of information and entertainment media; theories, models, assumptions of mass communication in relation to public health issues. Same as JMC:3150 (019:160), GHS:3150 (152:159).

CBH:5105 (172:101) Introduction to Health Promotion and Disease Prevention 3 s.h.

Basic concepts, strategies, and methods of health promotion and disease prevention; health promotion in the context of public health, theories and principles that underpin health promotion; overview of policy formation and health promotion planning, implementation, evaluation.

CBH:5125 (172:173) Medical Anthropology 3 s.h.

Major theoretical, methodological approaches; international health and development; biomedicine as a cultural system; ethnomedicine; anthropology and AIDS, human reproduction, epidemiology, ethnopsychiatry. Prerequisites: ANTH:1101 (113:003) or ANTH:2100 (113:010). Same as ANTH:3102 (113:185), GHS:3102 (152:185).

CBH:5140 (172:133) The Anthropology of Women's Health 3 s.h.

How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology, public health. Prerequisites: ANTH:1101 (113:003). Same as ANTH:4140 (113:133), GWSS:4140 (131:133).

CBH:5205 (172:130) Social Determinants of Health 3 s.h.

Relationship between social factors and health, with focus on family, neighborhood, community, and social group levels.

CBH:5215 (172:115) Community Preventive Programs and Services 3 s.h.

Current public health problems and associated community, preventive, and evidence-based interventions; background information for these terms (community, preventive, evidence-based, interventions); skill development in evaluating reports of existing interventions.

CBH:5220 (172:150) Health Behavior and Health Education 3 s.h.

Common theories of health behavior and health education and their application to varied public health problems and settings.

CBH:5225 (172:135) Health Disparities and Cultural Competence 2-4 s.h.

Characteristics, causes, and effects of health disparities in the U.S. health care system; foundation for development of knowledge, attitudes, and skills required of culturally competent health care providers; definitions and models of cultural competence, characteristics of culturally effective practitioners and workplaces; health disparities among specific populations, evidence for cultural competence as a remedy; taking a culturally appropriate history; working with interpreters; legal and professional imperatives for cultural competence. Same as PHAR:8715 (046:377), NURS:3715 (096:125).

CBH:5230 (172:155) Public Health Issues in Overweight Management 3 s.h.

Overview of overweight and obesity from a public health perspective, including epidemiology, measurement issues, and intervention approaches at individual, community, and policy levels. Prerequisites: CBH:5105 (172:101) or MPH:5100 (170:101).

CBH:5235 (172:260) Community-Based Participatory Research 3 s.h.

Structured overview of Community-Based Participatory Research (CBPR) in public health; major issues and methods involved in conducting research with a CBPR approach.

CBH:5305 (172:181) Evaluation I: Theory and Applications 3 s.h.

Program evaluation methods for use in public health and related educational and social service programs; methods, approaches, and planning strategies for conducting program evaluations; role and function of evaluation within program life cycle; basics of formative, process, outcome, and cost evaluation; development of evaluation questions with appropriate data sources, data collection methods, and analytic techniques; creation of a logic model to guide an evaluation plan and explain role of logic model in the process of evaluation. Prerequisites: CBH:5220 (172:150), BIOS:5110 (171:161), and EPID:4400 (173:140). Requirements: enrollment in College of Public Health.

CBH:5310 (172:183) Qualitative Research for Public Health 3 s.h.

Introduction to methods and theories of qualitative research that facilitate description and explanation of social phenomena related to health behavior, illness, prevention, and treatment in the public health domain. Offered fall semesters.

CBH:5420 (172:185) Communicating with the Community 3 s.h.

Communication skills for research and practice settings, taught from a cultural perspective with reference to gender, age, ethnicity; individual and constructive interviewing, public speaking, conducting focus groups.

CBH:5435 (172:161) Substance Abuse Prevention and Early Intervention 3 s.h.

Prevalence and characteristics of several substance use disorders and the impact of such disorders on the individual, the community, and public health workers; how prevalence of substance use disorders varies among different ethnic and cultural groups, between men and women, across the life span, and through different socio-economic levels; how outcomes of substance abuse disorders vary at both the individual and community level as a function of these factors.

CBH:5440 (172:162) Prevention and Early Intervention of Mental Health Disorders 3 s.h.

Prevalence and characteristics of mental health disorders; differences between ethnicity and culture, gender, age, and socioeconomic background; primary and secondary prevention; assessment and tertiary treatment approaches to mental health disorders.

CBH:6115 (172:202) Ethnographic Field Methods 3 s.h.

Basic data-gathering techniques for field research in sociocultural anthropology. Same as ANTH:6115 (113:202).

CBH:6205 (172:106) Designing and Implementing Interventions 3 s.h.

Background and skills necessary to plan a public health intervention program; program planning models. Prerequisites: CBH:5220 (172:150). Requirements: admission to College of Public Health.

CBH:6210 (172:240) Health Communication 3 s.h.

Theories, concepts, research associated with health communication; interpersonal and mass communication approaches. Same as COMM:6210 (036:270).

CBH:6215 (172:242) Persuasion and Health 3 s.h.

Theories of persuasion and social influence; attitude formation, relationship between attitudes and behavior, persuasion theories and their applications across health topics.

CBH:6220 (172:246) Health Communication Campaigns 3 s.h.

Design and analysis of health campaigns; theory, practice, methods; mass media, community, organization, and interpersonal approaches. Same as COMM:6220 (036:379).

CBH:6225 (172:248) Health Information and Health Literacy 3 s.h.

How health information is accessed, sought, used, and delivered in various health information contexts; current issues about health information and literacy, including concepts, measures, factors, consequences, interventions.

CBH:6305 (172:282) Evaluation II: Design and Methods 3 s.h.

Research design and methodology for evaluation of public health and related programs; causality, evaluation theory, threats to validity, selection and comparison of research designs, sample selection and size, survey and scale construction, quantitative and qualitative data collection and analysis, data management, reporting; based on case study of an infant mortality prevention program.

Prerequisites: CBH:5305 (172:181). Requirements: biostatistics or statistics course.

CBH:6335 (172:285) Research Methods in Community and Behavioral Health 3 s.h.

Overview of quantitative research methods for community and behavioral health; major elements of behavioral and social science research, critical evaluation of research related to community and behavioral health, application of research methods in public health practice; opportunities for students to build skills for evaluation of research and application of quantitative research methods.

Prerequisites: BIOS:5110 (171:161) and EPID:4400 (173:140).

CBH:6405 (172:122) Maternal, Child, and Family Health 3 s.h.

Major issues, policies, and programs for health of women, children, and families in the United States; social, political, and economic determinants. Prerequisites: EPID:4400 (173:140).

CBH:6410 (172:170) Special Topics arr.

Didactic material in community and behavioral health that may include tutorial, seminar, or faculty-directed independent work (e.g., literature search, project, short research project).

CBH:6415 (172:270) Independent Study in Community and Behavioral Health arr.

Pursuit of an interest in community and behavioral health requiring substantial creativity and independence.

CBH:7505 (172:300) CBH Thesis/Dissertation arr.

Work on M.S. thesis or Ph.D. dissertation in community and behavioral health, with thesis/dissertation advisor.

Emerging Infectious Disease Epidemiology

Coordinator

- Katie Boland

Graduate certificate: emerging infectious disease epidemiology

Web site: <http://www.public-health.uiowa.edu/certificate-in-emerging-infectious-disease-epidemiology/>

Emerging infectious diseases increasingly are recognized as global and regional issues. Some infectious diseases are controlled effectively with the help of modern technology. But new diseases—such as SARS, West Nile, and avian influenza virus infections—appear frequently, and older ones, including malaria, tuberculosis, and bacterial pneumonia, are now appearing in forms that are resistant to drug treatments. All of them have the potential to seriously affect human and animal health as well as economies locally and worldwide. They pose novel and unceasing challenges for professionals in health care, government, and private agencies.

The College of Public Health offers the Certificate in Emerging Infectious Disease Epidemiology. It has a required on-campus component (summer), but the remaining work may be done either on campus or by distance education.

Graduate Program of Study

- Certificate in Infectious Disease Epidemiology

The certificate program provides basic information and training related to infectious diseases. It is designed for a broad range of individuals, including graduate students, international public health professionals, laboratory professionals, physicians, nurses, veterinarians, and medical technologists.

Certificate

The Certificate in Emerging Infectious Disease Epidemiology requires 12 s.h. of graduate credit. Completion of the certificate is noted on the student's transcript.

Three of the certificate's required courses must be completed on campus: EPID:5570 (173:157) Zoonotic Diseases, EPID:5580 (173:158) Public Health Laboratory Techniques, and EPID:5590 (173:159) Applied Infectious Disease Epidemiology. The remaining courses may be completed on campus or by distance education.

Students must complete the certificate's required course work within five years of entering the program and must maintain a g.p.a. of at least 2.75 in work toward the certificate. Students who are admitted to the Master of Public Health program after they complete the certificate may count a maximum of 9 s.h. of certificate work toward credit required for the M.P.H. Those working concurrently toward the certificate and another graduate degree may apply a maximum of 3 s.h. of certificate work toward credit required for their degree program.

The Certificate in Emerging Infectious Disease Epidemiology requires the following course work.

All of these (6 s.h.):

EPID:5570 (173:157) Zoonotic Diseases	2-3 s.h.
EPID:5580 (173:158) Public Health Laboratory Techniques	1 s.h.
EPID:5590 (173:159) Applied Infectious Disease Epidemiology	2 s.h.

Two of these (6 s.h.):

BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
EPID:5550 (173:155) Diagnostic Microbiology for Epidemiology	3 s.h.
OEH:4240 (175:197) Global Environmental Health	3 s.h.

Applicants to the certificate program must hold a baccalaureate degree from an accredited college or university and must have a g.p.a. of at least 2.75 (or foreign equivalent). For more information about the program and how to apply, visit the Certificate in Emerging Infectious Disease Epidemiology web site.

Epidemiology

Head

- James C. Torner

Professors

- Trudy Burns (Epidemiology/Stead Family Department of Pediatrics/Nursing), Elizabeth Chrischilles (Epidemiology/Pharmacy), William Field (Occupational and Environmental Health/Epidemiology), Laurence Fuortes (Occupational and Environmental Health/International Programs/Epidemiology), Fredric Gerr (Occupational and Environmental Health/Epidemiology/Internal Medicine), Loreen Herwaldt (Epidemiology/Internal Medicine), Kathleen Janz (Epidemiology/Health and Human Physiology), Susan Johnson (Epidemiology/Obstetrics and Gynecology), Peter Kaboli (Internal Medicine/Epidemiology), Louis Kirchhoff (Epidemiology/Internal Medicine), Barcey Levy (Family Medicine/Epidemiology), Steven Levy (Epidemiology/Preventive and Community Dentistry), Charles Lynch (Epidemiology/Pathology), Jeffrey Murray (Pediatric Dentistry/Anatomy and Cell Biology/International Programs/Epidemiology/Biology/Stead Family Department of Pediatrics/Nursing/Public Policy Center), Corinne Peek-Asa (Occupational and Environmental Health/Epidemiology/Nursing/Public Policy Center), Eli Perencevich (Epidemiology/Internal Medicine), Philip Polgreen (Epidemiology/Internal Medicine), Marizen Ramirez (Occupational and Environmental Health/Epidemiology), Jennifer Robinson (Internal Medicine/Epidemiology), Paul Romitti, Gary Rosenthal (Health Management and Policy/Epidemiology/Internal Medicine), Audrey Saftlas, Elaine Smith (Preventive and Community Dentistry/Epidemiology/Obstetrics and Gynecology), Linda Snetselaar (Internal Medicine/Epidemiology), James Torner (Education/Epidemiology/Surgery/Neurosurgery), Robert Wallace (Epidemiology/Internal Medicine), Mary Wilson (International Programs/Epidemiology/Microbiology/Internal Medicine)

Associate professors

- Catherine Bradley (Epidemiology/Obstetrics and Gynecology), Ryan Carnahan, Jess Fiedorowicz (Epidemiology/Internal Medicine/Psychiatry), David Katz (Epidemiology/Internal Medicine), Jody Murph (Epidemiology/Law/Stead Family Department of Pediatrics), Christine Petersen, Philip Polgreen (Epidemiology/Internal Medicine), Marizen Ramirez (Occupational and Environmental Health/Epidemiology), Neil Segal (Radiology/Epidemiology/Orthopaedics and Rehabilitation), Carolyn Turvey (Epidemiology/Psychiatry)

Assistant professors

- Margaret Carrel (Geographical and Sustainability Sciences/Epidemiology), Mary Charlton (Epidemiology/Health Management and Policy), Amit Gupta (Urology/Epidemiology), Kelli Ryckman (Epidemiology/Stead Family Department of Pediatrics), Marin Schweizer

Associate

- Margaret Chorazy

Adjunct professors

- James Cerhan, James Dickson, Gregory Gray, Annette O'Connor, M. Patricia Quinlisk, James Roth, Wayne Sanderson, Jeffrey Wolt

Adjunct associate professors

- Lyric Bartholomay, Leslie Dennis, Jesse Hostetter, Neal Kohatsu, Michael Pentella, Jose Sanchez, Mario Schootman, Tara Smith

Adjunct assistant professors

- Lucy Desjardin, Ann Garvey, Julie Eichenberger Gilmore (Preventive and Community Dentistry/Epidemiology), Valerie Hoffman (Internal Medicine/Epidemiology), Brian Lund (Epidemiology/Pharmacy), Maureen McCue (Interdisciplinary Program/Epidemiology/International Programs), Shannon Putnam, Sheila Riggs, Jennifer Schlichting, Kathleen Schneider, Anne Tabor, Kathleen Tharp

Adjunct instructor

- Kirk Phillips

Adjunct lecturers

- Dominic Cirillo, Glenda Dvorak, Tara Grinnage-Pulley, Cara Hamann, Jennifer McDanel

Professors emeriti

- Gary Doern, Claibourne Dungy, James Hanson, Herman Hein, Michael Pfaller, Helmut Schrott, Don VanDyke, Robert Woolson, Craig Zwerling

Graduate degrees: M.S. in clinical investigation; M.S. in epidemiology; Ph.D. in epidemiology

Web site: <http://www.public-health.uiowa.edu/epi/>

The Department of Epidemiology focuses on surveillance for disease, risk factors for disease in the general population, behavioral factors in disease, use and outcome of health interventions and care, and the establishment and evaluation of disease control measures in the community. Students are guided by faculty members whose research interests include epidemiology of communication disorders, pharmacoepidemiology, cancer epidemiology, infectious disease epidemiology, adverse reproductive outcome epidemiology, anatomic pathology, genetics, cardiovascular disease, nutrition, smoking cessation, epidemiology of reproduction, dental epidemiology, clinical epidemiology, neuroepidemiology, meta-analysis, intervention trials, international health, and effects of aging.

Graduate Programs of Study

- Master of Science in clinical investigation
- Master of Science in epidemiology (with or without thesis)
- Doctor of Philosophy in epidemiology

The Department of Epidemiology collaborates with the University of Iowa Institute for Clinical and Translational Science to offer the M.S. program in clinical investigation and the Certificate in Translational and Clinical Investigation. In addition to its graduate degree, the department offers the epidemiology subprogram for the Master of Public Health; see "M.P.H. Subprogram" below. It also participates in a joint degree program with the Department of Biology (College of Liberal Arts and

Sciences); see "Joint B.A. in Biology/M.S. in Epidemiology" below.

Master of Science: Clinical Investigation

The Master of Science program in clinical investigation requires 30 s.h. of graduate credit. In addition to completing the program's required course work, M.S. students must write a thesis in the form of a manuscript, or a grant proposal for a National Institutes of Health (NIH) career award or its equivalent, with oral defense.

The program, which is offered in collaboration with the University's Institute for Clinical and Translational Science, is designed for clinicians interested in pursuing careers in clinical research. It includes in-depth training in biostatistics, epidemiology, research ethics, and academic survival skills as well as didactic training applicable to clinical research careers. Graduates of the program are able to critically evaluate clinical literature, write competitive grant proposals, design and conduct clinical research projects, work effectively with other researchers and support staff, and disseminate research results through manuscripts and presentations.

Applicants to the program must have completed the following course work.

BIOS:5110 (171:161) Introduction to Biostatistics (or equivalent)	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles (or equivalent)	3 s.h.
Courses in pathology, physiology, and/or pharmacology	6 s.h.

Students who are admitted to the program with deficiencies in the required 6 s.h. of pathology, physiology, and/or pharmacology may complete courses that fulfill the requirement once they have enrolled in the program.

Graduate students in the Department of Epidemiology must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program.

The Master of Science in clinical investigation requires the following course work.

CORE COURSES

Students must complete all of the following core courses (20 s.h.).

EPID:5241 (173:241) Statistical Methods in Epidemiology	4 s.h.
EPID:5500 (173:150) Introduction to Clinical Epidemiology	3 s.h.
EPID:5610 (173:161) Intermediate Epidemiology Data Analysis with SAS and R	3 s.h.
EPID:6000 (173:200) Independent Study in Epidemiology	2 s.h.
EPID:6150 (173:215) Writing for Medical Journals	1 s.h.
EPID:6400 (173:240) Epidemiology II: Advanced Methods	4 s.h.
EPID:6950 (173:295) Clinical Research Ethics	2 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.

ELECTIVES

Students must earn a minimum of 10 s.h. in elective course work, which must include at least 3 s.h. in focus area electives. In addition to the focus area electives, the following courses are recommended as elective course work.

EPID:5214 (173:214) Meta-Analysis of Epidemiologic Studies	3 s.h.
EPID:6100 (173:210) Writing a Research Protocol	3 s.h.
EPID:6900 (173:290) Design of Intervention and Clinical Trials	3 s.h.
EPID:6910 (173:291) Pharmacoepidemiology	3 s.h.

Focus Area Electives

Students must complete at least 3 s.h. chosen from the following focus area electives.

Health Services Epidemiology

EPID:4990 (173:199) Practicing Evidence-Based Public Health	3 s.h.
EPID:6360 (173:236) Nutrition Intervention in Clinical Trials Research	2 s.h.
EPID:6900 (173:290) Design of Intervention and Clinical Trials	3 s.h.
EPID:6910 (173:291) Pharmacoepidemiology	3 s.h.
BIOS:6610 (171:266) Statistical Methods in Clinical Trials	3 s.h.
BIOS:7600 (171:290) Advanced Biostatistics Seminar	3 s.h.
CBH:6205 (172:106) Designing and Implementing Interventions	3 s.h.
PCOL:5136 (071:136) Pharmacogenetics and Pharmacogenomics	1 s.h.
PHAR:7100 (046:378) Translational Research and Clinical Drug Development	3 s.h.

Nutrition Science

EPID:4120 (173:134) Public Health Nutrition	3 s.h.
EPID:6245 (173:245) Epidemiology of Physical Activity	3 s.h.
EPID:6330 (173:233) Global Nutrition Policy	3 s.h.
EPID:6350 (173:235) Nutritional Epidemiology	2 s.h.
EPID:6360 (173:236) Nutrition Intervention in Clinical Trials Research	2 s.h.
EPID:6370 (173:237) Nutrition Intervention in Research Lab	3 s.h.

Epidemiology

EPID:5560 (173:156) Introduction to Molecular Epidemiology	3 s.h.
EPID:5570 (173:157) Zoonotic Diseases	3 s.h.
EPID:6250 (173:225) Genetics and Epidemiology	4 s.h.
EPID:6510 (173:251) Injury Epidemiology	3 s.h.
EPID:6530 (173:253) Epidemiology of Occupational Injuries	3 s.h.
EPID:6550 (173:255) Epidemiology of Infectious Diseases	3 s.h.
EPID:6560 (173:256) Hospital Epidemiology	2 s.h.
EPID:6600 (173:260) Epidemiology of Chronic Diseases	3 s.h.

EPID:6610 (173:261) Epidemiology of Aging	2 s.h.
EPID:6620 (173:262) Neuroepidemiology	2 s.h.
EPID:6630 (173:263) Epidemiology of Reproductive Diseases	2 s.h.
EPID:6640 (173:264) Epidemiology of Maternal and Infant Health	2 s.h.
EPID:6650 (173:265) Cardiovascular Disease Epidemiology	3 s.h.
EPID:6670 (173:267) Psychiatric Epidemiology	3 s.h.
EPID:6700 (173:270) Cancer Epidemiology and Control	3 s.h.
DPH:6004 (111:204) Principles of Oral Epidemiology	3 s.h.
GEOG:3110 (044:131) Geography of Health	3 s.h.

Informatics

EPID:4450 (173:145) Public Health Data	2 s.h.
EPID:5200 (173:120) Principles of Public Health Informatics	3 s.h.
EPID:5600 (173:160) Introduction to Epidemiology Data Management and Analysis	3 s.h.
HMP:5315 (174:208) Health Services Information Systems	3 s.h.
HMP:5370 (174:226) Health Informatics I	3 s.h.
IGPI:5210 (200:120) Health Informatics II	3 s.h.

Community Studies

CBH:5235 (172:260) Community-Based Participatory Research	3 s.h.
CBH:5305 (172:181) Evaluation I: Theory and Applications	3 s.h.
CBH:6205 (172:106) Designing and Implementing Interventions	3 s.h.
CBH:6305 (172:282) Evaluation II: Design and Methods	3 s.h.
EPLS:5165 (07B:165) Introduction to Program and Project Evaluation	3 s.h.

Statistical Methods

BIOS:6210 (171:242) Applied Survival Analysis	3 s.h.
BIOS:6310 (171:174) Introductory Longitudinal Data Analysis	3 s.h.

Outcomes and Health Services Research

HMP:5410 (174:212) Health Economics I	3 s.h.
HMP:6120 (174:221) Evaluation and Outcomes in Health Care	2 s.h.
HMP:6555 (174:213) Health Economics II	3 s.h.
HMP:7150 (174:268) Health Care Utilization Outcomes	3 s.h.
HMP:7550 (174:228) Cost Effectiveness and Decision Analysis	3 s.h.
HMP:7960 (174:261) Analytic Issues in Health Services Research I	3 s.h.
HMP:7965 (174:262) Analytic Issues in Health Services Research II	3 s.h.

Pharmacy Science

PHAR:5310 (046:213) Pharmaceutical Socioeconomics Seminar	1 s.h.
PHAR:5350 (046:147) Introduction to Research Methods	3 s.h.

PHAR:6305 (046:257) Foundation Literature in Pharmaceutical Socioeconomics	3 s.h.
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Master of Science: Epidemiology

The Master of Science program in epidemiology requires 39 s.h. of graduate credit and is offered with or without thesis. The program prepares graduate students for professional careers in which specialized knowledge of epidemiological methods and analytic techniques are essential. Graduates find employment in local, state, and federal health agencies, academic institutions, and private enterprise, for example, hospitals, pharmaceutical and device companies, insurance companies, and foundations.

Graduate students in epidemiology must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program. Students who choose to complete the degree without thesis are required to pass a comprehensive examination.

Students are required to attend 80 percent, for three semesters, of all Department of Epidemiology seminar meetings and journal club meetings. They must present one scientific poster at the departmental level before they may graduate, and the department recommends that they present at the international, national, regional, state, or University level before graduating.

The Master of Science in epidemiology requires the following course work.

CORE COURSES

Students earn 30-31 s.h. in the required core, as follows.

All of these:

EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
EPID:5241 (173:241) Statistical Methods in Epidemiology	4 s.h.
EPID:5600 (173:160) Introduction to Epidemiology Data Management and Analysis	3 s.h.
EPID:5610 (173:161) Intermediate Epidemiology Data Analysis with SAS and R	3 s.h.
EPID:5925 (173:202) Epidemiology Journal Club: Evaluating the Literature	0 s.h.
EPID:6400 (173:240) Epidemiology II: Advanced Methods	4 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.

One of these:

PATH:5270 (069:270) Pathogenesis of Major Human Diseases	3 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.

One of these:

EPID:6550 (173:255) Epidemiology of Infectious Diseases	3 s.h.
EPID:6600 (173:260) Epidemiology of Chronic Diseases	3 s.h.

One of these:

EPID:5950 (173:195) Preceptorship in Epidemiology (for nonthesis students)	3 s.h.
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EPID:7000 (173:300) Thesis/Dissertation (for thesis students, may be taken twice) 3 s.h.

ELECTIVES

Students must earn a minimum of 5 s.h. in elective course work from Department of Epidemiology courses (prefix EPID) and 2 s.h. in additional graduate course work pertinent to the student's educational goals and background (the additional 2 s.h. may be earned in an epidemiology course or in another graduate course, with the advisor's approval). The following courses are recommended.

BIOS:6210 (171:242) Applied Survival Analysis	3 s.h.
BIOS:6310 (171:174) Introductory Longitudinal Data Analysis	3 s.h.
CBH:5220 (172:150) Health Behavior and Health Education	3 s.h.
HMP:4000 (174:102) Introduction to the U.S. Health Care System	3 s.h.
OEH:4240 (175:197) Global Environmental Health	3 s.h.

Students may need to do additional elective course work in order to complete the minimum 39 s.h. required for the degree.

Joint B.A. in Biology/M.S. in Epidemiology

Bachelor of Arts students majoring in biology who are interested in earning a Master of Science in epidemiology may apply to the joint B.A./M.S. program offered by the College of Liberal Arts and Sciences and the College of Public Health. The joint program permits students to count 12 s.h. of credit toward the requirements of both degrees, enabling them to begin the study of public health before they complete the bachelor's degree. For information about the B.A. program, see Biology (p. 122) (College of Liberal Arts and Sciences) in the Catalog.

M.P.H. Subprogram

The Department of Epidemiology offers the epidemiology subprogram for the Master of Public Health. The subprogram focuses on fundamental concepts and methods and provides training in the use of data and methods for disease assessment and for evaluation of programs and interventions. Graduates of the program work in public health departments and other health care settings. See Master of Public Health Program (p. 1225) in the Catalog.

Doctor of Philosophy: Epidemiology

The Doctor of Philosophy program in epidemiology requires a minimum of 75 s.h. of graduate credit. The program prepares graduate students for careers as scientists, teachers, and practitioners of epidemiologic methods. Employment opportunities exist in academic institutions; local, state, and federal health agencies; and in private enterprises.

Graduate students in epidemiology must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program.

All doctoral students must successfully complete a qualifying examination, a comprehensive examination, a dissertation prospectus, and a dissertation—a substantial scholarly treatise. The research topic and content, which vary depending on the program of study, must be approved by the student's dissertation committee. Other degree requirements include approved electives chosen from Department of Epidemiology courses and other University of Iowa courses.

Students are required to attend 80 percent, for five semesters, of all Department of Epidemiology seminar meetings and journal club meetings; attendance during the student's enrollment in the M.S. program does not count toward this requirement. Students also must present a departmental seminar on their dissertation research and an oral presentation or scientific poster presentation at an international, national, regional, state, or University level before they may graduate.

The Doctor of Philosophy in epidemiology requires the following course work.

CORE COURSES

Students earn 39-41 s.h. in the required core, as follows.

All of these:

EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
EPID:5241 (173:241) Statistical Methods in Epidemiology	4 s.h.
EPID:5600 (173:160) Introduction to Epidemiology Data Management and Analysis	3 s.h.
EPID:5610 (173:161) Intermediate Epidemiology Data Analysis with SAS and R	3 s.h.
EPID:5925 (173:202) Epidemiology Journal Club: Evaluating the Literature	0 s.h.
EPID:6050 (173:205) Research in Epidemiology	3 s.h.
EPID:6100 (173:210) Writing a Research Protocol	3 s.h.
EPID:6400 (173:240) Epidemiology II: Advanced Methods	4 s.h.
EPID:7400 (173:340) Epidemiology III: Theories	3 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.

One of these:

BIOS:6210 (171:242) Applied Survival Analysis	3 s.h.
BIOS:6310 (171:174) Introductory Longitudinal Data Analysis	3 s.h.

One of these:

PATH:5270 (069:270) Pathogenesis of Major Human Diseases	3 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.

One of these:

HHP:3500 (027:130) Human Physiology	3 s.h.
MPB:5153 (072:153) Graduate Physiology	4 s.h.

Ph.D. students also must earn 3 s.h. in epidemiology courses outside their emphasis area.

Focus Area

Each Ph.D. student must declare a focus area. Working with the focus area coordinator, the student develops a study plan that will enable him or her to develop substantive knowledge in a specific area that will lead to important original research. Focus areas for Ph.D. students include cancer control, cancer etiology, infectious disease, occupational and environmental epidemiology, and pharmacoepidemiology. For lists of required course work in each focus area, see Ph.D. in Epidemiology on the department's web site. Individualized Ph.D. programs may be completed with the department's approval.

ELECTIVES

Students must complete a total of 23-25 s.h. of elective course work. They must earn 3 s.h. in a Department of Epidemiology course (prefix EPID) outside their focus area and at least 20 s.h. in courses in their focus area. Course selection must be approved by the student's advisor and Ph.D. plan of study committee.

DISSERTATION

All doctoral students must successfully complete a Ph.D. thesis.

EPID:7000 (173:300) Thesis/Dissertation 10-18 s.h.

Certificate in Translational and Clinical Investigation

The Department of Epidemiology and the Institute for Clinical and Translational Science offer the graduate certificate program in translational and clinical investigation; see Translational and Clinical Investigation (p. 1241) in the Catalog.

Related Certificate: Emerging Infectious Disease Epidemiology

The College of Public Health and the Graduate College offer the Certificate in Emerging Infectious Disease Epidemiology. The certificate program provides basic information and training related to infectious diseases. It is designed for a broad range of individuals, including graduate students, international public health professionals, laboratory professionals, physicians, nurses, veterinarians, and medical technologists. Completion of certificate is noted on the student's transcript. To learn more, see Emerging Infectious Disease Epidemiology (p. 1207) in the Catalog.

Admission

Applicants to the M.S. and Ph.D. programs in the Department of Epidemiology must apply through the Schools of Public Health Application Service (SOPHAS); they also must apply for admission to the Graduate College through the University of Iowa Office of Admissions. For detailed application information, visit Prospective Students/How to Apply on the Department of Epidemiology web site.

M.S.: Clinical Investigation

Applicants to the M.S. program in clinical investigation must hold a doctoral-level degree in a clinical discipline (e.g., M.D., D.O., D.D.S., Ph.D., Pharm.D., D.V.M.) or be enrolled in the Medical Scientist Training Program (p. 1086) (Carver College of Medicine). They must hold a

baccalaureate degree with a cumulative g.p.a. of at least 3.00; foreign-trained applicants must have an outstanding doctoral training record.

Applicants are considered based on their credentials, prior training, and research training plans. An applicant with deficiencies in one area may be admitted if all other components of his or her application are strong. Applicants must have a sponsoring department.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Application deadlines are April 1 for U.S. citizens, March 15 for international applicants.

M.S. and Ph.D.: Epidemiology

The epidemiology faculty considers several factors when evaluating applications for admission, including Graduate Record Exam (GRE) General Test scores, grade-point average, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All M.S. program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00. Undergraduate preparation must include two semesters of biological sciences and mathematics through algebra. Course work in statistics is highly recommended.

Ph.D. program applicants must hold a baccalaureate degree (an M.S. or M.P.H. usually is required) and must have a cumulative g.p.a. of at least 3.00. Courses in the biological, physical, and mathematical sciences provide important background; one semester of calculus, one semester of statistics or biostatistics, and two semesters of biological sciences are highly recommended. Computing skills also are desirable.

All applicants to the M.S. or Ph.D. program must have taken the Graduate Record Examination (GRE) General Test, the Medical College Admission Test (MCAT), or the Dental Admission Test (DAT), scoring above the 50th percentile, within five years before applying to the epidemiology program. The department prefers recent test scores, particularly for applicants who completed educational programs and/or courses after taking one of these tests.

Applicants whose first language is not English and who do not hold a baccalaureate degree from an accredited institution in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 81-99 (Internet-based) are required to take English fluency courses. Applicants who score below 81 are not considered for admission. In place of TOEFL scores, the department accepts International English Testing System (IELTS) scores of 7.0 or higher, with no subscore below 6.0.

All M.S. and Ph.D. applicants and students are required to have strong written and oral communication skills.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Application deadlines for fall entrance to the M.S. in epidemiology are June 1 for U.S. citizens, April 1 for international applicants.

Application deadline for fall entrance to the Ph.D. in epidemiology is April 1.

Financial Support

A limited number of graduate research assistantships are available for advanced M.S. and Ph.D. students; for information, consult the department. For information on financing education through jobs, grants, and loans, contact the University's Office of Student Financial Aid.

Scholarships for incoming Ph.D. students are available; for information, visit the Department of Epidemiology web site.

Opportunities for funded predoctoral fellowships are available. Funded positions sponsored by federal agencies are available only to U.S. citizens.

Resources

The State Health Registries of Iowa, which encompasses the Iowa Cancer Registry and the Iowa Registry for Congenital and Inherited Disorders, works in cooperation with the Iowa Department of Public Health to collect medical data on Iowans. The Iowa Cancer Registry is one of 18 registries nationwide that report data to the National Cancer Institute.

The Preventive Intervention Center conducts population-based intervention trials to prevent occurrence and recurrence of disease and to promote wellness, with a focus on the elderly. It also specializes in research promoting prevention of cardiovascular disease and provides an interdisciplinary approach to risk factor interventions. The Healthcare Effectiveness Research Center is a collaborative research enterprise with the College of Pharmacy that studies whether particular health care treatments or services are over- or underutilized. The Center for Emerging Infectious Diseases employs epidemiological methods, laboratory technologies, and clinical evaluations to achieve a better understanding of emerging infectious diseases. The Nutrition Center provides expertise in nutrition and dietary assessment, dietary interventions, and nutrition lifestyle change strategies.

Courses

EPID:2999 (173:099) Evidence-Based Public Health Methods 3 s.h.

How to choose, conduct, and evaluate evidence-based programs and policies in public health; finding and using scientific evidence, implementing and evaluating interventions that produce new evidence. Offered summer sessions. Requirements: Certificate in Public Health enrollment.

EPID:4110 (173:110) Quality Dietary Studies for Individuals and Environment 3 s.h.

Overview of current methods to evaluate the quality of nutrition in individuals, communities, and environment; methods include dietary records, dietary recalls, food frequency questionnaires and screeners, and nutrition environmental assessments. Recommendations: a basic nutrition course.

EPID:4120 (173:134) Public Health Nutrition 3 s.h.

Case studies of state and federal public health nutrition programs and role of public health practitioners; identifying community need for action around public health nutrition policy and environmental change; topic-specific public health nutrition programs in children; prevention of obesity, cardiovascular disease, and cancer.

EPID:4210 (173:111) International Health 3 s.h.

Urgent health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Same as GHS:4210 (152:111), OEH:4210 (175:111).

EPID:4314 (173:142) Field Experiences in Public Health 1 s.h.

Direct involvement in actions being taken at local community level; topics include environmental health, infectious diseases, chronic diseases, and pediatric health; practical examples and hands-on experiences during site visits for topic-specific field investigations. Requirements: biology or microbiology course work.

EPID:4400 (173:140) Epidemiology I: Principles 3 s.h.

Epidemiological concepts and methods; design of descriptive and analytic studies, such as aggregate, case series, cross-sectional, case-control, cohort studies, clinical trials; application of epidemiology to public health practice; communication and dissemination of epidemiological findings.

EPID:4450 (173:145) Public Health Data 2 s.h.

Concepts and methods of obtaining and using public health data in community settings; how public health data are used for epidemiologic investigations and prevention programs. Offered spring semesters of odd years. Corequisites: BIOS:5110 (171:161) and EPID:4400 (173:140).

EPID:4510 (173:170) Injury and Violence Prevention 3 s.h.

Theory, research, and practice of injury control; unintentional and intentional injuries; local, national, international injury issues. Same as OEH:4510 (175:170).

EPID:4520 (173:175) Research Methods in Disaster Studies 3 s.h.

Epidemiologic study of disasters and their health consequences; research to identify and reduce health effects, research in context of response and preparedness. Same as OEH:4520 (175:175), GHS:4275 (152:195).

EPID:4990 (173:199) Practicing Evidence-Based Public Health 3 s.h.

How epidemiologic and other scientific studies underlie public health practice; relationship between evidence and action; controversies at interface of science and policy. Offered spring semesters of even years.

EPID:5200 (173:120) Principles of Public Health Informatics 3 s.h.

Systematic applications of information science, computer science, and technology to public health practice, research, and learning; methods of disease surveillance, data collection, analysis, and reporting with health informatics. Offered fall semesters.

EPID:5214 (173:214) Meta-Analysis of Epidemiologic Studies 3 s.h.

Methods for quantitative pooling of analytic study associations (cohort and case-control) between exposure and a dichotomous outcome; literature searches, data abstraction, test of homogeneity, publication bias and consideration of adjusted risk ratios (effects of confounding). Offered spring semesters of odd years. Prerequisites: EPID:4400 (173:140) and BIOS:5120 (171:162).

EPID:5241 (173:241) Statistical Methods in Epidemiology 4 s.h.

Overview of methods to analyze data from epidemiologic investigations; estimation of relative measures of risk, attributable risk, stratified analysis; model-fitting approaches using linear, logistic, and Poisson regression analysis; confounding and effect modification; analysis of epidemiologic data sets. Prerequisites: BIOS:5110 (171:161) and BIOS:5120 (171:162).

EPID:5300 (173:130) Food Safety 3 s.h.

Current issues and concepts of food safety in the United States, from plant to table; foodborne illness from microbial agents, food toxins, adulterants; disease investigation, risk analysis, risk mitigation, prevention. Offered summer sessions.

EPID:5320 (173:132) Exotic and Emerging Diseases of Animals 1 s.h.

Major exotic and emerging animal diseases; veterinarian's role in recognizing and diagnosing such diseases; how outbreaks affect economies and veterinary medicine; public health concerns; responding agencies and their roles in control and eradication. Offered fall semesters.

EPID:5470 (173:147) Applied Veterinary Epidemiology/Biostatistics 3 s.h.

Epidemiology and biostatistics applied to veterinary public health; outbreak investigations, surveillance, analyzing and evaluating diagnostic tests, translation methodology, risk assessment, data analysis software programs. Offered summer sessions. Prerequisites: EPID:4400 (173:140) and BIOS:5110 (171:161).

EPID:5500 (173:150) Introduction to Clinical Epidemiology 3 s.h.

Epidemiologic applications and methods used in clinical settings to evaluate clinical medicine and other health profession disciplines, including health measurement, health outcome determination, diagnostic process, risk assessment and communication, prognosis, study design, patient surveys, clinical trials, decision analysis and meta-analysis, health services research. Offered fall semesters. Corequisites: EPID:4400 (173:140) and BIOS:5110 (171:161), if not taken as prerequisites.

EPID:5520 (173:152) Clinical Research Career Development 1 s.h.

Introduction to translational research; grant development and management, data management, communication of research findings, and academic career development. Offered summer sessions.

EPID:5530 (173:153) Surveillance Internship: IRCID 2 s.h.

Experience in the Iowa Registry for Congenital and Inherited Disorders; active, population-based surveillance for selected congenital and inherited disorders. Offered fall semesters of even years. Prerequisites: EPID:4400 (173:140), EPID:5600 (173:160), and EPID:6400 (173:240).

EPID:5540 (173:154) Surveillance Mechanisms and Applications: Cancer and Other Registries 2 s.h.

Sources of data necessary for operation of a population-based cancer registry; potential uses of data; methods and personnel required for collecting, editing, storing, reporting, and assuring quality of data. Offered fall semesters. Prerequisites: EPID:4400 (173:140).

EPID:5550 (173:155) Diagnostic Microbiology for Epidemiology 3 s.h.

Introduction to microbiological culture, antigen detection, immunological and molecular amplification laboratory techniques for bacteria, viruses, parasites, fungi. Offered spring semesters. Prerequisites: MICR:2157 (061:157) or MICR:3112 (061:112) or MICR:3164 (061:164) or MICR:8202 (061:103).

EPID:5560 (173:156) Introduction to Molecular Epidemiology 3 s.h.

Introduction to basic techniques of molecular biology (DNA, RNA, protein techniques) and their use in epidemiological research (e.g., diagnosis of disease, biomarker discovery and validation). Corequisites: EPID:4400 (173:140), if not taken as a prerequisite.

EPID:5570 (173:157) Zoonotic Diseases 2-3 s.h.

Introduction to the epidemiology and control of zoonotic diseases; zoonoses endemic to the midwestern United States. Offered summer sessions. Prerequisites: EPID:5550 (173:155) or EPID:6550 (173:255) or MICR:2157 (061:157) or MICR:3112 (061:112) or MICR:3164 (061:164) or MICR:8202 (061:103).

EPID:5580 (173:158) Public Health Laboratory Techniques 1 s.h.

Common laboratory techniques in emerging infectious respiratory disease research and epidemiologic surveillance laboratories; emphasis on techniques for culturing, characterization, and serological surveillance of exposure to influenza viruses. Offered spring semesters. Requirements: completion of online Basic Biological Safety and Blood-Borne Pathogens courses; completed certificates must be brought to class.

EPID:5590 (173:159) Applied Infectious Disease Epidemiology 2 s.h.

Introduction to infectious disease surveillance, outbreak investigations, interventions, biodefense, emerging infectious diseases, subject recruitment, mathematical modeling, and analytic approaches pertaining to infectious disease prevention and control; emphasis on practical knowledge and how to apply basic infectious disease epidemiology to real-life scenarios and research projects.

EPID:5600 (173:160) Introduction to Epidemiology Data Management and Analysis 3 s.h.

Organization, collection, management, and analysis of epidemiological data using computer programs. Offered fall semesters. Corequisites: EPID:4400 (173:140) and BIOS:5110 (171:161), if not taken as prerequisites.

EPID:5610 (173:161) Intermediate Epidemiology Data Analysis with SAS and R 3 s.h.

Basic principles of data analysis and collaborative research; SAS fundamentals; data manipulation and interpretation techniques. Offered spring semesters.

EPID:5630 (173:163) Seminar in Clinical and Translational Research 1 s.h.

Presentation of ongoing clinical research projects, grant applications, and methodological articles, with emphasis on works in progress.

EPID:5900 (173:190) Problems and Special Topics in Epidemiology arr.

Didactic material in epidemiology; may include tutorial, seminar, faculty-directed independent work (e.g. literature search, project, short research project).

EPID:5925 (173:202) Epidemiology Journal Club: Evaluating the Literature 0 s.h.

Critical evaluation of primary epidemiologic methods and research papers; informative, challenging, and current topics from scientific literature. Requirements: epidemiology M.S., M.P.H., or Ph.D. standing.

EPID:5950 (173:195) Preceptorship in Epidemiology arr.

Quantitative research-oriented project performed with a preceptor; preparation of prospectus, presentation of research results in a publication-quality report and a scientific poster session.

EPID:6000 (173:200) Independent Study in Epidemiology arr.

In-depth pursuit of an area of special interest in epidemiology requiring substantial creativity and independence.

EPID:6050 (173:205) Research in Epidemiology arr.

Research that may lead to a dissertation.

EPID:6070 (173:207) Social Epidemiology 3 s.h.

Introduction with global focus and emphasis on methodological issues, including definition/measurement of social constructs, appropriate research designs, analytic approaches. Prerequisites: EPID:4400 (173:140) and BIOS:5110 (171:161).

EPID:6100 (173:210) Writing a Research Protocol 3 s.h.

Small group projects to develop research protocols using epidemiological study designs; presentation and defense of proposals before faculty site visitors. Offered fall semesters. Prerequisites: EPID:4400 (173:140), EPID:6400 (173:240), BIOS:5110 (171:161), and BIOS:5120 (171:162). Requirements: pass epidemiology Ph.D. qualifying exam, approval of research topic by dissertation advisor, and completion and approval of literature review by dissertation advisor prior to first day of class.

EPID:6110 (173:211) Grant Writing for Clinical Investigators arr.

Development of skills for writing effective, scientifically sound applications for external research grants; for students who have completed the literature review section for their topic. Prerequisites: EPID:4400 (173:140) and BIOS:5110 (171:161).

EPID:6150 (173:215) Writing for Medical Journals 1 s.h.

Skill development in writing medical journal articles for publication. Offered spring semesters.

EPID:6200 (173:220) Environmental and Occupational Epidemiology 3 s.h.

Overview of methods to interpret and perform environmental and occupational epidemiologic studies with focus on exposure assessment; valuable insights into identifying regional, national, global environmental, and occupational health-related issues. Prerequisites: EPID:4400 (173:140). Same as OEH:6510 (175:220).

EPID:6245 (173:245) Epidemiology of Physical Activity 3 s.h.

Physical activity/disease relationships examined through application of epidemiologic methods, including research design, interpretation of studies, selection of measures to fit research questions. Same as HHP:6210 (027:249).

EPID:6250 (173:225) Genetics and Epidemiology 4 s.h.

Basic human genetic and population genetics principles; methods of integrating genetic principles into epidemiological studies; analytical methods for case control and family data. Offered fall semesters. Prerequisites: EPID:4400 (173:140) and BIOS:5110 (171:161).

EPID:6330 (173:233) Global Nutrition Policy 1,3 s.h.

Concepts and methods used in setting public health nutrition policy; evidence-based aspects of nutrition policy formation in public health settings; evaluation of nutritional public health policy implementation and ways of changing policy in China, Korea, Micronesia, Hawaii, Italy, and the United States. Offered spring semesters.

EPID:6350 (173:235) Nutritional Epidemiology 2 s.h.

Application of epidemiology study designs to nutrition variables and chronic disease; analysis of nutrition epidemiology studies; research protocol design. Offered spring semesters. Recommendations: a basic nutrition course.

- EPID:6360 (173:236) Nutrition Intervention in Clinical Trials Research** 2 s.h.
Chronic disease epidemiology; survey of leading chronic diseases, including measurement of disease, lifestyle, nutrition, occupation, family history. Offered spring semesters. Prerequisites: EPID:4400 (173:140).
Nutrition interventions in clinical trials; disease related to nutrition variables; research that links effects of diet on chronic diseases. Offered fall semesters. Recommendations: a basic nutrition course.
- EPID:6610 (173:261) Epidemiology of Aging** 1-2 s.h.
Epidemiologic methods for studying health and social problems of older persons; applications including research and public health practice and policy. Prerequisites: EPID:4400 (173:140). Same as ASP:6610 (153:261).
- EPID:6370 (173:237) Nutrition Intervention in Research Lab** 3 s.h.
Development, demonstration of group counseling skills in ongoing nutrition research projects at The University of Iowa. Offered fall semesters. Corequisites: EPID:6360 (173:236), if not taken as a prerequisite.
- EPID:6620 (173:262) Neuroepidemiology** 2 s.h.
Basic epidemiologic concepts of neurologic disease; concepts, methods, examples of neuroepidemiology; varied diseases, methods. Prerequisites: EPID:4400 (173:140), and EPID:5600 (173:160).
- EPID:6400 (173:240) Epidemiology II: Advanced Methods** 4 s.h.
Epidemiologic study design and analysis; bias, confounding, effect modification; case-control studies; cohort studies; field methods; measurement principles; exposure and disease classification; acute and chronic disease examples. Offered spring semesters. Prerequisites: EPID:4400 (173:140), EPID:5600 (173:160), and BIOS:5110 (171:161).
- EPID:6630 (173:263) Epidemiology of Reproductive Diseases** 2 s.h.
Evaluation of methodological issues and current findings for reproductive diseases and conditions; etiological mechanisms, including behavioral and genetic. Offered fall semesters of odd years.
- EPID:6510 (173:251) Injury Epidemiology** 3 s.h.
How epidemiology can be applied to injury prevention and control: epidemiology literature, specific methodological problems involved in the epidemiology of injuries, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisites: EPID:4400 (173:140). Same as OEH:6520 (175:251).
- EPID:6640 (173:264) Epidemiology of Maternal and Infant Health** 2 s.h.
Overview of maternal and infant epidemiologic and methodologic issues; prevalence and trends; risk factors; data sources, including limitations and availability; relevant measurement issues; directions for future research. Offered spring semesters of odd years. Prerequisites: EPID:4400 (173:140) and BIOS:5110 (171:161).
- EPID:6530 (173:253) Epidemiology of Occupational Injuries** 3-4 s.h.
Epidemiological literature on occupational injuries and their prevention; focus on research methods. Offered spring semesters of even years. Prerequisites: EPID:4400 (173:140). Same as OEH:6530 (175:253).
- EPID:6650 (173:265) Cardiovascular Disease Epidemiology** 3 s.h.
Natural history of atherosclerotic disease in humans and risk factors affecting its development; atherosclerotic disease by age, sex, and in varied populations worldwide; recent guidelines and clinical trials to delay onset, reduce incidence, improve outcome of cardiovascular disease. Offered fall semesters of odd years. Prerequisites: EPID:4400 (173:140) and BIOS:5110 (171:161).
- EPID:6550 (173:255) Epidemiology of Infectious Diseases** 3 s.h.
Underlying epidemiological concepts of infection disease, including causation and surveillance; prevention and control; case studies. Offered fall semesters. Prerequisites: EPID:4400 (173:140). Same as GHS:6550 (152:257).
- EPID:6670 (173:267) Psychiatric Epidemiology** 3 s.h.
Population-based studies of psychiatric disorders and associated etiologic tools; diagnostic criteria used in psychiatric research, common structured interviews and rating scales; recent research relevant to common psychiatric disorders; experience writing a research idea using NIH PHS grant form. Offered spring semesters of even years. Prerequisites: EPID:4400 (173:140). Recommendations: EPID:6400 (173:240) or two years of resident training in psychiatry. Same as PSYC:8267 (073:255).
- EPID:6560 (173:256) Hospital Epidemiology** 2 s.h.
Health care-associated infections; surveillance, investigative methods, resistant organisms, molecular epidemiology; methods for preventing spread of pathogens, including isolation precautions; environmental issues, construction, sterilization; interactive exercises. Offered spring semesters of odd years. Prerequisites: EPID:4400 (173:140).
- EPID:6700 (173:270) Cancer Epidemiology and Control** 3 s.h.
Incidence, mortality, survival; risk factors for major cancer sites; comprehensive cancer control; introduction to SEER*Stat and its application. Offered spring semesters of even years. Prerequisites: EPID:4400 (173:140), BIOS:5110 (171:161), and PATH:8133 (069:133).
- EPID:6570 (173:257) Infectious Causes of Chronic Disease** 3 s.h.
Evidence linking various infectious agents with the development of different types of chronic disease. Offered even years. Corequisites: EPID:4400 (173:140), if not taken as a prerequisite.
- EPID:6600 (173:260) Epidemiology of Chronic Diseases** 3 s.h.

EPID:6720 (173:272) Translational Research in Cancer 2 s.h.

Basic tumor biology and lab-based methods applied to development of translational approaches to prevention, early diagnosis, and treatment of human cancers. Offered fall semesters of even years. Same as PATH:6720 (069:272).

EPID:6760 (173:276) Health Care Utilization Outcomes 3 s.h.

Research tools to assess changes in health care use and cost as outcomes of treatment; theories of health outcomes; analysis of hospital discharge data sets. Requirements: knowledge of SAS or SPSS. Same as HMP:7150 (174:268).

EPID:6900 (173:290) Design of Intervention and Clinical Trials 3 s.h.

Methodologic introduction to rationale and design of clinical trials; basics of clinical trial design, variety of designs, and examples from clinical trials. Offered fall semesters. Prerequisites: EPID:4400 (173:140) and BIOS:5110 (171:161).

EPID:6910 (173:291) Pharmacoepidemiology 3 s.h.

Drug approval process, methods for identification and attribution of adverse drug events, current understanding of the epidemiology of adverse drug events; study designs, data sources for pharmacoepidemiology, pharmacoepidemiology. Offered fall semesters of even years. Prerequisites: EPID:4400 (173:140).

EPID:6950 (173:295) Clinical Research Ethics 2-3 s.h.

Ethical and regulatory aspects of clinical research; historical background, current regulations, Institutional Review Board requirements related to human subjects protection issues. Requirements: K30 training grant or enrollment in degree program with clinical research project.

EPID:7000 (173:300) Thesis/Dissertation arr.**EPID:7200 (173:320) Teaching in Epidemiology** 3 s.h.

Teaching methods in epidemiology; guided practicum experience in teaching epidemiology, in preparation for academic careers. Prerequisites: EPID:4400 (173:140), EPID:5600 (173:160), and EPID:6400 (173:240).

EPID:7400 (173:340) Epidemiology III: Theories 3 s.h.

How epidemiology fits into the wider context of scientific inquiry. Offered fall semesters of odd years. Prerequisites: EPID:4400 (173:140), EPID:6400 (173:240), and BIOS:6110 (171:241).

Health Management and Policy

Head

- Keith J. Mueller

Professors

- Christopher Atchison (Health Management and Policy/Nursing/Public Policy Center), Susan J. Curry (Distinguished Professor in Health Management and Policy), Franklin Dexter (Health Management and Policy/Anesthesia), Josephine Gittler (Law/Health Management and Policy/Stead Family Department of Pediatrics/Nursing), Diane Huber (Health Management and Policy/Iowa Consortium for Substance Abuse/Nursing), Michael Kienzle (Health Management and Policy/Internal Medicine/Nursing), Samuel Levey (Distinguished Professor in Health Management and Policy), Keith J. Mueller (Gerhard Hartman Professor; Health Management and Policy/Public Policy Center), Gary E. Rosenthal (Health Management and Policy/Epidemiology/Internal Medicine), Marcia M. Ward, Fredric D. Wolinsky (John W. Colloton Chair; Health Management and Policy/Internal Medicine/Nursing)

Associate professors

- Brian Kaskie, Ian Montgomery, Tanya Uden-Holman (Health Management and Policy/Nursing), Thomas E. Vaughn (Health Management and Policy/Nursing), George Wehby (Health Management and Policy/Economics/Public Policy Center/Preventive and Community Dentistry)

Assistant professors

- Padmaja Ayyagari, Mary Charlton (Epidemiology/Health Management and Policy), A. Clinton MacKinney, Dan Shane (Health Management and Policy/Economics/Public Policy Center), Brad Wright (Health Management and Policy/Public Policy Center), Xi Zhu

Adjunct professors

- William W. Hesson, Kenneth Kates, John H. Staley

Adjunct associate professors

- Douglas Beardsley, Thomas Evans, Kenneth Fisher, William D. Petasnick, Peter Wallace

Adjunct assistant professors

- Lee Carmen, Shane Cerone, Jason Hockenberry, Sara Imhof, Thomas Klobucar, Mark Moser, Sarabdeep Singh, Brian White

Adjunct instructor

- Thomas Persoon (Industrial Engineering/Health Management and Policy/Management Sciences)

Adjunct lecturers

- Timothy Ahlers, Richard C. Breon, Charles E. Brown, Eric T. Crowell, Stacey T. Cyphert, Pramod Dwivedi, Mary L. Hensley, Thomas W. Keel, Christopher Klitgaard, Todd C. Linden, Duncan Moore, Thomas Mulrooney, David Olson, Ronald R. Reed, James H. Skogsbergh, Thomas F. Tibbitts, James A. Tinker, Stephen L. Ummel, Kristy Platz Walker, John C. Wocher

Professors emeriti

- Kathleen Buckwalter, Barry Greene, Charles Helms, Larry D. Prybil, Gerard Rushton

Associate professor emeritus

- Rachel Anderson

Graduate degrees: M.H.A.; Ph.D. in health services and policy

Web site: <http://www.public-health.uiowa.edu/hmp/>

The Department of Health Management and Policy educates health care professionals for leadership roles in an increasingly complex and dynamic health care system. Graduates hold key executive, academic, research, government, and consulting positions in all areas of health management and policy, both in the United States and abroad.

Graduate Programs of Study

- Master of Health Administration
- Doctor of Philosophy in health services and policy

The department offers the M.H.A. in a traditional program and an executive program, both described below. It also offers joint M.H.A./graduate and professional degree programs with the Tippie College of Business, the College of Law, and the Graduate College's School of Urban and Regional Planning; see "Joint Degrees" below. In addition, it offers the policy subprogram for the Master of Public Health; see "M.P.H. Subprogram" below.

The department's degree programs rank among the foremost in the field. The M.H.A. is accredited by the Commission on Accreditation of Healthcare Management Education. The Ph.D. program, established in 1950, was the nation's first doctoral program in health care management.

Master of Health Administration

The Master of Health Administration requires 60 s.h. of graduate credit earned in two academic years of full-time study. The program prepares students for a wide variety of positions in health care management. It is designed to provide a comprehensive understanding of issues encountered by health care delivery organizations, and strong business skills. Graduates are well prepared to advance to senior executive roles in a variety of health care organizations.

Students work with their advisors to create a plan of study that incorporates required and elective course work that supports their career goals in areas such as operations management, managed care, or financial management. Required courses in management, economics, law, managerial finance, and financial accounting focus on health care applications. Students also may take course work in other University of Iowa departments and programs, such as business, urban and regional planning, and aging studies.

During the first year, students are introduced to the social, political, economic, and financial environments of health care organizations. The concepts, tools, and techniques necessary for effective management also are presented. During the second year, courses focus on in-depth health care applications of management concepts that integrate

prior course work and develop skills in areas relating to students' special interests and career objectives.

Transfer credit and course waivers may be accepted, but all students are expected to complete a minimum of 54 s.h. at The University of Iowa during their course of study.

The Master of Health Administration requires the following course work.

CORE COURSES

HMP:5000 (174:100) Professional Development Seminar (taken four times for 1 s.h. each)	4 s.h.
HMP:5005 (174:200) Introduction to Health Care Organization and Policy	3 s.h.
HMP:5200 (174:201) Health Care Management	3 s.h.
HMP:5291 (174:230) Lean Sigma Principles: Applications in Health Care	1 s.h.
HMP:5310 (174:204) Quantitative Management in Health Care	2 s.h.
HMP:5315 (174:208) Health Services Information Systems	2 s.h.
HMP:5320 (174:219) Analytics for Health Care Management	3 s.h.
HMP:5410 (174:212) Health Economics I	3 s.h.
HMP:5610 (174:243) Health Policy	3 s.h.
HMP:6055 (174:218) Topics in Health Administration	1-3 s.h.
HMP:6110 (174:203) Strategic Planning and Marketing	3 s.h.
HMP:6150 (174:205) Issues in Health Management and Policy	3 s.h.
HMP:6310 (174:224) Human Resources for Health Organizations	2 s.h.
HMP:6315 (174:223) Seminar in Health Care Ethics	1 s.h.
HMP:6410 (174:216) Financial Management of Health Institutions	3 s.h.
HMP:6610 (174:237) Legal Aspects of Health and Medical Care	3 s.h.
MBA:8140 (06N:215) Corporate Financial Reporting	3 s.h.
MBA:8180 (06N:225) Managerial Finance	3 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.

ELECTIVES

Students choose 13 s.h. of elective course work; they may count a maximum of 6 s.h. of elective credit earned outside the Department of Health Management and Policy toward the M.H.A. degree.

Summer Internships, Fellowships, Residencies

The department facilitates placement of M.H.A. students in required summer internships between the first and second years of study. Internships offer opportunities for practical experience interacting with executives in a health care setting. Internships are full-time positions that usually last 10-12 weeks and may carry up to 3 s.h. of credit. Students normally receive a salary or stipend, and in some cases, assistance with living arrangements.

Most M.H.A. students complement their academic training with a postgraduate fellowship or residency. Such experiences provide opportunities to observe, develop,

and demonstrate management skills and to develop connections with colleagues. The department takes an active role in helping students identify and secure fellowship and residency positions.

Executive M.H.A.

The Executive Master of Health Administration program requires 45 s.h. of graduate credit and typically is completed in two years. The program is designed for working professionals who wish to advance their knowledge and skills in order to become effective health care administrators. The program's objectives are to:

- provide working professionals with advanced knowledge and skills in health care management;
- position experienced professionals to become effective health care administrators; and
- meet the need for leadership in transforming health care financing and delivery in dynamic environments.

The program's curricular emphases are basic administrative skills, administrative skills specific to health care, population health administration, and interprofessional health care administration.

Students in the program complete three courses each fall and spring semester and one course in each of two summer sessions. Courses are taught on campus by experienced faculty members and are supplemented with online resources. Instruction focuses on cases and teams.

For more information, visit EMHA Curriculum on the College of Public Health web site and contact the Department of Health Management and Policy.

Joint Degrees

The Department of Health Management and Policy offers joint degree programs with the Tippie College of Business, the College of Law, and the Graduate College's School of Urban and Regional Planning. Students interested in combining an M.H.A. with a master's or professional degree in another field should discuss their plans with both academic units and indicate their interest when they apply to the M.H.A. program.

Joint M.H.A./M.B.A.

The joint Master of Health Administration/Master of Business Administration requires a minimum of 75 s.h. of graduate credit. The program combines the traditional strengths of health management and policy with additional course work in management. Separate application to each degree program is required; applicants must be admitted to both programs before they may be admitted to the joint degree program. For information about the M.B.A., see Master of Business Administration Program (p. 715) (Tippie College of Business) in the Catalog.

Joint M.H.A./J.D.

The joint Master of Health Administration/Juris Doctor requires 123 s.h. of postbaccalaureate credit. The program is highly individualized, allowing students to gain training in both health care management and law. Students usually complete the program in four years; they enroll only in law courses during the first year. Separate application to each degree program is required; applicants must be admitted to both programs before they may be admitted to the joint degree program. For information about the J.D., see College of Law (p. 1005) in the Catalog.

Joint M.H.A./M.A. or M.S. in Urban and Regional Planning

The joint Master of Health Administration/Master of Arts or Master of Science in urban and regional planning requires a minimum of 76 s.h. of graduate credit. The program gives students the opportunity to acquire expertise in community and health planning and prepares them to develop public policy alternatives that help improve the quality of life in cities and throughout regions. Students usually complete the program in three years. Separate application to each degree program is required; applicants must be admitted to both programs before they may be admitted to the joint degree program. For information about the graduate programs in planning, see Urban and Regional Planning (p. 998) (Graduate College) in the Catalog.

M.P.H. Subprogram

The Department of Health Management and Policy offers the policy subprogram for the Master of Public Health. The subprogram prepares individuals for careers in health policy analysis, system and organizational planning, and program evaluation. Graduates find positions in federal, state, and local government as well as in professional associations and private agencies. See Master of Public Health Program (p. 1225) in the Catalog.

Doctor of Philosophy

The Doctor of Philosophy program in health services and policy requires a minimum of 77 s.h. of graduate credit, which may include up to 30 s.h. of credit from a master's degree. The program prepares students for careers in health services research, education, and policy leadership in universities, government agencies, and health organizations.

The Ph.D. program is oriented toward applied, interdisciplinary research and scholarly inquiry. Students develop mastery of theories and research methodologies necessary to study the complex American health system. They work closely with faculty mentors on research projects and develop research design and methodology skills through course work and an apprenticeship model of training.

Individual plans of study allow students to prepare for specific careers, and small class size encourages frequent student-faculty interaction, including participation in research projects as well as scholarly publications.

Prospective Ph.D. students apply to one of three focus areas: health economics, health management and organization, or health policy. Admitted students may not change focus areas unless they are formally reviewed and accepted to the new area. Students work with a faculty advisor and a mentorship team of faculty members from their focus area; the advisor and mentorship team participate in initial planning with the student during orientation and in annual professional development reviews. Students conduct required independent study and thesis research in their focus area; their comprehensive exam and dissertation committees include faculty members from their focus area.

Focus Areas

The **health economics focus area** provides students with in-depth training in economic theory and its

applications to health and health care. Students in this area acquire advanced theoretical knowledge and state-of-the-art analytical and econometric skills that will enable them to build careers as health economists in academic departments, research organizations, and health care industries. The health economics focus area provides comprehensive course work covering all main areas in health and health care economics, including demand for health and health care, economic determinants and consequences of health behaviors, health insurance, economic organization of health care markets, impact of government policy and regulation, econometric methods, and economic evaluation methods.

The **health management and organization focus area** prepares students to conduct research on organizational, strategic, and operational issues that confront health institutions and systems. Emphasis is placed on health care applications of theories, concepts, and models from the fields of organizational theory (macro), organizational behavior (micro), strategic management, and operations management. Students in this area may conduct research on topics such as effectiveness of health care organizations; improving the organization and management of health delivery processes; measuring performance and productivity of health care organizations; examining the relative influence of mission, culture, and financial incentives in hospitals and health organizations; and management of professional groups. Graduates of the health management and organization focus area should find employment in academic and research organizations, integrated delivery systems, and governmental units that are interested in the impact of organizational structures and managerial practices on performance.

The **health policy focus area** prepares students to undertake health services and policy research aimed at improving care and management of illness and disability and enhancing individual and community health outcomes. Students in this area develop the skills necessary to conduct health services and policy research. They take courses in the basic disciplines that contribute to the fields of public and social policy (e.g., law, political science, public affairs) as well as courses that focus on the structure and organization of health policy making in the United States. They study the formation and implementation of health policies; the effect of health policies on the organization, financing, and delivery of health services; the effect of health policies on access to, use of, and costs of health services; and approaches to improve access and effectiveness of care for vulnerable populations. Students who complete the health policy focus area are prepared for employment in academic research institutions, policy organizations, and governmental agencies and departments.

COURSE Work

Ph.D. students take course work in core content areas covering health care systems, health economics, health management and organizations, and health policy as well as courses in research design and statistical analysis. Credit may be awarded for guided and independent research project work. Students may waive specific courses, depending on their background. For more detailed information about Ph.D. and focus area curricula, visit Degree Programs/Ph.D. on the Department of Health Management and Policy web site.

EXAMINATIONS

All Ph.D. students must pass a preliminary examination that tests the student's mastery of core material covered during the first year in the department, including American health systems, health services research methods, and foundation courses in their focus area.

Students take the comprehensive examination at or near the end of their formal course work. The comprehensive exam focuses on the student's specific area of research and theoretical interest.

DISSERTATION

Doctoral candidates prepare dissertations based on original research that tests, extends, or applies concepts or principles to a health care problem related to their chosen focus area. Students may complete a traditional dissertation or a dissertation based on three publishable papers.

Admission

Applicants to the M.H.A. program must apply through the Schools of Public Health Application Service (SOPHAS) or the Healthcare Administration, Management & Policy Centralized Application Service (HAMPCAS). Applicants to the Ph.D. program must apply through SOPHAS. All applicants also must apply for admission to the Graduate College through the University of Iowa Office of Admissions. For detailed application information, visit Prospective Students on the Department of Health Management and Policy web site.

Individuals interested in applying to the Executive M.H.A. program should contact the Department of Health Management and Policy.

Ph.D. applicants must apply to one of the program's three focus areas: health economics, health management and organization, or health policy. Applicants are reviewed by the admissions committee; if they meet department expectations, they are reviewed by focus area faculty; if they are accepted by the focus area, they are interviewed by the admissions committee and the focus area faculty. Admission decisions are made after the interview.

Applicants to the M.H.A. program must hold a bachelor's degree from an accredited institution. No specific undergraduate major is required, but prospective applicants are strongly advised to complete introductory courses in accounting, economics, and statistics and to gain facility in using spreadsheet and presentation software. Applicants must have a cumulative g.p.a. of at least 3.00. Preference is given to applicants with a verbal score of at least 151 and a quantitative score of at least 151 on the revised Graduate Record Examination (GRE) General Test (or a verbal score of at least 470 and a quantitative score of at least 640 on the old GRE). Applicants who have taken the GMAT (preferred score of at least 600), the MCAT, or the LSAT may submit their scores on those tests instead of GRE scores. Relevant work and volunteer experience are considered.

Applicants to the Ph.D. program must have a bachelor's or master's degree. Health care and research experience is desirable. A master's degree in health administration, public health, policy analysis, social science, management, economics, or law is considered excellent preparation for the program. Applicants should have a cumulative g.p.a.

of at least 3.25 and should score above the 50th percentile on the Graduate Record Examination (GRE) General Test.

Applicants whose first language is not English and who do not hold a bachelor's or more advanced degree from an accredited institution in the United States, Canada (except Quebec), Australia, New Zealand, or the United Kingdom or who are not permanent residents of the United States must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 81-99 (Internet-based) are required to take English fluency courses. Applicants who score below 81 are not considered for admission.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Students begin the program in fall semester. Campus visits are encouraged, and personal interviews are required before admission. The admissions committee conducts telephone interviews with applicants unable to interview on campus.

Financial Support

A variety of financial assistance is available, including scholarships and awards, student loans, and research assistantships. Every effort is made to provide financial support to students who demonstrate need and maintain satisfactory academic standards. Some awards are offered in recognition of outstanding academic performance and experience, regardless of need.

Research assistantships generally are awarded on the basis of student merit and the department's need. Assistantships afford valuable experience in health services research and management projects. Research assistants work 10-20 hours per week and must apply for reappointment each year. Research assistantships provide a stipend and some tuition assistance and entitle students to resident tuition.

Opportunities also exist for part-time employment both on and off campus. For information and financial aid application forms, contact the University's Office of Student Financial Aid.

Resources

The Center for Health Policy and Research, the research arm of the Department of Health Management and Policy, is a University-wide interdisciplinary research facility. Faculty members from the Carver College of Medicine, the Tippie College of Business, and the Colleges of Dentistry, Liberal Arts and Sciences, Nursing, Pharmacy, and Public Health serve as investigators in a variety of studies at the center. Graduate students assist with ongoing research projects.

Primary project funding for the center comes from the National Institute of Health, the State of Iowa, the Agency for Healthcare Research and Quality, and the Patient Centered Outcomes Research Initiative, as well as from foundations and private organizations.

The center also sponsors educational activities and promotes collaboration among health organizations through frequent exchanges with professional and provider associations, policy and planning groups, insurance

organizations, health delivery institutions, and other members of the health services research community.

Alumni Relations

An active alumni association with more than 1,000 members supports the program in a number of ways, including scholarships, consultation on curriculum, continuing education, research, and fund development. Alumni serve as visiting faculty, consultants, mentors, and preceptors for summer internships, residencies, and fellowships. The alumni association also provides a network for graduates entering the profession.

Graduates maintain their Iowa connection and learn about news of their classmates, the department, and faculty members and students through the web site, blogs, Linked In, and *Alumni Newsletter*.

The Department of Health Management and Policy and its alumni association jointly sponsor the Annual Iowa Healthcare Executive Symposium each fall. Renowned speakers from across the country present a variety of symposium topics. Health care leaders, alumni, educators, students, and friends of the department attend the symposium, which offers students a high quality educational experience in addition to the opportunity to network with faculty and alumni.

Courses

- HMP:4000 (174:102) Introduction to the U.S. Health Care System** 3 s.h.
The U.S. health care system; socioeconomic, political, and environmental forces that influence the organization, financing, and delivery of personal and public health services; health services, policy, concepts, terminology.
- HMP:5000 (174:100) Professional Development Seminar** 0-1 s.h.
Development of critical foundational management skills: business writing, personal presentation, teamwork, providing feedback, self-assessment, engaging other professionals, and organizational ethics.
- HMP:5005 (174:200) Introduction to Health Care Organization and Policy** 3 s.h.
Organization of U.S. health care system, health policies that shape its development; historical, socioeconomic, political, environmental forces that influence the organization, financing, and delivery of personal and public health services; health services, policy concepts, and terminology, including health determinants, access to care, system integration, policy development, federalism.
- HMP:5200 (174:201) Health Care Management** 3 s.h.
Application of basic management principles such as leadership, goal setting, decision making, human resource management, to health care organizations.
- HMP:5291 (174:230) Lean Sigma Principles: Applications in Health Care** 1,3 s.h.
General lean and six sigma principles; application to health care solutions; examples from University of Iowa Hospitals and Clinics, other institutions.
- HMP:5310 (174:204) Quantitative Management in Health Care** 2-3 s.h.
Fundamentals of patient safety, quality improvement techniques, performance measurement approaches, and analytical tools including data collection methodologies used by managers in health care and public health settings.
- HMP:5315 (174:208) Health Services Information Systems** 2-3 s.h.
Conceptual, practical aspects of analysis, development, and use of computer-based information systems; emphasis on application to the health sciences environment.
- HMP:5320 (174:219) Analytics for Health Care Management** 3 s.h.
Introduction to analytical techniques for making business decisions with emphasis on health care; using Excel and associated tools in practical problem solving; probability and statistical concepts and applications in strategic settings.
- HMP:5342 (174:210) Operations Research for Health Services Managers** 2-3 s.h.
Functions and issues associated with health care management decision making using quantitative analysis and methodology; emphasis on operations research techniques (i.e., linear programming); resource management and optimization issues.
- HMP:5350 (174:202) Hospital Organization and Management** 2-3 s.h.
Role of hospitals, governance, organizational structure, medical staff organization, departmental operations. Prerequisites: HMP:5005 (174:200) and HMP:5200 (174:201).
- HMP:5370 (174:226) Health Informatics I** 3 s.h.
Technological tools that support health care administration, management, and decision making. Requirements: graduate standing. Same as MED:5300 (050:283), SLIS:5900 (021:275), RSNM:3195 (074:191), BME:5250 (051:187), IE:5860 (056:186), IGPI:5200 (200:110).
- HMP:5402 (174:211) Corporate Financial Reporting** arr.
Introduction to accounting concepts, principles, and analyses; contemporary financial reporting practices with emphasis on preparation, analysis, and use of financial statement information for management decisions; fundamentals of accounting measurement and disclosure.
- HMP:5410 (174:212) Health Economics I** 3 s.h.
Microeconomic principles applied to health care, health insurance, information and uncertainty, models of physician and hospital behavior, theory of the firm, market structure, regulation, competitive reform, managed care.
- HMP:5450 (174:217) Health Insurance and Managed Care** 3 s.h.
History and theory of insurance, comparative health systems, health systems and networks, HMOs, public health insurance, care for uninsured; emphasis on public policy. Prerequisites: HMP:5005 (174:200). Corequisites: PHAR:6330 (046:263) or HMP:5410 (174:212). Same as GHS:5455 (152:217).

- HMP:5610 (174:243) Health Policy** 1-3 s.h.
Policy process, policies and programs that shape provision of health care in the United States; health policies such as Medicare, Medicaid, Older Americans Act.
- HMP:5611 (174:249) Contemporary Issues in Health Policy** 0-1 s.h.
Current content, ethical perspectives, empirical research, and professional development in health policy; evaluation of health policy issues from a variety of theoretical perspectives; students assist with identification and recruitment of individual experts. Prerequisites: HMP:5610 (174:243) and HMP:5650 (174:244).
- HMP:5650 (174:244) Health Policy Analysis** 3 s.h.
Introduction to analysis of contemporary health policy issues; frameworks for conducting analysis of health policy process and content; qualitative and quantitative methods for policy analysis; how to present policy-relevant information effectively. Prerequisites: HMP:5005 (174:200) and HMP:5610 (174:243).
- HMP:5750 (174:144) Medicare and Medicaid Policy** 3 s.h.
Health policies most pertinent to Americans over age of 65. Same as ASP:5750 (153:144).
- HMP:5810 (174:234) Administrative Internship** arr.
arr.
- HMP:6055 (174:218) Topics in Health Administration** 1-3 s.h.
Topics related to contemporary problems that concern health care students, administrators.
- HMP:6110 (174:203) Strategic Planning and Marketing** 3-4 s.h.
Strategy in health care including role of mission, vision, values, environmental analysis, strategic alternatives, organizational design, and evaluation of strategic decisions. Prerequisites: HMP:5200 (174:201).
- HMP:6120 (174:221) Evaluation and Outcomes in Health Care** 2 s.h.
Qualitative and quantitative methods for evaluating health care quality, effectiveness; program evaluation, health outcomes, clinical and cost effectiveness, evaluation across health care delivery systems. Prerequisites: HMP:4000 (174:102) or HMP:5005 (174:200).
- HMP:6150 (174:205) Issues in Health Management and Policy** 3 s.h.
Integration and application of theories, concepts, principles; case studies. Prerequisites: HMP:5200 (174:201) and HMP:6110 (174:203).
- HMP:6255 (174:253) History and Health Policy in the U.S.** arr.
Books, articles, other readings on history of the medical and nursing professions, evolution of the hospital and other key sectors of the health economy; health policy issues and their implications.
- HMP:6310 (174:224) Human Resources for Health Organizations** 2-3 s.h.
Overview of human resource management theories and practices for health care organizations; strategic human resource management, equal employment, staffing, training and development, appraisal, compensation. Prerequisites: HMP:5200 (174:201).
- HMP:6315 (174:223) Seminar in Health Care Ethics** 1-2 s.h.
Biomedical and organization ethics in the contemporary health care environment; ethical concepts and principles, ethical issues that confront executive, clinical, and governance leaders in context of complex health organizations.
- HMP:6350 (174:207) Medical Practice Administration** 3 s.h.
Survey of medical practice culture, operations, governance, financials, role(s) in health care system, and future. Prerequisites: HMP:5005 (174:200), HMP:5200 (174:201), and HMP:5350 (174:202).
- HMP:6355 (174:206) Leadership in Healthcare Organizations** 2-3 s.h.
Management and leadership concepts and their application in health care organizations. Prerequisites: HMP:5200 (174:201).
- HMP:6360 (174:247) Nonprofit Organizational Effectiveness I** 3 s.h.
Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as SLIS:6430 (021:263), MGMT:9150 (06J:247), LAW:8751 (091:320), SSW:6247 (042:247), URP:6278 (102:278), MUSM:6010 (024:247), SPST:6010 (028:257), RELS:6070 (032:227).
- HMP:6365 (174:248) Nonprofit Organizational Effectiveness II** 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Requirements: for LAW:8752 (091:322) — LAW:8751 (091:320); for HMP:6365 (174:248) — HMP:6360 (174:247) or MGMT:9150 (06J:247) or MUSM:6010 (024:247). Same as MGMT:9160 (06J:248), LAW:8752 (091:322), SLIS:6435 (021:265), SSW:6248 (042:248), URP:6279 (102:279), MUSM:6020 (024:248), SPST:6020 (028:258), RELS:6075 (032:228).
- HMP:6410 (174:216) Financial Management of Health Institutions** 3 s.h.
Issues in working capital management, capital financing, cost analysis and rate setting, budgeting, reimbursement, managed care contracting and health reform initiatives; emphasis on use of information from accounting, financial management systems.
- HMP:6555 (174:213) Health Economics II** 3 s.h.
Economic theory and its application to health behavior, markets for health care and health insurance, public policy related to health. Prerequisites: HMP:5410 (174:212).
- HMP:6610 (174:237) Legal Aspects of Health and Medical Care** 3 s.h.
arr.

Statutory, common law frameworks applicable to health care system; court decisions that illustrate applications of general legal doctrines in hospital, health settings.

HMP:6710 (174:242) Federalism and Health Policy 3 s.h.

How American government's organization shapes development and implementation of health policy, programs, services.

HMP:6750 (174:245) Seminar in Health Policy 2-3 s.h.

Contemporary health policy issues; theoretical and applied perspectives; social justice and health care for vulnerable populations (e.g., mental health, nursing homes); readings, discussion. Prerequisites: HMP:5610 (174:243).

HMP:6850 (174:280) Independent Study and Research arr.

Supervised tutorial.

HMP:6855 (174:236) Administrative Practicum 2-3 s.h.

Experience with operational and planning matters in a health care setting. Requirements: second-year standing and g.p.a. of at least 3.00 for two consecutive semesters.

HMP:6860 (174:235) Administrative Residency/Fellowship arr.

HMP:7150 (174:268) Health Care Utilization Outcomes 3 s.h.

Research tools to assess changes in health care use and cost as outcomes of treatment; theories of health outcomes; analysis of hospital discharge data sets. Requirements: knowledge of SAS or SPSS. Same as EPID:6760 (173:276).

HMP:7250 (174:252) Organizational Behavior and Theory in Health Care 3 s.h.

Key concepts of organizational behavior and organizational theory and their application to health care organizations and health services; perspectives from theoretical writings and empirical studies. Requirements: Ph.D. standing and knowledge of human services organizations.

HMP:7550 (174:228) Cost Effectiveness and Decision Analysis 3 s.h.

Methods of cost-effectiveness analysis and decision analysis; applications to resource allocation decisions in public health and medicine.

HMP:7910 (174:255) Seminar in Contemporary Health Issues 0 s.h.

Review of relevant literature on methodological substantive issues in health care, presentations by researchers on health services and policy research.

HMP:7920 (174:257) Ph.D. Guided Research 1-3 s.h.

Experience with empirical research, guided by a faculty mentor; structured and supervised research activities.

HMP:7930 (174:260) Ph.D. Independent Research 1-3 s.h.

Experience in empirical research through one or more substantive research experiences, with faculty mentor; authorship or coauthorship of at least one manuscript suitable for publication in peer review journal. Requirements: Ph.D. in health services and policy and satisfactory completion of Ph.D. preliminary exams.

HMP:7940 (174:256) Primary Data and Mixed Methods 3 s.h.

Overview of research design and methods used to address health services research questions; collection of primary data and use of qualitative and mixed methods approaches.

HMP:7950 (174:259) Design Issues in Health Service Research 3 s.h.

Design and causal inference reliability and validity in measurement; rules of evidence; research design for randomized-control trials, observational studies, meta-analysis.

HMP:7960 (174:261) Analytic Issues in Health Services Research I 3 s.h.

Analytic tools used in health services research; focus on applications in nonexperimental research settings, such as analyses using administrative claims data or preexisting public use data sets. Prerequisites: BIOS:5120 (171:162). Same as PHAR:7330 (046:261).

HMP:7965 (174:262) Analytic Issues in Health Services Research II 3 s.h.

Continuation of HMP:7960 (174:261); advanced applications, including panel data and qualitative response models. Prerequisites: HMP:7960 (174:261). Same as PHAR:7331 (046:262).

HMP:7970 (174:270) Seminar in Health Research and Instruction 1-3 s.h.

Opportunity for Ph.D. students to develop research and teaching skills through presentations, readings, workshops. Requirements: satisfactory completion of Ph.D. preliminary exams.

HMP:7990 (174:285) Ph.D. Dissertation arr.

Research for preparation of dissertation; seminar presentation.

Master of Public Health Program

Director

- Mary L. Aquilino

Graduate degree: M.P.H.

Web site: <http://www.public-health.uiowa.edu/mph/>

The Master of Public Health is recognized as the primary professional degree in public health. The objective of Iowa's M.P.H. program is to provide education and practical training in public health to students who will be leaders in their respective communities. The program is appropriate for individuals who already have professional experience and/or training in public health as well as for those whose expertise lies outside of public health.

The Master of Public Health program is offered by the College of Public Health; the degree is awarded by the Graduate College.

Graduate Program of Study

- Master of Public Health

Students may earn the M.P.H. as a single degree, or they may pursue one of several joint degree programs. The College of Public Health offers joint M.P.H./professional degree programs with the Carver College of Medicine and the Colleges of Law and Pharmacy. It also offers two programs in collaboration with the College of Veterinary Science at Iowa State University. See "M.P.H. for Practicing Veterinarians" and descriptions of the joint degree programs later in this section.

In addition, the college collaborates with the College of Liberal Arts and Sciences to offer joint B.A. or B.S./M.P.H. programs for undergraduate students majoring in biology, psychology, or statistics; see "Joint B.A. or B.S./M.P.H. Degrees" below.

Master of Public Health

The Master of Public Health requires 42-45 s.h. of graduate credit, depending on the student's choice of specialization. Students must choose one of seven subprograms: community and behavioral health, epidemiology, ergonomics, health communication, occupational and environmental health, policy, or quantitative methods.

Degree requirements include a core course in public health practice and in each of the five core disciplines of public health (epidemiology, biostatistics, environmental health, health policy and management, and social and behavioral sciences); a practicum; a set of content-specific required courses; and a set of content-specific electives. Students in the epidemiology subprogram and the occupational and environmental health subprogram also must complete a bioscience course. A final written report with oral presentation or a poster presentation related to the practicum constitutes the final examination.

All M.P.H. students complete the course work listed under "Common Requirements." In addition, each student completes the course work listed for his or her chosen subprogram.

Common Requirements

The following course work is required for all M.P.H. students. Students must earn a B-minus or higher in each core course. Students may repeat courses to achieve this standard.

CORE COURSES

All of these (18 s.h.):

MPH:5100 (170:101) Introduction to Public Health	3 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics (biostatistics subtrack students may substitute BIOS:5710 for 4 s.h.)	3 s.h.
CBH:5105 (172:101) Introduction to Health Promotion and Disease Prevention	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
HMP:4000 (174:102) Introduction to the U.S. Health Care System	3 s.h.
OEH:4240 (175:197) Global Environmental Health	3 s.h.

PRACTICUM

The practicum is a fieldwork experience in which students show proficiency in applying academic principles in community settings. There are many practicum opportunities for M.P.H. students locally, nationally, and internationally. The practicum is the capstone of the M.P.H. program.

Before they register for and begin the practicum, students must choose an approved topic and must complete most of their M.P.H. course work, including all of the six M.P.H. core courses. A final written report with an oral presentation or a poster presentation is required. The practicum constitutes the final examination for the M.P.H. degree.

MPH:7000 (170:299) M.P.H. Practicum Experience	3 s.h.
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Community and Behavioral Health Subprogram

The Master of Public Health with community and behavioral health subprogram requires 42 s.h. of graduate credit. The subprogram is offered by the Department of Community and Behavioral Health (p. 1201) (College of Public Health).

The subprogram prepares public health practitioners for a variety of positions related to community development, health program implementation, and health education. Students learn how to design, implement, and evaluate evidence-based interventions directed toward identified public health problems in populations.

A bachelor's degree in the social and behavioral sciences is good preparation for this program, but students come from a variety of educational backgrounds. Preference is given to applicants who have professional experience.

In addition to the M.P.H. course work listed under "Common Requirements" above, the community and behavioral health subprogram requires the following courses.

SUBPROGRAM CORE

Students earn 12 s.h. in the required subprogram core.

Theory—this course:

CBH:5220 (172:150) Health Behavior and Health Education 3 s.h.

Community and society—one of these:

CBH:5205 (172:130) Social Determinants of Health 3 s.h.

CBH:5225 (172:135) Health Disparities and Cultural Competence 3 s.h.

CBH:5235 (172:260) Community-Based Participatory Research 3 s.h.

Intervention—one of these:

CBH:6205 (172:106) Designing and Implementing Interventions 3 s.h.

CBH:6220 (172:246) Health Communication Campaigns 3 s.h.

Methods—one of these:

CBH:5305 (172:181) Evaluation I: Theory and Applications 3 s.h.

CBH:5310 (172:183) Qualitative Research for Public Health 3 s.h.

CBH:5420 (172:185) Communicating with the Community 3 s.h.

CBH:6335 (172:285) Research Methods in Community and Behavioral Health 3 s.h.

ELECTIVES

At least 9 s.h. chosen from these:

ANTH:6141 (113:274) Medical Anthropology and Social Theory 3 s.h.

CBH:3150 (172:140) Media and Health 3 s.h.

CBH:5140 (172:133) The Anthropology of Women's Health 3 s.h.

CBH:5215 (172:115) Community Preventive Programs and Services 3 s.h.

CBH:5230 (172:155) Public Health Issues in Overweight Management 3 s.h.

CBH:5435 (172:161) Substance Abuse Prevention and Early Intervention 3 s.h.

CBH:5440 (172:162) Prevention and Early Intervention of Mental Health Disorders 3 s.h.

CBH:6115 (172:202)/ANTH:6115 (113:202) Ethnographic Field Methods 3 s.h.

CBH:6215 (172:242) Persuasion and Health 3 s.h.

CBH:6220 (172:246) Health Communication Campaigns 3 s.h.

CBH:6305 (172:282) Evaluation II: Design and Methods 3 s.h.

CBH:6335 (172:285) Research Methods in Community and Behavioral Health 3 s.h.

CBH:6405 (172:122) Maternal, Child, and Family Health 3 s.h.

CBH:6410 (172:170) Special Topics arr.

CBH:6415 (172:270) Independent Study in Community and Behavioral Health arr.

GEOG:3505 (044:106) Foundations of GIS 3 s.h.

Epidemiology Subprogram

The Master of Public Health with epidemiology subprogram requires 42 s.h. of graduate credit. The subprogram is

offered by the Department of Epidemiology (p. 1208) (College of Public Health).

The subprogram focuses on fundamental epidemiological concepts and methods and provides training in the use of public health data and methods for disease assessment and in methods for evaluating the need and outcome of programs and interventions. Graduates of the program work in public health departments and other health care settings.

Epidemiology subprogram students are required to attend departmental seminars and journal club. They also must present one scientific poster at an international, national, regional, state, university, or departmental poster session.

In addition to the M.P.H. course work listed under "Common Requirements" above, the epidemiology subprogram requires the following courses.

SUBPROGRAM CORE

All of these (11 s.h.):

BIOS:5120 (171:162) Design and Analysis of Biomedical Studies 3 s.h.

EPID:5580 (173:158) Public Health Laboratory Techniques 1 s.h.

EPID:5600 (173:160) Introduction to Epidemiology Data Management and Analysis 3 s.h.

EPID:6400 (173:240) Epidemiology II: Advanced Methods 4 s.h.

One of these (2-3 s.h.):

EPID:4450 (173:145) Public Health Data 2 s.h.

EPID:4990 (173:199) Practicing Evidence-Based Public Health 3 s.h.

One of these (2 s.h.):

EPID:5530 (173:153) Surveillance Internship: IRCID 2 s.h.

EPID:5540 (173:154) Surveillance Mechanisms and Applications: Cancer and Other Registries 2 s.h.

Bioscience—one of these (3-4 s.h.):

PATH:5270 (069:270) Pathogenesis of Major Human Diseases 3 s.h.

PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students 4 s.h.

Students who already have completed a course equivalent to one of these bioscience courses may substitute an additional elective.

ELECTIVES

Students earn at least 2 s.h. in elective courses (or 5 s.h. if they substitute an elective for the bioscience requirement). At least 3 s.h. of elective credit must be earned in courses offered by the Department of Epidemiology (prefix 173) or in one of the following biostatistics courses.

BIOS:6110 (171:241) Applied Categorical Data Analysis 3 s.h.

BIOS:6210 (171:242) Applied Survival Analysis 3 s.h.

Ergonomics Subprogram

The Master of Public Health with ergonomics subprogram requires 42 s.h. of graduate credit. The subprogram

is offered by the Department of Occupational and Environmental Health (p. 1233) (College of Public Health).

The subprogram takes advantage of interdisciplinary faculty strengths in the Colleges of Public Health and Engineering and the Carver College of Medicine. Ergonomics students gain a thorough understanding of workplace physical environments that contribute to musculoskeletal injuries and illness. They also acquire knowledge of engineering and administrative methods to control workplace risk factors. The program prepares students for work in industry and government agencies, as well as for further academic training.

In addition to the M.P.H. course work listed under "Common Requirements" above, the ergonomics subprogram requires the following courses.

SUBPROGRAM CORE

All of these (16 s.h.):

GRAD:7270 (650:270) Principles of Scholarly Integrity	0-1 s.h.
IE:3400 (056:144) Human Factors	3 s.h.
IE:3450 (056:147) Ergonomics	3 s.h.
OEH:4310 (175:190) Occupational Ergonomics I	3 s.h.
OEH:5010 (175:180) Occupational and Environmental Health Seminar	1 s.h.
OEH:5620 (175:230) Occupational Health	3 s.h.
OEH:6310 (175:295) Clinical Ergonomics	3 s.h.

ELECTIVES

Ergonomics subprogram students earn 5 s.h. in elective courses. Electives may be chosen from the following list or may include a related course approved by the student's advisor.

OEH:5410 (175:192) Occupational Safety	3 s.h.
OEH:6420 (175:231) Industrial Hygiene Fundamentals	3 s.h.
OEH:6520 (175:251) Injury Epidemiology	3 s.h.
OEH:6530 (175:253) Epidemiology of Occupational Injuries	3 s.h.

Health Communication Subprogram

The Master of Public Health with health communication subprogram requires 42 s.h. of graduate credit. The subprogram is offered by the Department of Community and Behavioral Health (p. 1201) (College of Public Health).

The subprogram provides opportunities for students to develop knowledge and skill in designing, evaluating, and implementing effective communication strategies and messages that speak to the health needs of diverse audiences. The program addresses clinician-patient interaction, family communication, group and organizational communication, and mass media and web-based campaigns.

In addition to the M.P.H. course work listed under "Common Requirements" above, the health communications subprogram requires the following courses.

SUBPROGRAM CORE: HEALTH COMMUNICATION

Four of these (12 s.h.):

CBH:3150 (172:140)/JMC:3150 (019:160) Media and Health	3 s.h.
CBH:6210 (172:240)/COMM:6210 (036:270) Health Communication	3 s.h.
CBH:6215 (172:242) Persuasion and Health	3 s.h.
CBH:6220 (172:246)/COMM:6220 (036:379) Health Communication Campaigns	3 s.h.
COMM:6371 (036:371) Communication Theory	3 s.h.

SUBPROGRAM CORE: COMMUNITY AND BEHAVIORAL HEALTH

Three of these (9 s.h.):

CBH:5205 (172:130) Social Determinants of Health	3 s.h.
CBH:5220 (172:150) Health Behavior and Health Education	3 s.h.
CBH:5225 (172:135) Health Disparities and Cultural Competence	3 s.h.
CBH:5305 (172:181) Evaluation I: Theory and Applications	3 s.h.
CBH:5310 (172:183) Qualitative Research for Public Health	3 s.h.
CBH:6115 (172:202)/ANTH:6115 (113:202) Ethnographic Field Methods	3 s.h.
CBH:6205 (172:106) Designing and Implementing Interventions	3 s.h.
GEOG:3505 (044:106) Foundations of GIS	3 s.h.

Occupational and Environmental Health Subprogram

The Master of Public Health with occupational and environmental health subprogram requires 42 s.h. of graduate credit. The subprogram is offered by the Department of Occupational and Environmental Health (p. 1233) (College of Public Health).

The subprogram provides students with a broad perspective on public health and career preparation for a variety of professional positions in occupational and environmental health. Public health experience provides desirable background for this subprogram.

In addition to the M.P.H. course work listed under "Common Requirements" above, the occupational and environmental health subprogram requires the following courses.

SUBPROGRAM CORE

This course:

OEH:5010 (175:180) Occupational and Environmental Health Seminar	0-1 s.h.
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Occupational and environmental health—17-21 s.h. from the list below and/or from courses approved by student's advisor:

OEH:4110 (175:196) Agricultural Safety: Theories and Practice	2 s.h.
OEH:4210 (175:111) International Health	3 s.h.
OEH:4220 (175:252) U.S. and Global Environmental Health Policy	3 s.h.
OEH:4310 (175:190) Occupational Ergonomics I	2-3 s.h.

OEH:4510 (175:170) Injury and Violence Prevention	3 s.h.
OEH:4520 (175:175) Research Methods in Disaster Studies	3 s.h.
OEH:4540 (175:182) Statistics for Experimenters	3 s.h.
OEH:4920 (175:198) Solid and Hazardous Wastes	3 s.h.
OEH:5010 (175:180) Occupational and Environmental Health Seminar	1 s.h.
OEH:5410 (175:192) Occupational Safety	3 s.h.
OEH:5530 (175:185) Interpreting Occupational and Environmental Health Research	2 s.h.
OEH:5620 (175:230) Occupational Health	3 s.h.
OEH:5710 (175:260) Environmental Toxicology	3 s.h.
OEH:6110 (175:209) Rural Health and Agricultural Medicine	3 s.h.
OEH:6120 (175:210) Current Topics in Agricultural Health	0-1 s.h.
OEH:6130 (175:208) Agricultural Safety and Health: Practice, Research Methods, and Policy	3 s.h.
OEH:6310 (175:295) Clinical Ergonomics	3 s.h.
OEH:6320 (175:294) Occupational Ergonomics II	3 s.h.
OEH:6420 (175:231) Industrial Hygiene Fundamentals	3 s.h.
OEH:6430 (175:232) Assessing Physical Agent Hazards	3 s.h.
OEH:6440 (175:233) Control of Occupational Hazards	3 s.h.
OEH:6450 (175:221) Aerosol Technology	3 s.h.
OEH:6460 (175:234) Quantitative Exposure Assessment: Study Design and Evaluation	3 s.h.
OEH:6510 (175:220) Environmental and Occupational Epidemiology	3 s.h.
OEH:6520 (175:251) Injury Epidemiology	3 s.h.
OEH:6530 (175:253) Epidemiology of Occupational Injuries	3-4 s.h.
OEH:7010 (175:171) Problems in Occupational and Environmental Health	arr.

Bioscience—one of these (3-4 s.h.):

PATH:5270 (069:270) Pathogenesis of Major Human Diseases	3 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.

Students who already have completed a course equivalent to one of these bioscience courses may substitute an additional elective.

Policy Subprogram

The Master of Public Health with policy subprogram requires 45 s.h. of graduate credit. The subprogram is offered by the Department of Health Management and Policy (p. 1218) (College of Public Health).

The subprogram offers course work and applied learning experiences that prepare students for careers in health policy analysis, system and organizational planning, and program evaluation. Graduates of the program find positions in federal, state, and local government; professional associations; and private agencies. Varied academic backgrounds are appropriate preparation for this

program, including business, liberal arts and sciences, and the health professions.

In addition to the M.P.H. course work listed under "Common Requirements" above, the policy and administration subprogram requires the following courses.

SUBPROGRAM CORE

All of these:

HMP:5610 (174:243) Health Policy	3 s.h.
HMP:5611 (174:249) Contemporary Issues in Health Policy	0-1 s.h.
HMP:5650 (174:244) Health Policy Analysis	3 s.h.
HMP:6610 (174:237) Legal Aspects of Health and Medical Care	3 s.h.
HMP:6750 (174:245) Seminar in Health Policy	3 s.h.

ELECTIVES

At least 12 s.h. chosen from these:

HMP:5310 (174:204) Quantitative Management in Health Care	2-3 s.h.
HMP:5410 (174:212) Health Economics I	3 s.h.
HMP:5450 (174:217) Health Insurance and Managed Care	3 s.h.
HMP:5750 (174:144) Medicare and Medicaid Policy	3 s.h.
HMP:6710 (174:242) Federalism and Health Policy	3 s.h.
LAW:8562 (091:261) Health Law	3 s.h.
POLI:3100 (030:113) American State Politics	3 s.h.
URP:6337 (102:237) Poverty, Planning, and Public Policy	3 s.h.

Quantitative Methods Subprogram

The Master of Public Health with quantitative methods subprogram requires 42 s.h. of graduate credit. The subprogram is offered by the Department of Biostatistics (p. 1194) (College of Public Health).

The subprogram is designed to train public health professionals who can provide leadership in the analysis of public health data and the design of studies for public health investigations. It is intended for individuals who are interested in public health and who have quantitative ability but not advanced mathematics training.

Applicants to the subprogram must meet all M.P.H. admission requirements; see "Admission" toward the end of this Catalog section. They also should have a cumulative g.p.a. of at least 3.00 and should have completed the following math and computer science course work: single variable calculus and matrix algebra, satisfied by one semester of calculus equivalent to AP Calculus AB and a high school algebra course involving matrices; and elementary computer programming instruction in any commonly used modern programming language (e.g., Python, Java, C++). Individuals who are admitted to the subprogram without having met all of these requirements must satisfy unmet requirements during their first semester of enrollment in the program.

In addition to the M.P.H. course work listed under "Common Requirements" above, the biostatistics subprogram requires the following courses.

SUBPROGRAM CORE

All of these (12 s.h.):

BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
BIOS:5310 (171:164) Research Data Management	3 s.h.
BIOS:5510 (171:178) Biostatistical Computing	3 s.h.
BIOS:6110 (171:241) Applied Categorical Data Analysis	3 s.h.

ELECTIVES

At least 9 s.h. chosen from these:

BIOL:4213 (002:170) Bioinformatics	4 s.h.
BIOS:6210 (171:242) Applied Survival Analysis	3 s.h.
BIOS:6310 (171:174) Introductory Longitudinal Data Analysis	3 s.h.
BIOS:6610 (171:266) Statistical Methods in Clinical Trials	3 s.h.
BIOS:7600 (171:290) Advanced Biostatistics Seminar	0-3 s.h.
MICR:2157 (061:157) General Microbiology	5 s.h.
MICR:3147 (061:147) Survey of Immunology	3 s.h.
STAT:3100 (22S:130) Introduction to Mathematical Statistics I	3 s.h.
STAT:3101 (22S:131) Introduction to Mathematical Statistics II	3 s.h.
STAT:3210 (22S:158) Experimental Design and Analysis	3 s.h.
STAT:4100 (22S:153) Mathematical Statistics I	3 s.h.
STAT:4101 (22S:154) Mathematical Statistics II	3 s.h.
STAT:4200 (22S:105) Statistical Methods and Computing	3 s.h.
STAT:4520 (22S:138) Bayesian Statistics	3 s.h.
STAT:5100 (22S:193) Statistical Inference I	3 s.h.
STAT:5101 (22S:194) Statistical Inference II	3 s.h.
STAT:6540 (22S:161) Applied Multivariate Analysis	3 s.h.
STAT:6560 (22S:156) Applied Time Series Analysis	3 s.h.

Joint B.A. or B.S./M.P.H. Degrees

The College of Public Health collaborates with the College of Liberal Arts and Sciences to offer joint bachelor's degree/Master of Public Health programs for undergraduate students majoring in biology, psychology, or statistics who would like to earn an M.P.H. degree. The joint programs permit students to count a limited amount of credit toward the requirements of both degrees, enabling them to begin the study of public health before they complete the bachelor's degree. Each joint program pairs an undergraduate major with a specific M.P.H. subprogram, as follows.

Joint B.A. in biology/M.P.H. with epidemiology subprogram; see Biology (p. 122) (College of Liberal Arts and Sciences) in the Catalog for information about the biology major.

Joint B.A. in psychology/M.P.H. with community and behavioral health subprogram; see Psychology (p. 551) (College of Liberal Arts and Sciences) in the Catalog for information about the psychology major.

Joint B.S. in statistics/M.P.H. with quantitative methods subprogram; see Statistics and Actuarial Science (p. 627) (College of Liberal Arts and Sciences) in the Catalog for information about the statistics major.

Undergraduate students must apply to the joint programs. They should consult their undergraduate advisors. Visit Areas of Study/Undergrad to Grad on the Master of Public Health web site to learn more.

M.P.H. for Practicing Veterinarians

The Master of Public Health for practicing veterinarians requires a minimum of 42 s.h. of graduate credit. The program is presented through a collaboration between the University of Iowa College of Public Health and the College of Veterinary Medicine at Iowa State University and is offered primarily by distance learning. It enables students to prepare for new career opportunities and equips them to respond to public health challenges such as zoonotic diseases, food security and foodborne illnesses, bioterrorism, and environmental health.

Students participate in two summer institutes, one on each campus during consecutive summers (two weeks in May and June); the rest of the program is Internet-based, so students may complete requirements at times that fit their schedules. Specific courses are required each semester of the program.

The M.P.H. for practicing veterinarians requires the following course work.

M.P.H. COMMON REQUIREMENTS

Students must complete courses listed under "Common Requirements" (core courses and practicum) for the Master of Public Health; see the beginning of this Catalog section.

ADDITIONAL REQUIRED COURSES

All of these (21 s.h.):

MPH:6700 (170:175) Public Health Emergency Preparedness for Veterinarians and Other Public Health Disciplines	2 s.h.
EPID:5200 (173:120) Principles of Public Health Informatics	3 s.h.
EPID:5300 (173:130) Food Safety	3 s.h.
EPID:5320 (173:132) Exotic and Emerging Diseases of Animals	1 s.h.
EPID:5470 (173:147) Applied Veterinary Epidemiology/Biostatistics	3 s.h.
EPID:5550 (173:155) Diagnostic Microbiology for Epidemiology	3 s.h.
EPID:5570 (173:157) Zoonotic Diseases	3 s.h.
OEH:6110 (175:209) Rural Health and Agricultural Medicine	3 s.h.

Joint M.P.H./D.V.M.

The joint Master of Public Health/Doctor of Veterinary Medicine is offered by the University of Iowa College of Public Health and the College of Veterinary Medicine at Iowa State University. It requires a minimum of 42 s.h. in addition to the requirements of the D.V.M. degree (see College of Veterinary Medicine in the Iowa State University catalog). The program prepares students for work as state veterinarians, as college and university faculty members, in local and state departments of public health, in the

Public Health Commissions Corp., in state agricultural departments, and for public health positions in the military.

Separate application to each degree program is required; applicants must be admitted to both programs before they may be admitted to the joint degree program. For M.P.H. admission requirements, see "Admission" later in this section.

The joint M.P.H./D.V.M. requires the following course work.

M.P.H. COMMON REQUIREMENTS

Students must complete courses listed under "Common Requirements" (core courses and practicum) for the Master of Public Health; see the beginning of this Catalog section.

M.P.H. ELECTIVES

Students must earn at least 9 s.h. from the following courses.

EPID:5300 (173:130) Food Safety	3 s.h.
EPID:5470 (173:147) Applied Veterinary Epidemiology/Biostatistics	3 s.h.
EPID:5550 (173:155) Diagnostic Microbiology for Epidemiology (offered by distance education)	3 s.h.
EPID:5570 (173:157) Zoonotic Diseases	3 s.h.
EPID:6550 (173:255) Epidemiology of Infectious Diseases (offered by distance education)	3 s.h.
OEH:4510 (175:170) Injury and Violence Prevention (offered by distance education)	3 s.h.
OEH:6110 (175:209) Rural Health and Agricultural Medicine (offered by distance education)	3 s.h.

REQUIRED D.V.M. COURSES

All of these (Iowa State University courses):

Public Health and the Role of the Veterinary Profession (VMPPM 388)	3 s.h.
Small Animal Internal Medicine (VCS 436)	2 s.h.
Infectious Diseases and Preventive Medicine (VMPPM 437)	3 s.h.
Pharmacology and Therapeutics (BMS 443)	3 s.h.
Case Studies IV (VMPPM 378)	1 s.h.

Joint M.P.H./J.D.

The joint Master of Public Health/Juris Doctor requires a minimum of 42 s.h. of graduate credit in addition to the requirements of the J.D. degree. The program helps students develop special expertise in public health legal issues. It is designed to train qualified students for leadership roles in both the public and private sectors. Separate application to each degree program is required; applicants must be admitted to both programs before they may be admitted to the joint degree program.

The joint M.P.H./J.D. requires the following course work.

M.P.H. COMMON REQUIREMENTS

Students must complete courses listed under "Common Requirements" (core courses and practicum) for the Master of Public Health; see the beginning of this Catalog section.

M.P.H. ELECTIVES

Students earn 9 s.h. in elective courses chosen from one of the following public health areas: aging studies;

biostatistics; community and behavioral health; epidemiology; global health; health policy; maternal, child, and family health; nutrition and exercise; or occupational and environmental health. Students choose electives in consultation with their advisors in the College of Law and the College of Public Health.

J.D. REQUIREMENTS

Students in the joint M.P.H./J.D. program must complete the curriculum of the J.D. program; see College of Law (p. 1005) in the Catalog. Students must be enrolled in the College of Law to take College of Law courses.

COURSES THAT COUNT TOWARD BOTH DEGREES

Students may count up to 12 s.h. earned in the following College of Law courses toward the M.P.H. degree.

LAW:8105 (091:204) Administrative Law	3 s.h.
LAW:8407 (091:251) Topics in Employee Benefits Law	arr.
LAW:8421 (091:250) Employment Law	2-3 s.h.
LAW:8433 (091:255) Environmental Law	3 s.h.
LAW:8467 (091:268) Family Law	3-4 s.h.
LAW:8562 (091:261) Health Law	2-3 s.h.
LAW:8622 (091:291) International Environmental Law	3 s.h.
LAW:8670 (091:292) Labor Law	3-4 s.h.
LAW:8714 (091:341) Managing National Security	1-3 s.h.
LAW:8742 (091:342) Negotiations	2-4 s.h.
LAW:8751 (091:320) Nonprofit Organizational Effectiveness I	3 s.h.
LAW:8752 (091:322) Nonprofit Organizational Effectiveness II	3 s.h.
LAW:8887 (091:354) State and Local Government	1-3 s.h.
LAW:9413 (091:455) Health and Elder Law Practicum	1-3 s.h.

Joint M.P.H./M.D.

The joint Master of Public Health/Doctor of Medicine requires a minimum of 42 s.h. of graduate credit in addition to the requirements of the M.D. degree. Students who complete the program enjoy expanded career opportunities and are well prepared to apply the principles of medicine and public health in their work. Separate application to each degree program is required; applicants must be admitted to both programs before they may be admitted to the joint program.

The joint M.P.H./M.D. requires the following course work.

M.P.H. COMMON REQUIREMENTS

Students must complete courses listed under "Common Requirements" (core courses and practicum) for the Master of Public Health; see the beginning of this Catalog section.

M.P.H. ELECTIVES

Students earn 9 s.h. in elective courses chosen from one of the following public health areas: biostatistics, community and behavioral health, epidemiology, health communication, health policy, occupational and environmental health. Students choose electives in

consultation with their advisors in the Carver College of Medicine and the College of Public Health.

M.D. REQUIREMENTS

Students in the joint M.P.H./M.D. program must complete the curriculum of the M.D. program; see Doctor of Medicine (p. 1066) (Carver College of Medicine) in the Catalog.

COURSES THAT COUNT TOWARD BOTH DEGREES

Students may count up to 12 s.h. earned in the following M.D. courses toward the M.P.H. degree.

IM:8301 (078:101) Inpatient Internal Medicine	arr.
IM:8302 (078:102) Outpatient Internal Medicine	3-4 s.h.
MED:8213 (050:183) Healthcare Ethics, Law, and Policy	2 s.h.
MED:8301 (050:180) Community-Based Primary Care (up to 10 s.h.)	arr.

Joint M.P.H./Pharm.D.

The joint Master of Public Health/Doctor of Pharmacy requires 42 s.h. of graduate credit in addition to the requirements of the Pharm.D. degree. The program helps students develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety.

Graduates of the program may work in areas of interest common to pharmacy and public health, such as spread and treatment of disease, community health, and immunology; bioterrorism, terrorism, and preparedness; genetics; insurance; managed care; family and juvenile health; and protection of special populations. Employment opportunities are available in hospitals and clinics and with health care providers; private practice; insurance and managed care organizations; local, county, state, and federal government; public health governmental agencies; and colleges and universities.

Separate application to each degree program is required; applicants must be admitted to both programs before they may be admitted to the joint degree program.

The joint M.P.H./Pharm.D. requires the following course work.

M.P.H. COMMON REQUIREMENTS

Students must complete courses listed under "Common Requirements" (core courses and practicum) for the Master of Public Health; see the beginning of this Catalog section.

M.P.H. ELECTIVES

Students select electives totaling 9 s.h. from one of the following public health areas: biostatistics, community and behavioral health, epidemiology, health communication, health policy, or occupational and environmental health. Electives are chosen in consultation with the student's advisors in the Colleges of Pharmacy and Public Health.

PHARM.D. REQUIREMENTS

Students in the joint M.P.H./Pharm.D. program must complete the curriculum of the Pharm.D. program; see the College of Pharmacy (p. 1175) section of the Catalog. Students must be enrolled in the College of Pharmacy in order to take College of Pharmacy courses.

COURSES THAT COUNT TOWARD BOTH DEGREES

Students may count up to 12 s.h. earned in the following Pharm.D. courses toward the M.P.H. degree.

PHAR:8105 (046:122) Social Aspects of Pharmacy Care	2 s.h.
PHAR:8204 (046:117) Pharmacy Practice Lab IV (1 s.h. counts toward both degrees)	2 s.h.
PHAR:8241 (046:154) Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics	2 s.h.
PHAR:8243 (046:156) Cardiovascular Therapeutics	2 s.h.
PHAR:8308 (046:129) Pharmaceutical Economics and Insurance	3 s.h.
PHAR:8343 (046:165) Infectious Disease Therapeutics	2 s.h.

Admission

Applicants to the M.P.H. program must apply through the Schools of Public Health Application Service (SOPHAS); they also must apply for admission to the Graduate College through the University of Iowa Office of Admissions. Applicants must submit scores on the Graduate Record Exam (GRE) General Test, LSAT, DAT, VCAT, GMAT, or another professional placement exam; scores must be at or above the median scores for test takers applying to similar programs. For detailed application information, visit Prospective Students on the Master of Public Health web site.

Applicants to the M.P.H. program must have successfully completed one semester each of college algebra and biology.

Applicants whose first language is not English and who do not hold a bachelor's degree from an accredited institution in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 81-99 (Internet-based) are required to take English fluency courses. Applicants who score below 81 are not considered for admission.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Students may enter the M.P.H. program in fall and summer. Application deadlines for fall entrance to the M.P.H. program are April 15 for U.S. citizens and permanent residents, April 1 for international applicants. Application deadlines for summer entrance are April 1 for U.S. citizens and permanent residents, March 15 for international applicants.

Application deadline for the M.P.H. for practicing veterinarians is March 1.

Students may enter the M.P.H. joint programs in fall, spring, and summer. Contact the individual joint programs for deadline information.

Financial Support

A limited number of modest tuition awards are available each year for M.P.H. students. For information on financing

education through jobs, grants, and loans, contact the University's Office of Student Financial Aid.

Courses

MPH:3000 (170:099) Fundamentals of Public Health 3 s.h.

Introduction to public health; emphasis on issues, challenges, achievements, careers; historical events that serve as a foundation for public health practice.

MPH:5100 (170:101) Introduction to Public Health 3 s.h.

Concepts, structures, and activities in public health practice. Offered fall semesters and summer sessions.

MPH:6100 (170:200) Essentials of Public Health arr.

Introduction and overview of the scope of public health; emphasis on history, definitions, issues, achievements, and future challenges; examples of public health research and practice.

MPH:6500 (170:172) Independent Study in Public Health arr.

In-depth pursuit of an area of special interest in public health.

MPH:6600 (170:173) Service-Learning in Public Health arr.

Community service learning experience directly related to goals and objectives of a specific public health course; faculty-guided planning and reflection.

MPH:6700 (170:175) Public Health Emergency Preparedness for Veterinarians and Other Public Health Disciplines 2-3 s.h.

Introduction to public health emergency preparedness from a one health perspective; emergency preparedness from federal, state, and local perspectives; important elements for preparing responders; preparedness information systems and communication techniques.

MPH:7000 (170:299) M.P.H. Practicum Experience 0-6 s.h.

Comprehensive and integrated application of knowledge acquired in the M.P.H. program in a practice setting; demonstration of professional competence in public health practice. Prerequisites: MPH:5100 (170:101), BIOS:5110 (171:161), CBH:5105 (172:101), EPID:4400 (173:140), HMP:4000 (174:102) or HMP:5005 (174:200), and OEH:4240 (175:197). Requirements: an approved practicum proposal.

Occupational and Environmental Health

Head

- Peter Thorne

Professors

- Kenneth Culp (Occupational and Environmental Health/Nursing), William Field (Occupational and Environmental Health/Epidemiology), Laurence Fuortes (Occupational and Environmental Health/International Programs/Epidemiology), Fredric Gerr (Occupational and Environmental Health/Epidemiology/Internal Medicine), Vicki Grassian (Occupational and Environmental Health/Education/Chemistry/Chemical and Biochemical Engineering), Patrick Hartley (Occupational and Environmental Health/Internal Medicine), Keri Hornbuckle (Civil and Environmental Engineering/Occupational and Environmental Health), Paul James (Family Medicine/Occupational and Environmental Health), Joel Kline (Occupational and Environmental Health/Internal Medicine), Gabriele Ludewig, James Merchant (Occupational and Environmental Health/Internal Medicine/Nursing), Patrick O'Shaughnessy (Civil and Environmental Engineering/Occupational and Environmental Health), David Osterberg (Geographical and Sustainability Sciences/Occupational and Environmental Health), Gene Parkin (Civil and Environmental Engineering/Occupational and Environmental Health), Corinne Peek-Asa (Occupational and Environmental Health/Epidemiology/Nursing/Public Policy Center), George Phillips (Occupational and Environmental Health/Stead Family Department of Pediatrics), Larry Robertson (Radiation Oncology/Occupational and Environmental Health), Jerald Schnoor (Civil and Environmental Engineering/Occupational and Environmental Health), Peter Thorne (Civil and Environmental Engineering/Occupational and Environmental Health), David Wilder (Occupational and Environmental Health/Biomedical Engineering)

Associate professors

- Carri Casteel, Hans-Joachim Lehmler, Thomas Peters, Marizen Ramirez, Diane Rohlman, Thomas Schnell (Industrial Engineering/Occupational and Environmental Health/Electrical and Computer Engineering/Neurology)

Assistant professors

- Renee Anthony, Brenda Buikema, Nathan Fethke (Occupational and Environmental Health/Biomedical Engineering), Brandi Janssen, Matthew Nonnenmann

Adjunct professors

- David Deeter, Michael Rosmann

Adjunct associate professors

- Craig Bainbridge (Occupational and Environmental Health/Internal Medicine), Susan Chrysler, Kenneth McMains, Peter Weyer

Adjunct assistant professors

- Chandran Achutan, Jonas Baltrusaitis, Danelle Bickett-Weddle, Edward Bottei (Occupational and

Environmental Health/Internal Medicine/Stead Family Department of Pediatrics/Pharmacy), Razvan Chereches, Gregory Couser, Christine Deignan, Gregory Flamme, Rex Kuye, Murray Madsen, John Rosecrance, Donald Simmons, Londa Vanderwal, John Vargo, Michael Wichman

Professors emeriti

- Thomas Cook, Kelley Donham, William Hausler, L.W. Knapp Jr., Keith Long, Donald Morgan, Nancy Sprince, Craig Zwerling

Associate professor emeritus

- Henri Cuddihy (Internal Medicine)

Assistant professor emeritus

- Pamela Ward

Graduate degrees: M.S. in occupational and environmental health; Ph.D. in occupational and environmental health

Web site: <http://www.public-health.uiowa.edu/oe/>

The Department of Occupational and Environmental Health focuses on assessment of risk factors in the physical environment and their relationship to disease—particularly health problems of agricultural and industrial workers. Students are guided by faculty members whose research interests include rural health care delivery, agricultural health, environmental health, occupational medicine, occupational lung disease, mammalian toxicology, inhalation toxicology, ergonomics, indoor air quality, occupational injury, injury epidemiology, injury prevention programs, aerosol physics, air and water quality, environmental chemistry, analytical toxicology, and environmental health in developing countries.

Graduate Programs of Study

- Master of Science in occupational and environmental health
- Doctor of Philosophy in occupational and environmental health

Both of the department's graduate degree programs offer optional subprograms in agricultural safety and health and industrial hygiene.

In addition to its degree programs, the department offers two subprograms for the Master of Public Health: the ergonomics subprogram and the occupational and environmental health subprogram; see "M.P.H. Subprograms" below. It also participates in the College of Public Health's graduate Certificate in Agricultural Safety and Health; see Agricultural Safety and Health (p. 1193) in the Catalog.

The department collaborates with the Department of Biomedical Engineering (College of Engineering) and the School of Urban and Regional Planning (Graduate College) to offer joint degree programs; see "Joint B.S.E. in Biomedical Engineering/M.S." and "Joint M.S./M.A. or M.S. in Urban and Regional Planning" below.

Individuals who are not enrolled in one of the department's degree programs but wish to take courses offered by the department may apply for professional improvement status. The department also offers an occupational medicine residency training program.

Master of Science

The Master of Science program in occupational and environmental health requires a minimum of 38 s.h. of graduate credit. It is offered with two optional subprograms: agricultural safety and health and industrial hygiene. The M.S. with agricultural safety and health subprogram requires a minimum of 39 s.h. of graduate credit; the M.S. with industrial hygiene subprogram requires a minimum of 43 s.h. of graduate credit. All M.S. students are required to complete a thesis.

The M.S. in occupational and environmental health without a subprogram requires the following work.

CORE COURSES

Students must complete all of the following courses.

OEH:4240 (175:197) Global Environmental Health	3 s.h.
OEH:5010 (175:180) Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.
OEH:5620 (175:230) Occupational Health	3 s.h.
OEH:5710 (175:260) Environmental Toxicology	3 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	0 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.

ELECTIVES

Credit earned in elective courses and the thesis completes the 38 s.h. required for the degree. Students work with their advisors to select electives appropriate for their professional goals.

THESIS

A thesis is required. Students may earn a maximum of 6 s.h. for the thesis. Additional thesis credit may be allowed for students who earn more than 38 s.h.

OEH:7000 (175:300) Thesis/Dissertation	arr.
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M.S. with Subprogram in Agricultural Safety and Health

The M.S. with subprogram in agricultural safety and health requires a minimum of 39 s.h. of graduate credit. The program prepares students for careers in education, health care, insurance, and agribusiness as specialists in agricultural safety and health.

The M.S. in occupational and environmental health with the agricultural safety and health subprogram requires the following work.

SUBPROGRAM CORE

Students must complete all of the following courses.

OEH:4240 (175:197) Global Environmental Health	3 s.h.
OEH:4540 (175:182) Statistics for Experimenters	3 s.h.

OEH:5010 (175:180) Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.
OEH:5410 (175:192) Occupational Safety	3 s.h.
OEH:5620 (175:230) Occupational Health	3 s.h.
OEH:5710 (175:260) Environmental Toxicology	3 s.h.
OEH:6110 (175:209) Rural Health and Agricultural Medicine	3 s.h.
OEH:6120 (175:210) Current Topics in Agricultural Health (seminar, taken two times, once for 0 s.h. and once for 1 s.h.)	1 s.h.
OEH:7040 (175:203) Preceptorship in Occupational and Environmental Health	arr.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	0 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.

ELECTIVES

Agricultural safety and health students must complete elective course work from one of four focus areas. The amount of credit required varies by focus area, as follows.

Industrial hygiene: 9 s.h.

Ergonomics: 9 s.h.

Occupational epidemiology: 10 s.h.

Occupational injury prevention: 9 s.h.

THESIS

A thesis is required. Students may earn a maximum of 6 s.h. for the thesis.

OEH:7000 (175:300) Thesis/Dissertation	arr.
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M.S. with Subprogram in Industrial Hygiene

The M.S. with subprogram in industrial hygiene requires a minimum of 43 s.h. of graduate credit. The program prepares students for careers in industrial hygiene as well as the broad field of occupational and environmental health. Career opportunities are available in health and safety departments of industries; in consulting firms; in academic institutions; and in local, state, and federal public health agencies.

The M.S. in occupational and environmental health with the industrial hygiene subprogram requires the following work.

SUBPROGRAM CORE

Students must complete all of the following courses.

OEH:4240 (175:197) Global Environmental Health	3 s.h.
OEH:4310 (175:190) Occupational Ergonomics I	3 s.h.
OEH:4540 (175:182) Statistics for Experimenters	3 s.h.
OEH:5010 (175:180) Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.
OEH:5410 (175:192) Occupational Safety	3 s.h.
OEH:5620 (175:230) Occupational Health	3 s.h.
OEH:5710 (175:260) Environmental Toxicology	3 s.h.

OEH:6420 (175:231) Industrial Hygiene Fundamentals	3 s.h.
OEH:6430 (175:232) Assessing Physical Agent Hazards	3 s.h.
OEH:6440 (175:233) Control of Occupational Hazards	3 s.h.
OEH:6450 (175:221) Aerosol Technology	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	0 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.

ELECTIVES

Credit in elective courses and the thesis completes the 43 s.h. required for the degree. Students work with their advisors to select electives appropriate for their professional goals.

THESIS

A thesis is required. Students may earn a maximum of 6 s.h. for the thesis.

OEH:7000 (175:300) Thesis/Dissertation	arr.
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Joint B.S.E. in Biomedical Engineering/M.S.

Bachelor of Science in Engineering students majoring in biomedical engineering (musculoskeletal biomechanics track) who are interested in earning a Master of Science in occupational and environmental health (industrial hygiene subprogram) may apply to the joint B.S.E./M.S. program offered by the College of Engineering and the College of Public Health. The joint program permits students to count a limited amount of credit toward the requirements of both degrees, enabling them to begin the study of public health before they complete the bachelor's degree. For information about the B.S.E. program, see Biomedical Engineering (p. 871) (College of Engineering) in the Catalog.

Joint M.S./M.A. or M.S. in Urban and Regional Planning

The joint Master of Science in occupational and environmental health/Master of Arts or Master of Science in urban and regional planning requires 65 s.h. of graduate credit. Separate application to each degree program is required; applicants must be admitted to both programs before they may be admitted to the joint degree program. For information about the graduate programs in planning, see Urban and Regional Planning (p. 998) (Graduate College) in the Catalog.

M.P.H. Subprograms

The Department of Occupational and Environmental Health offers two subprograms for the Master of Public Health: the ergonomics subprogram and the occupational and environmental health subprogram.

The ergonomics subprogram focuses on understanding how workplace environments contribute to musculoskeletal injuries and illness and on control of workplace risk factors. Graduates are prepared to work

in industry and government agencies or pursue further academic training.

The occupational and environmental health subprogram provides a broad perspective on public health and career preparation for a variety of professional positions in occupational and environmental health.

For detailed information about the M.P.H. degree, see Master of Public Health Program (p. 1225) in the Catalog.

Doctor of Philosophy

The Doctor of Philosophy program in occupational and environmental health requires 72 s.h. of graduate credit. The program prepares students for professional and academic careers in environmental and occupational health. It is offered with two optional subprograms: agricultural safety and health, and industrial hygiene.

All doctoral students must complete a dissertation—a substantial scholarly treatise.

The Ph.D. in occupational and environmental health without a subprogram requires the following work.

CORE COURSES

Students must complete all of the following courses.

OEH:4240 (175:197) Global Environmental Health	3 s.h.
OEH:5010 (175:180) Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.
OEH:5620 (175:230) Occupational Health	3 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	1 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.
PATH:8133 (069:133) Introduction to Human Pathology for Graduate Students	4 s.h.

ELECTIVES

Students must earn a minimum of 24 s.h. in non-research-related courses, including classroom courses or equivalent web-based courses. Students work with their advisors to select courses appropriate for their professional goals.

RESEARCH CREDIT

Students earn the remaining credit for the Ph.D. by completing any combination of the following courses or other classroom courses. All Ph.D. students must complete a dissertation.

OEH:7000 (175:300) Thesis/Dissertation	arr.
OEH:7020 (175:172) Independent Study in Occupational and Environmental Health	arr.
OEH:7030 (175:201) Research in Occupational and Environmental Health	arr.

Ph.D. with Subprogram in Agricultural Safety and Health

The Ph.D. with subprogram in agricultural safety and health prepares doctoral students for academic, research, and policy-making careers in occupational and environmental health, with specialty in agricultural safety and health.

The Ph.D. in occupational and environmental health with the agricultural safety and health subprogram requires the following work.

SUBPROGRAM CORE

Students must complete all of the following courses.

OEH:4240 (175:197) Global Environmental Health	3 s.h.
OEH:4540 (175:182) Statistics for Experimenters	3 s.h.
OEH:5010 (175:180) Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.
OEH:5410 (175:192) Occupational Safety	3 s.h.
OEH:5620 (175:230) Occupational Health	3 s.h.
OEH:6110 (175:209) Rural Health and Agricultural Medicine	3 s.h.
OEH:6120 (175:210) Current Topics in Agricultural Health (seminar, taken two times, once for 0 s.h. and once for 1 s.h.)	1 s.h.
OEH:6130 (175:208) Agricultural Safety and Health: Practice, Research Methods, and Policy	3 s.h.
OEH:7040 (175:203) Preceptorship in Occupational and Environmental Health	arr.
BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
EPID:5570 (173:157) Zoonotic Diseases	2 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	1 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.

ELECTIVES

Agricultural safety and health subprogram students must complete elective course work from one of four focus areas. The amount of credit required varies by focus area, as follows.

Industrial hygiene: 15 s.h.

Ergonomics: 15 s.h.

Occupational epidemiology: 12 s.h.

Occupational injury prevention: 12 s.h.

RESEARCH CREDIT

Students earn the remaining credit for the Ph.D. by completing any combination of the following courses or other classroom courses. All Ph.D. students must complete a dissertation.

OEH:7000 (175:300) Thesis/Dissertation	arr.
OEH:7020 (175:172) Independent Study in Occupational and Environmental Health	arr.
OEH:7030 (175:201) Research in Occupational and Environmental Health	arr.

Ph.D. with Subprogram in Industrial Hygiene

The Ph.D. with subprogram in industrial hygiene provides doctoral students with specialized knowledge in industrial hygiene in addition to their expertise in the broad field of occupational and environmental health.

The Ph.D. in occupational and environmental health with the industrial hygiene subprogram requires the following work.

SUBPROGRAM CORE

Students must complete all of the following courses.

OEH:4240 (175:197) Global Environmental Health	3 s.h.
OEH:4310 (175:190) Occupational Ergonomics I	3 s.h.
OEH:5010 (175:180) Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	1 s.h.
OEH:5410 (175:192) Occupational Safety	3 s.h.
OEH:5620 (175:230) Occupational Health	3 s.h.
OEH:5710 (175:260) Environmental Toxicology	3 s.h.
OEH:6420 (175:231) Industrial Hygiene Fundamentals	3 s.h.
OEH:6430 (175:232) Assessing Physical Agent Hazards	3 s.h.
OEH:6440 (175:233) Control of Occupational Hazards	3 s.h.
OEH:6450 (175:221) Aerosol Technology	3 s.h.
OEH:6460 (175:234) Quantitative Exposure Assessment: Study Design and Evaluation	3 s.h.
BIOS:5120 (171:162) Design and Analysis of Biomedical Studies	3 s.h.
EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
GRAD:7270 (650:270) Principles of Scholarly Integrity	1 s.h.
MPH:6100 (170:200) Essentials of Public Health	1 s.h.

One of these:

OEH:4540 (175:182) Statistics for Experimenters	3 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.

ELECTIVES

Students must earn a minimum of 12 s.h. in non-research-related courses, including classroom courses or equivalent web-based courses. Students work with their advisors to select courses appropriate for their professional goals.

RESEARCH CREDIT

Students earn the remaining credit for the Ph.D. by completing any combination of the following courses or other classroom courses. All Ph.D. students must complete a dissertation.

OEH:7000 (175:300) Thesis/Dissertation	arr.
OEH:7020 (175:172) Independent Study in Occupational and Environmental Health	arr.
OEH:7030 (175:201) Research in Occupational and Environmental Health	arr.

Admission

Applicants to the M.S. and Ph.D. programs in occupational and environmental health must apply through the Schools of Public Health Application Service (SOPHAS); they also must apply for admission to the Graduate College through the University of Iowa Office of Admissions. For detailed application information, visit Prospective Students/How to Apply on the Department of Occupational and Environmental Health web site.

The occupational and environmental health faculty takes several factors into consideration when evaluating applications for admission, including Graduate Record Exam (GRE) General Test scores, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All M.S. and Ph.D. program applicants must hold a bachelor's degree and have a cumulative g.p.a. of at least 3.00 (M.S. applicants) or at least 3.25 (Ph.D. applicants). All applicants must have taken the Graduate Record Exam (GRE) General Test. A verbal score of at least 151 and a quantitative score of at least 151 are recommended. For applicants who have not taken the GRE, the department considers scores from other standardized tests, such as the Medical College Admission Test (MCAT).

Applicants whose first language is not English and who do not hold a bachelor's degree from an accredited institution in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 81-99 (Internet-based) are required to take English fluency courses. Applicants who score below 81 are not considered for admission.

Undergraduate preparation for M.S. applicants must include course work in mathematics, biology, chemistry, and either physical sciences or engineering, depending on the applicant's chosen specialty area.

M.S. applicants who intend to pursue the industrial hygiene subprogram also must have taken physics and mathematics through calculus; course work in biology, microbiology, and computer programming is highly recommended.

Completion of the M.S. program before beginning Ph.D. study is recommended. Undergraduate preparation for doctoral applicants must include at least two semesters of chemistry, one semester of physics, and one semester of calculus. Course work in biology, microbiology, and computer programming is highly recommended, particularly for students interested in some specialized areas.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate (p. 940) College section of the Catalog.

Students may enter the department's graduate programs in the fall. February 1 is the priority application deadline for consideration for financial support; May 1 is the final application deadline.

Financial Support

Several graduate student awards, including tuition and stipend support, are available for individuals interested in industrial hygiene, agricultural safety and health, ergonomics, occupational epidemiology, or occupational injury prevention. Both stipend and tuition support are available for all occupational medicine residents. Full-time graduate students in good academic standing (those not admitted on conditional status) are eligible for a stipend and tuition support. All other students are eligible for tuition support only; requests are considered case-by-case. All recipients must be U.S. citizens or permanent residents.

POSTDOCTORAL POSITIONS

The College of Public Health's Environmental Health Sciences Training Program offers postdoctoral positions in environmental health/toxicology. Appointments are made for two years with the possibility of an additional year. Applicants must be U.S. citizens or permanent residents.

Residency Program

In cooperation with University of Iowa Hospitals and Clinics, the department offers residency training in occupational medicine for physicians seeking specialty training in occupational medicine. For information contact the director of the Occupational Medicine Residency Program.

Facilities and Resources

The Department of Occupational and Environmental Health is housed in the College of Public Health Building, on the University's health sciences campus, and at the Institute for Rural and Environmental Health, at the University of Iowa Research Park. College of Public Health-based laboratory facilities give researchers and students access to cutting-edge technologies for the study of occupational and environmental health.

The Inhalation Toxicology Facility provides a full array of inhalation toxicology, aerosol science, and bioaerosol assay services. A primary focus of the facility is the study of toxicants found in the agricultural environment and related exposure situations. The facility is particularly well-equipped for studying organic dusts and bioaerosols.

The Occupational Hygiene Laboratory provides expertise and equipment for exposure assessment in occupational settings. The laboratory offers a range of sample collection capabilities and an extensive inventory of sampling equipment. Field and laboratory services available through the laboratory support exposure-response studies and control technology development studies in a variety of occupational arenas, including agriculture, construction, and indoor environments (home and office).

A computer laboratory is available for student use, and a library collection is located at the Institute for Rural and Environmental Health.

Heartland Center for Occupational Health and Safety

The Heartland Center for Occupational Health and Safety, one of 17 education and research centers funded by the National Institute of Occupational Safety and Health, provides training, education, and outreach. Its program areas are industrial hygiene, occupational medicine,

ergonomics, agricultural safety and health, occupational injury prevention research, occupational epidemiology, and continuing education and outreach.

Courses

OEH:3210 (175:101) Health, Work, and the Environment 3 s.h.

Current topics in occupational and environmental health; how the United States protects workers, protects people from environmental agents, and reduces environmental harm. Same as GEOG:3210 (044:174).

OEH:4110 (175:196) Agricultural Safety: Theories and Practice 2 s.h.

General theories and practice of injury prevention from varied fields, including industrial safety, engineering, regulation, education, epidemiology, social psychology; strategic application in agriculture.

OEH:4210 (175:111) International Health 3 s.h.

Urgent health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Same as GHS:4210 (152:111), EPID:4210 (173:111).

OEH:4220 (175:252) U.S. and Global Environmental Health Policy 3 s.h.

Major concerns in environment and human health, legislation enacted to deal with these concerns; emphasis on contemporary issues. Offered fall semesters of odd years. Requirements: for OEH:4220 (175:252) — OEH:4240 (175:197); for CEE:4220 (053:204) — CEE:2150 (053:050). Same as CEE:4220 (053:204), GHS:4220 (152:252).

OEH:4240 (175:197) Global Environmental Health 3 s.h.

Environmental health comprised of aspects of human health determined by interactions with physical, chemical, biological, and social factors in global environment; worldview and survey; focus on issues most relevant today; sustainability; air, water, and soil pollution and remediation; occupational health; injury prevention; food safety and security; risk assessment; environmental health policy.

OEH:4310 (175:190) Occupational Ergonomics I 2-3 s.h.

Principles of ergonomics, with focus on physical capabilities of workers and their interactions with their work environment; physiological basis of work, patterns of work, occupational risk factors for musculoskeletal and neurovascular disorders, workplace and equipment design, integration of ergonomics in manufacturing processes.

OEH:4510 (175:170) Injury and Violence Prevention 3 s.h.

Theory, research, and practice of injury control; unintentional and intentional injuries; local, national, international injury issues. Same as EPID:4510 (173:170).

OEH:4520 (175:175) Research Methods in Disaster Studies 3 s.h.

Epidemiologic study of disasters and their health consequences; research to identify and reduce health effects, research in context of response and preparedness. Same as EPID:4520 (173:175), GHS:4275 (152:195).

OEH:4530 (175:176) Global Road Safety 2 s.h.

Road safety problem, data sources, research methods used in field, and how intervention and prevention programs are developed and evaluated; lecture, hands-on approaches.

OEH:4540 (175:182) Statistics for Experimenters 3 s.h.

Application of statistical techniques to evaluate data derived from experimental samples designs; use of spreadsheets, statistical software; design and analysis of experiments; regression analysis; model building; practical applications. Same as CEE:4187 (053:187).

OEH:4920 (175:198) Solid and Hazardous Wastes 3 s.h.

Sources, characteristics, collection, disposal of solid and hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Requirements: for CEE:4158 (053:158) — CEE:2150 (053:050); for OEH:4920 (175:198) — OEH:4240 (175:197). Same as CEE:4158 (053:158).

OEH:5010 (175:180) Occupational and Environmental Health Seminar 0-1 s.h.

Contemporary topics in occupational health, agricultural and comparative medicine, environmental health.

OEH:5120 (175:211) Veterinary Public Health: The Profession 1 s.h.

History and overview of veterinary public health and the American College of Veterinary Preventive Medicine (ACVPM); preparation for ACVPM board of certification.

OEH:5410 (175:192) Occupational Safety 3 s.h.

Principles and practices of occupational safety; applications in industrial and other occupational settings; interactions with other disciplines.

OEH:5530 (175:185) Interpreting Occupational and Environmental Health Research 2 s.h.

Tools necessary for making critical assessment of published scientific research reports from a methodological perspective; examples from recently published research studies in occupational and environmental health. Corequisites: BIOS:5110 (171:161) and EPID:4400 (173:140).

OEH:5620 (175:230) Occupational Health 3 s.h.

Principles, practice of occupational medicine, fundamentals of industrial hygiene and safety, occupational health management, ergonomics, occupational health nursing. Offered fall semesters.

OEH:5710 (175:260) Environmental Toxicology 3 s.h.

Sources, routes of absorption, effects of environmental toxicants affecting man; pathophysiology of toxicant actions, including those of air and water pollutants, metals, pesticides, solvents, food toxicants, chemicals. Requirements: college chemistry or physiology or biochemistry.

OE:6110 (175:209) Rural Health and Agricultural Medicine 3 s.h.

Clinical orientation of specific health problems of rural residents, agricultural workers; rural health care delivery, socioeconomic issues in agriculture and their effects on health and safety of the agricultural population; occupational health problems, environmental health hazards in rural areas. Requirements: enrollment in College of Public Health or health sciences.

OE:6120 (175:210) Current Topics in Agricultural Health 0-1 s.h.

Issues that affect the health of agricultural populations, such as agro-terrorism, antibiotic resistance, genetically modified organisms; current scientific literature.

OE:6130 (175:208) Agricultural Safety and Health: Practice, Research Methods, and Policy 3 s.h.

Comprehensive overview of regional, national, and global agricultural production and associated public health hazards; solutions to identified hazards. Corequisites: OE:6110 (175:209), if not taken as a prerequisite.

OE:6310 (175:295) Clinical Ergonomics 3 s.h.

Clinical orientation to specific ergonomic problems and issues; preparation for conducting independent on-site ergonomic evaluations in occupational settings; experience developing and evaluating ergonomic interventions in an occupational setting; rotation through an occupational medicine clinic. Prerequisites: OE:4310 (175:190).

OE:6320 (175:294) Occupational Ergonomics II 3 s.h.

Application of ergonomic principles in varied work settings, through case study approach; participatory ergonomics, economics of ergonomics, workforce issues, psychosocial factors, shift work, integration of ergonomics into business models, current legislative issues, legal aspects of ergonomics, international perspectives; biomedical instrumentation used for risk factor exposure measurements.

OE:6420 (175:231) Industrial Hygiene Fundamentals 3 s.h.

Principles, with emphasis on recognition of chemical health hazards, physical health hazards at work. Corequisites: OE:5620 (175:230), if not taken as a prerequisite.

OE:6430 (175:232) Assessing Physical Agent Hazards 3 s.h.

Basic principles of recognizing and evaluating hazards presented by physical agents in occupational environments. Prerequisites: OE:6420 (175:231).

OE:6440 (175:233) Control of Occupational Hazards 3 s.h.

Physical science concepts applied to control of occupational hazards ranging from dusts to mists to vapors; strategies, management issues, personal protective equipment, implementation skills; in-depth instruction on local exhaust ventilation system design. Prerequisites: OE:6420 (175:231).

OE:6450 (175:221) Aerosol Technology 3 s.h.

Particle statistics and physics of aerosols, including inertia, diffusion, nucleation, evaporation, condensation, optics, electrical properties; relationship to fields such as agriculture, nanotechnology, environmental and occupational health, atmospheric chemistry, drug delivery.

OE:6460 (175:234) Quantitative Exposure Assessment: Study Design and Evaluation 3 s.h.

Principles of designing occupational and environmental exposure assessment studies, analyzing exposure data, and conducting exposure-response evaluations. Prerequisites: BIOS:5110 (171:161) or OE:4540 (175:182).

OE:6510 (175:220) Environmental and Occupational Epidemiology 3 s.h.

Overview of methods to interpret and perform environmental and occupational epidemiologic studies with focus on exposure assessment; valuable insights into identifying regional, national, global environmental, and occupational health-related issues. Prerequisites: EPID:4400 (173:140). Same as EPID:6200 (173:220).

OE:6520 (175:251) Injury Epidemiology 3 s.h.

How epidemiology can be applied to injury prevention and control: epidemiology literature, specific methodological problems involved in the epidemiology of injuries, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisites: EPID:4400 (173:140). Same as EPID:6510 (173:251).

OE:6530 (175:253) Epidemiology of Occupational Injuries 3-4 s.h.

Epidemiological literature on occupational injuries and their prevention; focus on research methods. Offered spring semesters of even years. Prerequisites: EPID:4400 (173:140). Same as EPID:6530 (173:253).

OE:6610 (175:285) Advanced Topics in Occupational Medicine 2 s.h.

Skills and knowledge for evaluating and treating patients with work-related illness.

OE:6720 (175:265) Advanced Toxicology 4 s.h.

Hepatic metabolism and toxification mechanisms, pulmonary and immunotoxicology, nervous system poisons and their mechanisms of action, general and molecular concepts of chemical carcinogenesis. Prerequisites: OE:5710 (175:260).

OE:7000 (175:300) Thesis/Dissertation arr.

OE:7010 (175:171) Problems in Occupational and Environmental Health arr.

Didactic material in occupational and environmental health; may include tutorial, seminar, faculty-directed independent work (e.g., literature search, project, short research project).

OEH:7020 (175:172) Independent Study in Occupational and Environmental Health arr.

In-depth pursuit of an area in occupational and environmental health requiring substantial creativity and independence.

OEH:7030 (175:201) Research in Occupational and Environmental Health arr.

Research that may lead to a dissertation.

OEH:7040 (175:203) Preceptorship in Occupational and Environmental Health arr.

Work experience using knowledge and skills acquired in the classroom; arranged in conjunction with departmental or collegiate activities or with governmental agencies or private industry.

OEH:8610 (175:996) Occupational Medicine arr.

In-depth study of an area in occupational and environmental medicine, with clinical experience in an outpatient community setting. Four-week course. Requirements: M.D. enrollment.

Translational and Clinical Investigation

Coordinator

- James C. Torner

Graduate certificate: translational and clinical investigation

Web site: <http://www.public-health.uiowa.edu/?s=translational+and+clinical+investigation>

The Department of Epidemiology (p. 1208) and the Institute for Clinical and Translational Science (ICTS) offer the Certificate in Translational and Clinical Investigation for clinicians who seek advanced training in clinical methodology and applied patient-oriented research skills.

Graduate Program of Study

- Certificate in Translational and Clinical Investigation

Certificate

The Certificate in Translational and Clinical Investigation requires 17 s.h. of graduate credit and may be completed in one year. Completion of the certificate is noted on the student's transcript.

Certificate students complete didactic course work and clinical preceptorships and participate in clinical research seminars. They become proficient in the conduct of independent clinical research, including hypothesis development, study design, knowledge of research ethics, survey development, data collection, basic and advanced statistical analyses, and interpretation of results. They also develop core competencies in their area of interest.

The Certificate in Translational and Clinical Investigation requires the following work.

EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
EPID:5500 (173:150) Introduction to Clinical Epidemiology	3 s.h.
EPID:6950 (173:295) Clinical Research Ethics	2-3 s.h.
BIOS:5110 (171:161) Introduction to Biostatistics	3 s.h.
Electives	6 s.h.

The certificate program is open to individuals who hold a doctoral-level degree in a clinical discipline (e.g., M.D., D.O., D.D.S., Ph.D., Pharm.D., D.V.M.) and graduate admission to the College of Public Health or enrollment in a basic or health science doctoral program at The University of Iowa. Other admission requirements are similar to those for the M.S. program in epidemiology (p. 1208).

University College

Dean

- Lon D. Moeller

Assistant dean

- Andrew Beckett

Affiliated faculty

- Julie Andsager (Journalism and Mass Communication/Community and Behavioral Health), Chris Brochu (Earth and Environmental Sciences), Cary Covington (Political Science), Steve Duck (Communication Studies/Psychology), Brooks Landon (English), Shaun Vecera (Psychology)

Web site: <http://uc.uiowa.edu/>

University College is home to a wide range of programs for University of Iowa students and precollege students. It includes major college-level programs such as the University of Iowa Honors Program, Study Abroad, Career Center Programs, and study at Iowa Lakeside Laboratory.

University College offers programs leading to the Bachelor of Applied Studies (B.A.S.) degree and the Bachelor of Liberal Studies (B.L.S.) degree. Both programs enable students to complete a bachelor's degree by distance education. The B.A.S., which is designed for graduates of community college technical programs, provides alternatives to traditional academic majors, permitting students to plan their own emphasis areas in consultation with their advisors. The B.L.S. is a general undergraduate degree without a traditional academic major; students work with their advisors to plan study programs that meet their individual objectives.

The college also offers undergraduate certificate programs in clinical and translational science, human rights, leadership studies, nonprofit management, and sustainability. In addition, it is home to summer undergraduate research programs in the STEM fields (science, technology, engineering, and mathematics), microbiology, and medical scientist training.

Some University College programs and courses are designed to smooth entering students' transition to college life, such as College Success Initiatives courses and First-Year Seminars, or to provide opportunities for populations underrepresented in the sciences and engineering, such as Iowa Biosciences Advantage.

Lifetime Leisure Skills courses in a broad range of sport and fitness activities are offered through University College, as are special courses for students preparing for work and/or internships at University of Iowa Hospitals and Clinics and students who design web sites for University departments and offices.

The University's Reserve Officer Training Corps programs, Aerospace Studies (Air Force ROTC) and Military Science (Army ROTC), reside in University College.

In addition, University College offers courses in several precollege programs: the Belin-Blank Center for Gifted Education, the Center for Diversity & Enrichment, the Iowa Young Writers' Studio, the Secondary Student Training Program, and University of Iowa Upward Bound.

Courses offered through University College are taught by University of Iowa faculty and staff members.

College-Level Degree Programs

Bachelor of Applied Studies (p. 1245)

Bachelor of Liberal Studies (p. 1248)

College-Level Certificate Programs

Clinical and Translational Science (p. 1259)

Human Rights (p. 1263)

Leadership Studies (p. 1271)

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Aerospace Studies (Air Force ROTC)

Director

- Lt. Col. Rick A. Spyker

Assistant professor

- Capt. Anthony Clark

Undergraduate minor: aerospace studies

Web site: <http://www.uiowa.edu/~afrotc/>

The Aerospace Studies Program administers the Air Force Reserve Officer Training Corps (AFROTC) at The University of Iowa. AFROTC prepares highly qualified students who are working toward a degree for commissions as officers in the United States Air Force.

AFROTC is voluntary, with courses open to all undergraduate and graduate students. The amount of AFROTC academic credit that may be applied toward a degree varies from college to college at the University. The College of Liberal Arts and Sciences, for example, accepts a maximum of 20 s.h.

In order to receive a commission, AFROTC cadets must complete all University of Iowa degree requirements as well as courses specified by the U.S. Air Force.

Undergraduate and Graduate Programs

AFROTC offers programs lasting three or four years. Joining early gives students the opportunity to try AFROTC without obligation. It also can give them an advantage in the scholarship selection process.

The AFROTC program's three main components are the general military course (GMC), the professional officer course (POC), and field training (FT).

General Military Course

The general military course (GMC) consists of one AFROTC course (1 s.h.) and a leadership laboratory taken each semester for two years. Any student who meets AFROTC qualifications and is in good academic standing is eligible to participate in the GMC. Students normally apply for the GMC up to the time they earn 60 s.h. Students who have earned more than 60 s.h. may enroll in the GMC if they are willing to extend their academic plan by a semester or more.

Professional Officer Course

The professional officer course (POC) consists of one AFROTC course (3 s.h.) and a leadership laboratory taken each semester for two years. Students accepted into the POC make a commitment to serve a minimum of four years as U.S. Air Force officers. To enter the POC, students must be selected to attend and must successfully complete field training. Students generally take the POC during their last 60 s.h.

Field Training

All POC applicants must successfully complete field training at a U.S. Air Force base. Field training is an

intensive, three-week program completed the summer after the sophomore year. It provides a first-hand look at the active duty Air Force and develops military leadership and discipline. Students participate in junior officer education, marksmanship, hand-to-hand combat training, and physical fitness training, and expeditionary skills training in a simulated environment. When they complete the program, they are ready to return to school and assume leadership positions in the AFROTC program.

Activities

Students have the option to compete for acceptance to a variety of optional AFROTC summer training programs. They may shadow a junior officer in a career field of interest, or they may compete to attend the Air Force Academy's free-fall parachute, glider, or combat survival schools. Students may return to field training as cadet training assistants, go to the Pentagon to see how the Air Force operates, or travel to a foreign country for a cultural immersion program. The Air Force provides transportation, meals, lodging, and a daily expense allowance for all summer programs.

Throughout the year, students may learn more about the Air Force by choosing to participate in base visits, aircraft orientation rides, a Dining Out (a formal ball in Air Force tradition), and other activities.

The AFROTC Cadet Corps also sponsors community service projects, intramural athletics, and social events, including formal and informal dinners.

Education Delay

Cadets may request an education delay to postpone entry to active duty until after completion of an advanced degree or professional training program.

Undergraduate Program of Study

- Minor in aerospace studies

The minor in aerospace studies requires a minimum of 16 s.h. in aerospace studies program courses. Students must maintain a g.p.a. of at least 2.50 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. In order to count course work taken at other institutions toward the minor, students must have approval from the director of aerospace studies. The minor requires the following course work.

All of these:

AERO:1100 (23A:010) Foundations of the U.S. Air Force I	1 s.h.
AERO:1200 (23A:012) Foundations of the U.S. Air Force II	1 s.h.
AERO:2100 (23A:020) Evolution of USAF Air and Space Power I	1 s.h.
AERO:2200 (23A:022) Evolution of USAF Air and Space Power II	1 s.h.
AERO:3100 (23A:130) Air Force Leadership Studies I	3 s.h.
AERO:3200 (23A:132) Air Force Leadership Studies II	3 s.h.
AERO:4100 (23A:140) National Security Affairs and Active Duty Preparation I	3 s.h.

AERO:4200 (23A:142) National Security Affairs and Active Duty Preparation II 3 s.h.

Financial Aid

Merit scholarships are available for two and three years of study. They provide varying awards for tuition and fees, a stipend for books, and a monthly tax-free subsistence allowance. Applicants are selected based on objective and subjective factors. Students should apply directly to the head of aerospace studies.

Nonscholarship cadets in the last two years of AFROTC are eligible for some financial assistance. They receive a tax-free subsistence allowance per month. Uniforms are furnished as well as all books for AFROTC classes.

Courses

Lower-Level Undergraduate

AERO:1100 (23A:010) Foundations of the U.S. Air Force I 1 s.h.

Introduction to U.S. Air Force: military customs and courtesies, basic oral and written communication techniques, careers available to Air Force officers. Requirements: first-year or sophomore standing.

AERO:1150 (23A:011) AFROTC Leadership Laboratory (LLAB) AS 100-FA 1 s.h.

A progression of experiences designed to develop leadership ability; military customs and courtesies, drill and ceremonies, military professional development, the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered fall semesters. Corequisites: AERO:1100 (23A:010). Requirements: first-year or sophomore standing.

AERO:1200 (23A:012) Foundations of the U.S. Air Force II 1 s.h.

Continuation of AERO:1100 (23A:010); leadership theory and practice, team building, diversity in the work force. Requirements: first-year or sophomore standing.

AERO:1250 (23A:013) AFROTC Leadership Laboratory (LLAB) AS 100-SP 1 s.h.

A progression of experiences designed to develop leadership ability; military customs and courtesies, drill and ceremonies, military professional development, the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered spring semesters. Corequisites: AERO:1200 (23A:012). Requirements: first-year or sophomore standing.

AERO:2100 (23A:020) Evolution of USAF Air and Space Power I 1 s.h.

Air power from Civil War hot air balloons through World War II; emphasis on developments in U.S. Air Force.

AERO:2150 (23A:021) AFROTC Leadership Laboratory (LLAB) AS 200-FA 1 s.h.

See AERO:1150 (23A:011). Offered fall semesters. Corequisites: AERO:2100 (23A:020).

AERO:2200 (23A:022) Evolution of USAF Air and Space Power II 1 s.h.

Continuation of AERO:2100 (23A:020); air power from post-World War II to present; emphasis on developments in U.S. Air Force.

AERO:2250 (23A:023) AFROTC Leadership Laboratory (LLAB) AS 200-SP 1 s.h.

See AERO:1150 (23A:011). Offered spring semesters. Corequisites: AERO:2200 (23A:022).

AERO:2500 (23A:150) Readings in Contemporary Military Issues 1-4 s.h.

Independent research on the U.S. Air Force; historical topics, current missions, future technologies, comparisons to other nations.

Upper-Level Undergraduate and Graduate

AERO:3100 (23A:130) Air Force Leadership Studies I 3 s.h.

Emphasis on management, leadership, communication skills required of an Air Force officer. Requirements: junior or higher standing.

AERO:3150 (23A:131) AFROTC Leadership Laboratory (LLAB) AS 300-FA 1 s.h.

See AERO:1150 (23A:011). Offered fall semesters. Corequisites: AERO:3100 (23A:130).

AERO:3200 (23A:132) Air Force Leadership Studies II 3 s.h.

Continuation of AERO:3100 (23A:130); leadership topics in counseling, accountability, ethics. Requirements: junior or higher standing.

AERO:3250 (23A:133) AFROTC Leadership Laboratory (LLAB) AS 300-SP 1 s.h.

See AERO:1150 (23A:011). Offered spring semesters. Corequisites: AERO:3200 (23A:132).

AERO:4100 (23A:140) National Security Affairs and Active Duty Preparation I 3 s.h.

America's evolving national security policy; structure of national security agencies, development of national security strategies; global regions and their historical and current importance to U.S. security policies. Requirements: junior or higher standing.

AERO:4150 (23A:141) AFROTC Leadership Laboratory (LLAB) AS 400-FA 1 s.h.

See AERO:1150 (23A:011). Offered fall semesters. Corequisites: AERO:4100 (23A:140).

AERO:4200 (23A:142) National Security Affairs and Active Duty Preparation II 3 s.h.

Continuation of AERO:4100 (23A:140); Department of Defense structure, missions, and responsibilities, with emphasis on role of the U.S. Air Force; Air Force standards; preparation for active duty as Air Force junior officers. Requirements: junior or higher standing.

AERO:4250 (23A:143) AFROTC Leadership Laboratory (LLAB) AS 400-SP 1 s.h.

See AERO:1150 (23A:011). Offered spring semesters. Corequisites: AERO:4200 (23A:142).

Bachelor of Applied Studies

Director

- Anne Zalenski

Undergraduate major: Bachelor of Applied Studies (B.A.S.)

Web site: <http://www.continuetolearn.uiowa.edu/programs/undergraduate/bas/index.html>

Undergraduate Program of Study

- Bachelor of Applied Studies

The Bachelor of Applied Studies (B.A.S.) is designed for graduates of community colleges who wish to complete a bachelor's degree by distance education. The B.A.S. is a general undergraduate degree without a traditional academic major, but students have the option to include a certificate or an emphasis area in their program or to design an individual program. B.A.S. students may not earn minors.

Working with their academic advisors, B.A.S. students may plan programs designed to advance their careers, begin new careers, or prepare for graduate or professional study. Students who have specific career goals or advanced degree programs in mind should learn what educational background they will need in order to achieve their goals, and they should include appropriate course work in their B.A.S. programs.

Students may earn credit toward the degree through several types of courses, including Division of Continuing Education on-campus courses, web-based independent study courses, semester-based web courses, extension courses at sites throughout Iowa, and regular session courses.

Individuals interested in applying to the B.A.S. program should hold an A.A.S., an A.A., or an A.S. degree; see "Admission" below for more detailed admission requirements.

The B.A.S. is awarded by University College and is administered by the Division of Continuing Education.

Bachelor of Applied Studies

The Bachelor of Applied Studies requires a minimum of 120 s.h. and is intended to be completed entirely by distance education. Students must earn at least 30 s.h. of credit toward the degree in University of Iowa courses after admission to the B.A.S. program. They must earn at least 60 s.h. of the minimum 120 s.h. at four-year colleges, including 45 s.h. in upper-level courses.

University of Iowa upper-level courses are numbered between 3000 and 4999. Some courses numbered below 3000 may be considered upper level for the B.A.S.; for a list of these courses, contact the Division of Continuing Education.

The program of study requires that students complete 12 s.h. in three of the following five distribution areas (total of 36 s.h.). In each distribution area, 6 of the required 12 s.h. must be earned in upper-level courses.

Communication and arts (e.g., journalism, speech, drama, art, music)

Humanities (e.g., literature, history, philosophy, religion)

Natural sciences and mathematics (e.g., geology, biology, statistics, computer science)

Professional fields (e.g., business, education, nursing, social work, library science)

Social sciences (e.g., geography, psychology, economics, political science, anthropology)

Students must maintain a cumulative g.p.a. of 2.00 or higher in all course work attempted, all work taken at The University of Iowa, and all upper-level course work.

All University College policies regarding grading, course drops, withdrawals, academic standards, and so forth apply to B.A.S. students. Consult the University College student academic manual for more information.

Optional Certificate or Emphasis Area

Students may include a certificate or an emphasis area in their B.A.S. programs, or they may design an interdisciplinary focus area. Certificates and emphasis areas are noted on students' transcripts.

CERTIFICATE IN ENTREPRENEURIAL MANAGEMENT

The Certificate in Entrepreneurial Management is offered by the Tippie College of Business. It requires 18-20 s.h. Courses are offered online. See Entrepreneurial Management (p. 693) (Tippie College of Business) in the Catalog or contact the Tippie College of Business for details.

CERTIFICATE IN NONPROFIT MANAGEMENT

The Certificate in Nonprofit Management is offered by University College in collaboration with Distance Education and the Larned A. Waterman Iowa Nonprofit Resource Center. The certificate requires 18 s.h. Courses are offered primarily online. See Nonprofit Management (p. 1284) (University College) in the Catalog or contact the Division of Continuing Education for details.

CERTIFICATE IN PUBLIC HEALTH

The Certificate in Public Health (p. 1200) is offered by the College of Public Health and is designed primarily for individuals working in public health practice and for those considering public health careers. The certificate requires 12 s.h. Courses are offered online. Applicants must have substantial relevant work experience. Contact the College of Public Health for details.

CREATIVE WRITING EMPHASIS AREA

The creative writing emphasis area requires 18 s.h. It provides students with an understanding of the multiple facets of written communication. The emphasis area requires the following course work.

All of these:

CLSA:3742 (20E:142) Word Power: Building English Vocabulary	3 s.h.
CW:2100 (08C:023) Creative Writing	3 s.h.
CW:4897 (08C:197) Novel Writing	3 s.h.

At least three of these:

CNW:2680 (08N:080) The Art and Craft of Creative Nonfiction	3 s.h.
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CW:2870 (08C:097) Fiction Writing	3 s.h.
CW:2875 (08C:098) Poetry Writing	3 s.h.
CW:3870 (08C:194) Advanced Fiction Writing	3 s.h.
CW:3875 (08C:198) Advanced Poetry Writing	3 s.h.
THTR:2301 (049:062) Playwriting I	3 s.h.
THTR:3301 (049:155) Playwriting II	3 s.h.

For additional details about the emphasis area and related careers, see the creative writing emphasis page on the Bachelor of Applied Studies web site.

HUMAN RELATIONS EMPHASIS AREA

The human relations emphasis area requires 18 s.h. It focuses on human development, personality theory, interpersonal and group communication, multiculturalism, professional ethics, and the development of helping skills. The emphasis area requires the following course work.

All of these:

RCE:4194 (07C:194) Interpersonal Effectiveness	3 s.h.
RCE:4197 (07C:197) Citizenship in a Multicultural Society	3 s.h.
RCE:4199 (07C:199) Counseling for Related Professions	3 s.h.

At least three of these:

EDTL:3114 (07E:114) Parent-Child Relationships	3 s.h.
RCE:4131 (07C:131) Loss, Death, and Bereavement	3 s.h.
RCE:4162 (07C:162) Introduction to Couple and Family Therapy	3 s.h.
RCE:4174 (07C:174) Positive Psychology	3 s.h.
RCE:4176 (07C:176) Child Abuse: Assessment, Intervention, and Advocacy	3 s.h.
RCE:4178 (07C:178) Microcounseling	1-3 s.h.
RCE:4179 (07C:179) Sexuality Within the Helping Profession	3 s.h.
RCE:4180 (07C:180) Topical Seminar for Helping Professionals	arr.
RCE:4185 (07C:185) Introduction to Substance Abuse	3 s.h.
RCE:4191 (07C:191) Advocacy: Awareness, Assertiveness, and Activism	arr.
SSW:3712 (042:112) Human Sexuality, Diversity, and Society	1-3 s.h.

For additional details about the emphasis area and related careers, see the human relations emphasis page on the Bachelor of Applied Studies web site.

JUSTICE STUDIES EMPHASIS AREA

The justice studies emphasis area requires 18 s.h. It is a good choice for students who hold associate degrees in disciplines such as community service, corrections, criminal justice, law enforcement, police science, or public safety. The emphasis area requires the following course work.

Two of these:

POLI:3111 (030:126) American Public Policy	3 s.h.
PSY:2501 (031:015) Introduction to Social Psychology	3 s.h.

RCE:4197 (07C:197) Citizenship in a Multicultural Society	3 s.h.
SOC:4225 (034:123) The Social Psychology of Leadership	3 s.h.

At least four of these:

POLI:3104 (030:108) Immigration Politics	3 s.h.
RCE:4176 (07C:176) Child Abuse: Assessment, Intervention, and Advocacy	3 s.h.
RCE:4185 (07C:185) Introduction to Substance Abuse	3 s.h.
RCE:4194 (07C:194) Interpersonal Effectiveness	3 s.h.
SOC:3450 (034:186) Criminal Legal System	3 s.h.
SOC:4450 (034:184) Juvenile Justice: A Sociological Perspective	3 s.h.

For additional details about the emphasis area and related careers, see the justice studies emphasis page on the Bachelor of Applied Studies web site.

POLITICAL SCIENCE EMPHASIS AREA

The political science emphasis area requires 18 s.h. It focuses on the United States' political role in shaping social and public policy worldwide and on the interplay between foreign and domestic politics. The emphasis area requires the following course work.

Two of these:

POLI:1100 (030:001) Introduction to American Politics	3 s.h.
POLI:1200 (030:050) Introduction to Political Behavior	3 s.h.
POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
POLI:1403 (030:043) Introduction to Politics in the Muslim World	3 s.h.
POLI:1500 (030:060) Introduction to International Relations	3 s.h.
POLI:1501 (030:061) Introduction to American Foreign Policy	3 s.h.

At least four of these:

POLI:3100 (030:113) American State Politics	3 s.h.
POLI:3102 (030:152) The U.S. Congress	3 s.h.
POLI:3104 (030:108) Immigration Politics	3 s.h.
POLI:3110 (030:111) Local Politics	3 s.h.
POLI:3111 (030:126) American Public Policy	3 s.h.
POLI:3116 (030:115) The Presidency	3 s.h.
POLI:3118 (030:125) Interest Groups	3 s.h.
POLI:3123 (030:110) State Politics in Iowa	3 s.h.
POLI:3150 (030:119) Problems in American Politics	1-3 s.h.
POLI:3504 (030:177) Globalization	3 s.h.

For additional details about the emphasis area and related careers, see the political science emphasis page on the Bachelor of Applied Studies web site.

Admission

Individuals who wish to earn a B.A.S. must apply formally for admission to the program. Prospective students should

contact the Division of Continuing Education before they apply.

The B.A.S. is designed for students who need to earn a bachelor's degree by distance education. Individuals who have access to the full range of the University's on-campus daytime classes should seek admission to the College of Liberal Arts and Sciences in order to earn a degree with a major. The interdepartmental studies major allows students to tailor a degree program to their individual interests (see Interdepartmental Studies (p. 408) in the Catalog).

Applicants to the B.A.S. program must have earned an Associate of Applied Science (A.A.S.) degree, an Associate of Arts (A.A.), or an Associate of Science (A.S.) from a community college that participates in the Iowa Community College/Regents Articulation Agreement or from a regionally accredited community college. They must have a minimum of 60 s.h. of approved transfer credit. Applicants who graduated from an Iowa community college must have a cumulative g.p.a. of at least 2.00; those who graduated from a community college outside Iowa must have a cumulative g.p.a. of at least 2.50.

The program recommends that B.A.S. applicants complete the following B.A.S. minimum core requirements before entering the program.

- Rhetoric (course work equivalent to composition I, composition II, and speech)

- Quantitative or formal reasoning (3 s.h.)

- Social sciences (3 s.h.)

- Values, society, and diversity (3 s.h.)

- Business/management (6 s.h.)

See a B.A.S. advisor for a list of other acceptable courses.

Contact the Division of Continuing Education for more information about the B.A.S. program.

Bachelor of Liberal Studies

Director

- Anne Zalenski

Affiliated faculty

- Chris Brochu (Earth and Environmental Sciences), Cary Covington (Political Science), Steve Duck (Communication Studies), Brooks Landon (English), Shaun Vecera (Psychology)

Undergraduate major: Bachelor of Liberal Studies (B.L.S.)

Web site: <http://www.continuetolearn.uiowa.edu/programs/undergraduate/bls/index.html>

Undergraduate Program of Study

- Bachelor of Liberal Studies

The Bachelor of Liberal Studies (B.L.S.) is designed for students who have earned college credit at a regionally accredited institution and would like to complete a bachelor's degree by distance education. The degree may be completed completely online or through a combination of on-site and online course work.

The B.L.S. emphasizes workplace and leadership skills.

In addition to completing the Bachelor of Liberal Studies, students may earn undergraduate certificates offered by The University of Iowa. They may not enroll in a second college at The University of Iowa while completing the B.L.S. degree.

The B.L.S. is awarded by University College.

All University College policies regarding grading, course drops, withdrawals, academic standards, and so forth apply to B.L.S. students. Consult the University College student academic manual for more information.

Bachelor of Liberal Studies

The Bachelor of Liberal Studies requires a minimum of 120 s.h. of credit. Students must earn at least 30 s.h. of credit toward the degree in University of Iowa courses after they are admitted to the B.L.S. program. They must earn at least 60 s.h. of the 120 s.h. (minimum) required for the B.L.S. at four-year colleges, including 30 s.h. in upper-level courses. University of Iowa upper-level courses are numbered from 3000 to 4999.

B.L.S. students must complete a required set of common core courses and a B.L.S. track, as part of the 120 s.h. (minimum) required for the degree. Students must maintain a g.p.a. of at least 2.00 in all courses for the degree, all UI courses for the degree, and all courses for the B.L.S. track.

The following course work is required for all B.L.S. students.

B.L.S. COMMON CORE

Common core courses develop fundamental skills in writing, critical thinking, information literacy, and leadership and give students the opportunity to explore ideas from multiple perspectives.

Some courses in the common core are part of the College of Liberal Arts and Sciences (CLAS) General Education Program (p. 323), as indicated below.

Rhetoric

Rhetoric courses help students develop speaking, writing, listening, and critical reading skills. Courses approved for the Rhetoric area of the CLAS General Education Program satisfy the B.L.S. rhetoric requirement. The following course is offered by distance education.

RHET:1030 (010:003) Rhetoric	4-5 s.h.
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Interpretation of Literature

This area, which focuses on the major genres of literature, improves students' abilities to read and analyze a variety of texts. Students must complete one approved course (3 s.h.) in this area. They may use any 3 s.h. course approved for the Interpretation of Literature area of the CLAS General Education Program. The following course is offered by distance education.

ENGL:1200 (08G:001) The Interpretation of Literature	3 s.h.
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Natural Sciences

Natural sciences courses explore the scope and major concepts of a scientific discipline. Students must complete one approved course (3 s.h.) in this area. They may use any 3 s.h. course approved for the Natural Sciences area of the CLAS General Education Program, including the following courses offered by distance education.

HHP:1100 (027:053) Human Anatomy	3 s.h.
HHP:2310 (027:040) Nutrition and Health	3 s.h.

Students also may use this distance education course, which is not part of the CLAS General Education Program, to fulfill the B.L.S. natural science requirement.

ENGR:4013 (057:013) Introduction to Sustainability	3 s.h.
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Global Perspectives

Global perspectives courses encourage students to understand issues from an international perspective. Students must complete one approved course (3 s.h.) in this area. They may use any 3 s.h. course approved for the International and Global Issues area of the CLAS General Education Program, including the following courses offered by distance education.

ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
HIST:2403 (016:003) Western Civilization III	3 s.h.
POLI:1500 (030:060) Introduction to International Relations	3 s.h.
POLI:1501 (030:061) Introduction to American Foreign Policy	3 s.h.
RELS:1130 (032:030) Introduction to Islamic Civilization	3 s.h.
RELS:2852 (032:052)/GWSS:2052 (131:060) Women in Islam and the Middle East	3 s.h.

Students also may use one of these distance education courses, which are not part of the CLAS General Education Program, to satisfy the B.L.S. global perspectives requirement.

POLI:3503 (030:168) Politics of Terrorism	3 s.h.
POLI:3550 (030:169) Problems of International Politics	3 s.h.
RELS:3105 (032:105) The World of the Old Testament	3 s.h.

Domestic Diversity

Students must complete one approved course (3 s.h.) that addresses diversity and domestic perspectives on current issues. They may use any 3 s.h. course approved for the Values, Society, and Diversity area of the CLAS General Education Program, including the following courses offered by distance education.

AMST:2165 (045:105)/AINS:2165 (149:110)/ANTH:2165 (113:110) Native Peoples of North America	3 s.h.
CLSA:3015 (20E:112) Classical Mythology	3 s.h.
HHP:2200 (027:039) Physical Activity and Health	3 s.h.
LEIS:1045 (169:045) Health for Living	3 s.h.
LEIS:1072 (169:072) Leisure and the Liberal Arts	3 s.h.
RELS:1130 (032:030) Introduction to Islamic Civilization	3 s.h.
RELS:1903 (032:003) Quest for Human Destiny	3 s.h.
RELS:2852 (032:052)/GWSS:2052 (131:060) Women in Islam and the Middle East	3 s.h.
RELS:3711 (032:111) Religion and Women	3 s.h.
SOC:2810 (034:066) Social Inequality	3 s.h.

Students also may use one of these distance education courses, which are not part of the CLAS General Education Program, to satisfy the B.L.S. domestic diversity requirement.

AMST:1075 (045:075) American Popular Music	3 s.h.
GWSS:3154 (131:158)/HIST:3254 (16A:154) Sexuality in the United States	3 s.h.
LEIS:3174 (169:174) Cultural Perspectives in Health Care	3 s.h.
RCE:4187 (07C:187)/EDTL:4987 (07U:187) Introduction to Assistive Technology	3 s.h.
RCE:4197 (07C:197) Citizenship in a Multicultural Society	3 s.h.
SOC:1020 (034:002) Social Problems	3-4 s.h.
SOC:2430 (034:080) Comparative Criminal Justice Systems	3 s.h.
SSW:3712 (042:112)/NURS:3712 (096:112) Human Sexuality, Diversity, and Society	1-3 s.h.

Statistics

Students must complete one approved statistics course (3 s.h.). They may use any 3 s.h. course offered by the Department of Statistics and Actuarial Science with the prefix STAT except STAT:1000 (22S:029) First-Year Seminar. The following distance education courses are approved for the B.L.S. statistics requirement.

STAT:1020 (22S:025)/PSQF:1020 (07P:025) Elementary Statistics and Inference	3 s.h.
STAT:4143 (22S:102)/PSQF:4143 (07P:143) Introduction to Statistical Methods	3 s.h.

Information Literacy

Students must complete one approved course (2-3 s.h.) focusing on information literacy. The following course is offered by distance education.

MSCI:1500 (06K:050) Business Computing Essentials	2 s.h.
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Students also may use one of these courses, which are not offered by distance education, to satisfy the B.L.S. information literacy requirement.

CS:1020 (22C:001) Principles of Computing	3 s.h.
CS:1110 (22C:005) Introduction to Computer Science	3 s.h.

Critical Thinking

Students must complete one approved course (3 s.h.) focusing on critical thinking. The following courses are offered by distance education.

JMC:3115 (019:151) Solving Communication Problems	3 s.h.
LEIS:1030 (169:030) Introduction to Critical Thinking	3 s.h.

Students also may use one of these courses, which are not offered by distance education, to satisfy the B.L.S. critical thinking requirement.

LING:1050 (103:013) Language and Formal Reasoning	3 s.h.
PHIL:1033 (026:033) The Meaning of Life	3 s.h.
PHIL:1034 (026:034) Philosophy and the Just Society	3 s.h.
PHIL:1636 (026:036) Principles of Reasoning: Argument and Debate	3 s.h.
PHIL:2401 (026:001) Matters of Life and Death	3 s.h.

Leadership and Career Development

Students must complete two or more approved courses (total of 6 s.h.) focusing on leadership and career development, chosen from the following list of distance education courses.

CCP:1304 (409:054) "Suit Camp" for the Job Search	1 s.h.
CCP:1305 (409:055) Social Media for Your Job Search	1 s.h.
CCP:3102 (409:102) Job Search Strategies	2-3 s.h.
CLAS:1600 (610:060) Life Design: Building Your Future	1 s.h.
COMM:1819 (036:019) Organizational Leadership	2-3 s.h.
EDTL:4081 (07E:181)/EALL:4081 (07X:181)/EPLS:4081 (07B:181)/PSQF:4081 (07P:181)/RCE:4081 (07C:181) ePortfolio Production	1-2 s.h.
ENTR:1350 (06T:050) Foundations in Entrepreneurship	2 s.h.
LS:2017 (421:015) Leadership Theory to Practice	3 s.h.
PSY:2910 (031:019) Industrial/Organizational Psychology	3 s.h.
RCE:2081 (07C:081) Making a Vocational-Educational Choice	2-3 s.h.
RCE:4194 (07C:194) Interpersonal Effectiveness	3 s.h.

RCE:4197 (07C:197) Citizenship in a Multicultural Society	3 s.h.
SOC:4225 (034:123) The Social Psychology of Leadership	3 s.h.

B.L.S. Track

B.L.S. students must complete one of the following tracks.

HEALTH AND HUMAN STUDIES TRACK

This track provides a foundation in the health sciences with a focus on social aspects of health care. It draws from courses in psychology and rehabilitation. The track requires 12 s.h. of foundation course work and 18 s.h. of upper-level course work offered by distance education.

Foundation course work—12 s.h. from these:

ASP:1800 (153:085)/CSD:1800 (003:085)/LEIS:1800 (169:085)/NURS:1800 (096:085)/SSW:1800 (042:085) Basic Aspects of Aging	3 s.h.
HHP:1100 (027:053) Human Anatomy	3 s.h.
HHP:2130 (027:044) Human Development Through the Life Span	3 s.h.
HHP:2200 (027:039) Physical Activity and Health	3 s.h.
HHP:2310 (027:040) Nutrition and Health	3 s.h.
PSY:1001 (031:001) Elementary Psychology	3 s.h.
PSY:2501 (031:015) Introduction to Social Psychology	3 s.h.
PSY:2701 (031:002) Biological Psychology	4 s.h.
PSY:2910 (031:019) Industrial/Organizational Psychology	3 s.h.

Upper-level course work—18 s.h. from these:

ASP:3150 (153:150)/PSY:2915 (031:050) Psychology of Aging	3 s.h.
ASP:3160 (153:160) Biology of Aging	3 s.h.
BIOC:3110 (099:110) Biochemistry	3 s.h.
CLSA:3750 (20E:103) Medical and Technical Terminology	2 s.h.
HHP:3020 (027:127)/INTD:3027 (145:127) Nutrition for Health, Fitness, and Sport	3 s.h.
LEIS:3174 (169:174) Cultural Perspectives in Health Care	3 s.h.
NURS:3736 (096:187) Legal Issues for Health Care Providers	3 s.h.
NURS:3740 (096:147)/ASP:3740 (153:147)/MED:3740 (050:147)/PHAR:3740 (046:146) End-of-Life Care for Adults and Families	2-4 s.h.
PSY:3010 (031:152) Health Psychology	3 s.h.
PSY:3320 (031:163) Abnormal Psychology	3 s.h.
PSY:3330 (031:166) Childhood Psychopathology	3 s.h.
PSY:3340 (031:170) Behavior Modification	3 s.h.
PSY:3620 (031:119) Human Memory	3 s.h.
RCE:4131 (07C:131) Loss, Death, and Bereavement	3 s.h.
RCE:4173 (07C:173) Trauma Across the Lifespan	3 s.h.
RCE:4174 (07C:174) Positive Psychology	3 s.h.
RCE:4179 (07C:179) Sexuality Within the Helping Profession	3 s.h.

RCE:4185 (07C:185) Introduction to Substance Abuse	3 s.h.
RCE:4187 (07C:187)/EDTL:4987 (07U:187) Introduction to Assistive Technology	3 s.h.
SOC:4225 (034:123) The Social Psychology of Leadership	3 s.h.

ORGANIZATIONAL STUDIES TRACK

This track focuses on management skills used in business enterprises. The track requires 12 s.h. of foundation course work and 18 s.h. of upper-level course work offered by distance education.

Foundation course work—12 s.h. from these:

BUS:2300 (06B:050) Searching for Business Information	1 s.h.
COMM:1819 (036:019) Organizational Leadership	2-3 s.h.
ECON:1100 (06E:001) Principles of Microeconomics	4 s.h.
ECON:1200 (06E:002) Principles of Macroeconomics	4 s.h.
ECON:2800 (06E:071) Statistics for Strategy Problems	3 s.h.
ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
MGMT:2000 (06J:047) Introduction to Law	3 s.h.
MGMT:2100 (06J:048) Introduction to Management	3 s.h.
POLI:2700 (030:189) Business, Government, and Society	3 s.h.
PSY:2910 (031:019) Industrial/Organizational Psychology	3 s.h.

Upper-level course work—18 s.h. from these:

EALL:4130 (07X:130) Introduction to Grant Writing	3 s.h.
ECON:3100 (06E:104) Microeconomic Theory	3 s.h.
ECON:3150 (06E:105) Macroeconomics	3 s.h.
ENTR:3100 (06T:133) Entrepreneurial Finance	3 s.h.
ENTR:3200 (06T:134) Entrepreneurial Marketing	3 s.h.
ENTR:4400 (06T:150) Managing the Growth Business	3 s.h.
JMC:3115 (019:151) Solving Communication Problems	3 s.h.
LEIS:3154 (169:154) Foundations of Event Management	3 s.h.
MSCI:3000 (06K:100) Operations Management	3 s.h.
MSCI:3005 (06K:105) Information Systems	3 s.h.
RCE:4140 (07C:140) Foundations of Leadership for Community Agencies	3 s.h.
RCE:4187 (07C:187)/EDTL:4987 (07U:187) Introduction to Assistive Technology	3 s.h.
RCE:4197 (07C:197) Citizenship in a Multicultural Society	3 s.h.
SOC:4225 (034:123) The Social Psychology of Leadership	3 s.h.
SSW:3600 (042:158)/MGMT:3600 (06J:148)/MUSM:3600 (024:148)/NURS:3600 (096:169)/RELS:3701 (032:128) Nonprofit Organizational Effectiveness II	3 s.h.

STAT:4143 (22S:102)/PSQF:4143 (07P:143) 3 s.h.
Introduction to Statistical Methods

GLOBAL STUDIES TRACK

This track enables students to understand global issues and perspectives. The track requires the world language component, 6 s.h. of foundation course work, and 18 s.h. of upper-level course work. Required course work for the world language component depends on the individual student's preparation; one year of a world language in high school is equivalent to one semester of a world language in college.

World language component—one of these:

Fourth semester proficiency in a single world language

Second semester proficiency in two different world languages

Foundation course work—6 s.h. from these offered by distance education:

ANTH:2261 (113:113) Human Impacts on the Environment 3 s.h.

ECON:1200 (06E:002) Principles of Macroeconomics 4 s.h.

ENGR:4013 (057:013) Introduction to Sustainability arr.

HIST:2403 (016:003) Western Civilization III 3-4 s.h.

POLI:1500 (030:060) Introduction to International Relations 3 s.h.

POLI:1501 (030:061) Introduction to American Foreign Policy 3 s.h.

RELS:1130 (032:030) Introduction to Islamic Civilization 3 s.h.

RELS:2852 (032:052)/GWSS:2052 (131:060) Women in Islam and the Middle East 3 s.h.

SOC:2430 (034:080) Comparative Criminal Justice Systems 3 s.h.

Upper-level course work—18 s.h. from these offered by distance education:

ANTH:3275 (113:196)/CLSA:3596 (20E:196) The Archaeology of Ancient Egypt 3 s.h.

ANTH:4205 (113:164) Rise of Ancient Civilization 3 s.h.

ENTR:4460 (06T:152) Entrepreneurship and Global Trade 3 s.h.

GHS:3050 (152:153)/ASP:3135 (153:135)/SSW:3135 (042:135) Global Aging 3 s.h.

LEIS:3174 (169:174) Cultural Perspectives in Health Care 3 s.h.

POLI:3104 (030:108) Immigration Politics 3 s.h.

POLI:3503 (030:168) Politics of Terrorism 3 s.h.

POLI:3512 (030:165) International Conflict 3 s.h.

POLI:3550 (030:169) Problems of International Politics 3 s.h.

RCE:4194 (07C:194) Interpersonal Effectiveness 3 s.h.

RCE:4197 (07C:197) Citizenship in a Multicultural Society 3 s.h.

RELS:3105 (032:105) The World of the Old Testament 3 s.h.

SOC:4225 (034:123) The Social Psychology of Leadership 3 s.h.

SSW:3785 (042:185)/ASP:3785 (153:185) Social Policy and the Elderly 3 s.h.

SSW:4843 (042:143) Social Welfare Policy and Practice 3 s.h.

Admission

Individuals who would like to earn the Bachelor of Liberal Studies degree must apply for admission to the program.

Applicants to the B.L.S. program must meet one of the following sets of requirements:

they must have been granted a high school diploma at least three years before being admitted to the B.L.S. program, and they must have at least 24 s.h. of graded college-level transfer credit with a g.p.a. of 2.00 or higher; or

they must hold an Associate of Applied Studies (A.A.S.), Associate of Science (A.S.), or Associate of Arts (A.A.) degree with a g.p.a. of 2.00 or higher for all college-level transfer credit.

Belin-Blank Center for Gifted Education

Director

- Susan Assouline

Web site: <http://www.education.uiowa.edu/centers/belinblank/>

The Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development is dedicated to serving the needs of the gifted community at local, national, and international levels. It offers programs for preservice and inservice educators, including the State of Iowa Talented and Gifted Endorsement. Its online and on-campus courses and workshops on gifted education support the professional development of educators worldwide.

The center is home to the Assessment and Counseling Clinic, the Institute for Research and Policy on Acceleration, and the National Institute for Twice Exceptionality. The center also administers the College of Education's Honors Opportunity Program, through which qualified undergraduate students in education work toward graduation with collegiate honors.

For more information about the center and its programs, contact the Belin-Blank Center or visit its web site.

Precollege Programs

The Belin-Blank Center offers a wide variety of programs for precollege students. The Exceptional Student Talent Search (grades 2-9) helps determine talented students' academic abilities and needs. Outreach programs include Invent Iowa (grades K-12), which encourages students to think about and solve problems through invention, and Scholastic Art and Writing Awards (grades 7-12), which recognize achievement in the literary and visual arts.

The Junior Science and Humanities Symposium (grades 9-12) engages students in original research and experimentation in the STEM fields (science, technology, engineering, and math). Students present the results of their research to a panel of judges and an audience of their peers at the Iowa Regional Junior Science and Humanities Symposium. The top two presenters are invited to present at the national symposium.

The National Academy of Arts, Sciences, and Engineering (grade 12) gives high-achieving students the opportunity to enroll at The University of Iowa before they finish high school. To enter the program, students must have completed grade 11 or the equivalent. The program is open to high-ability students worldwide.

The center's academic year nonresidential programs include Challenge Saturdays (grades 3-8), which offers half-day Saturday classes in Iowa City and in Des Moines, Iowa, for high-ability students and for Belin-Blank Exceptional Student Talent Search members; and the Weekend Institute for Gifted Students (grades 3-8), which offers three-hour Saturday classes in Iowa City for high-ability students. Challenges for Elementary School Students (grades 2-6) is a nonresidential summer program for Belin-Blank Exceptional Student Talent Search members

that offers two weeks of half-day classes in Iowa City and Ankeny, Iowa.

The Belin-Blank Center also offers the following residential programs, which are held on the University of Iowa campus during summer. Students in each program participate in cultural and recreational activities and have access to the University's libraries, computer facilities, and study areas. Housing and meals are provided at the University's residence halls.

Blank Summer Institute

The Blank Summer Institute for the Arts & Sciences (BSI) is a one-week program that provides an intensive, advanced educational experience designed to enhance exceptionally talented students' intellectual and social growth. The BSI study plan complements the regular school curriculum. Students choose one of eight courses that explore advanced science, math problem solving, social sciences, creative writing, invention and innovation, visual arts, performing arts, and global and cultural studies.

To be eligible for BSI, students must be Iowa residents, must be completing grade 7 or 8, and must be nominated by their schools. Students selected for BSI receive a Myron and Jacqueline Blank Summer Scholarship to cover part of the institute's cost.

China and Hong Kong Scholars

The China and Hong Kong Scholars Program is a Belin-Blank Center partnership that brings high-ability students from China and Hong Kong to The University of Iowa to sample life as university students during the summer before their senior year of high school. The scholars take classes and engage in recreational and social activities on campus. Some of the students may be admitted to the University once they have completed high school in their home countries.

Junior Scholars Institute

The Junior Scholars Institute (JSI) is a one-week program in which students take a single advanced course for the entire week. Students choose from courses on subjects ranging from creative writing to engineering to the arts.

JSI is open to students from around the world. To be eligible, students must be completing grade 6, 7, or 8. They may nominate themselves and must submit a nomination packet. Students selected for JSI receive a scholarship to cover part of the institute's cost.

National Scholars Institute

The National Scholars Institute (NSI) is a one-week program that provides an advanced educational experience designed to enhance the development of talent. Students enroll in one advanced-level course, choosing from math, science, visual arts, creative writing, leadership, and other subjects.

NSI is open to students from around the world. To be eligible for the institute, students must be completing grade 9, 10, or 11 and must submit a nomination packet. Students selected for the institute receive a scholarship to cover part of the institute's cost.

World Languages Institute

The World Languages Institute (WLI) is a week-long intensive language program that prepares secondary school students for Advanced Placement Program exams

in Spanish, Chinese, French, and Japanese. Designed by the Belin-Blank Center and the University of Iowa's Division of World Languages, Literatures, and Cultures, the institute enables students to enhance their language skills in a setting that nurtures a sense of community with learners who share similar interests and goals. Institute classes emphasize reading, writing, speaking, and listening comprehension while reinforcing the cultural knowledge necessary for understanding the contexts in which specific languages are learned and practiced. Students who participate in the program should have had considerable upper-division course work and should demonstrate high levels of proficiency in their chosen language.

Secondary Student Training Program

Students in grades 10-11 may nominate themselves for the Secondary Student Training Program (p. 1286) (SSTP), a five-week residential summer research program at The University of Iowa. SSTP students conduct scientific research in University laboratories under the guidance of a faculty mentor. Visit the SSTP web site to learn more about the program, including eligibility and application.

Career Center Programs

Director

- David Baumgartner

Web site: <http://www.careers.uiowa.edu/>

The University of Iowa Marvin A. and Rose Lee Pomerantz Career Center administers the University's Career Center Programs. The center helps students explore and plan careers, search for employment and internship opportunities, and prepare for interviews. Students may use the Pomerantz Career Center's services at any time during their academic careers, but the center encourages entering first-year and transfer students to visit after they arrive on campus and to make use of all of the center's services throughout their study at Iowa.

The center offers online workshops throughout the year on a variety of topics, including résumé writing, job and internship search techniques, employer research, interviewing skills, and more. It hosts several career fairs each fall and spring, offering students the opportunity to talk with and learn about prospective employers.

The Pearson Library contains career-related books, periodicals, and online resources—some broad in scope, others targeted to specific careers or jobs. Employer recruiting brochures join information on salaries, geographical cost of living, resources for jobs and internships, graduate schools, and other topics.

The Pomerantz Career Center facilitates job and internship interviewing with a wide range of employers: regional, national, and international; profit and nonprofit; state and federal government. Employers conduct on-campus interviews at specific times during the year, and many post immediate openings year-round for internships and for full-time positions. On-campus recruiting and job postings are available on the center's web site. The center also offers career-related courses.

The center helps students find internships in Iowa, the Midwest, nationwide, and sometimes in other countries. For a list of discipline-related internships (all require course registration), see "Internships" under "Courses" below.

For more information about the center's services and facilities, contact the Pomerantz Career Center.

Professional Development Courses

Professional development courses give students the opportunity to engage in practical, hands-on, skills-based instruction relevant to careers and leadership development. The topics and curricula for the following courses incorporate input from employers, who were surveyed about their experiences, real-world examples, guidance, and the skills they most often seek when hiring new graduates.

CCP:1301 (409:051) Communication for the Workplace	1 s.h.
CCP:1302 (409:052) Office Etiquette for the Workplace	1 s.h.
CCP:1303 (409:053) Successful Teamwork for the Workplace	1 s.h.
CCP:1304 (409:054) "Suit Camp" for the Job Search	1 s.h.

CCP:1305 (409:055) Social Media for Your Job Search	1 s.h.
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Courses

Career Exploration, Lower-Level Undergraduate

CCP:1069 (409:069) Military-to-Civilian Career Exploration	1 s.h.
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Increase service and veteran members' awareness of skills for employment and of personal qualities when hired; improve student's ability to choose career that is right for them through self-discovery and research; focus on role of personal interest, skills, and aptitudes in attaining and succeeding in given career pursuits; use and interpretation of career-related assessment inventories, how this information can lead to job and career satisfaction.

CCP:1300 (409:110) Career Exploration	2 s.h.
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Helps students identify their interests, skills, and values relative to majors and careers; self-assessment, information interviews, research on majors and careers, site visits.

CCP:1301 (409:051) Communication for the Workplace	1 s.h.
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How effective verbal and written communication is utilized in the workplace; how email and social media communication is used at work; appropriate ways to utilize assertiveness skills; development of refined presentation skills necessary for the workplace; hands-on, skills-based learning environment. Requirements: sophomore or higher standing.

CCP:1302 (409:052) Office Etiquette for the Workplace	1 s.h.
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How professionalism and work ethic is demonstrated in the workplace; time management and organization skills relevant to full-time employment; succeeding in multigenerational workplaces; hands-on, skills-based learning environment. Requirements: sophomore or higher standing.

CCP:1303 (409:053) Successful Teamwork for the Workplace	1 s.h.
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Demonstration of problem solving and self-awareness skills relevant to the workplace; application of listening and critical thinking skills; how to perform with a global mindset in the workplace; hands-on, skills-based learning environment. Requirements: sophomore or higher standing.

CCP:1304 (409:054) "Suit Camp" for the Job Search	1 s.h.
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Basic needs for finding full-time employment; creating and polishing a résumé, techniques for interviewing and networking, developing a personal job search plan; "boot camp" style, skills-based experience; for students thinking about graduation and wanting to get serious about a job search. Requirements: sophomore or higher standing.

CCP:1305 (409:055) Social Media for Your Job Search	1 s.h.
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Effective use of social media for networking as part of preparing for a job search; efficient identification and utilization of online tools (e.g., LinkedIn, Twitter); building a professional online presence; creating a plan for utilizing social networks for an entry-level job search.

CCP:1306 (409:056) UI STEP—Student to Employed Professional 1 s.h.

Current employment trends, changes in employer recruitment, and career preparation procedures as undergraduate students; analysis of current employment and University experiences through self-assessment activities; development of a personal action plan to minimize experience gaps; expectations of entry-level employees in résumé, interview, and on-the-job performance; small-group discussion, online discussion boards, assigned readings, education workshops, and action activities. Requirements: student hourly or work-study employment. Recommendations: sophomore or junior standing.

CCP:2001 (409:057) Graduate Admissions 101 1 s.h.

Preparation for graduate school application and admissions process; graduate entrance examinations, how to select a graduate program, graduate school applications and personal statements, securing a graduate assistantship, and graduate school interviews.

CCP:2002 (409:058) International Job Search: Working Abroad 1 s.h.

Beginner's guide to international employment: how to conduct an international job search, applying and interviewing for work abroad, using the Internet to your advantage, networking domestically, using United States resources in seeking foreign employment, what to expect in the foreign workplace.

CCP:2003 (409:059) Preparation for Success in the Workplace 3 s.h.

Communication, office etiquette, and successful teamwork combined in one course; crucial professional development topics for all majors and disciplines before entering workplace. Requirements: sophomore or higher standing.

Career Exploration, Upper-Level Undergraduate and Graduate

CCP:3101 (409:116) Advanced Job Search Skills 2 s.h.

Effective job search skills; coaching and practice to perfect techniques; identification of career goals, strategies, targets; how to network and sell self to employers; exercises, networking events, and direct work with a job coach. Requirements: junior or higher standing.

CCP:3102 (409:102) Job Search Strategies 2-3 s.h.

How to conduct successful job search; résumé development, interviewing, networking, branding, job search strategies; develop career management plan. Requirements: junior or senior standing.

Internships, Lower-Level Undergraduate

Students must register before beginning an internship in order for the internship to be noted on the transcript.

CCP:1001 (409:001) Internship in Art 0 s.h.

CCP:1002 (409:002) Internship in Biological Science 0 s.h.

CCP:1003 (409:003) Internship in Communication Sciences and Disorders 0 s.h.

CCP:1004 (409:004) Internship in Chemistry 0 s.h.

Prerequisites: CHEM:2220 (004:122). Requirements: junior standing, completion of 12 s.h. of UI course work, and minimum 2.75 cumulative g.p.a.

CCP:1006 (409:006) Internship in Business 0 s.h.

CCP:1007 (409:007) Internship in Education 0 s.h.

Requirements: admission to Teacher Education Program for undergraduates.

CCP:1008 (409:008) Internship in English 0 s.h.

CCP:1009 (409:009) Internship in French 0 s.h.

CCP:1012 (409:012) Internship in Geoscience 0 s.h.

Requirements: cumulative g.p.a. of at least 2.50, g.p.a. in geology courses of at least 3.00, and grade of C or higher in EES:3500 (012:150).

CCP:1013 (409:013) Internship in German 0 s.h.

CCP:1015 (409:015) Internship 0 s.h.

CCP:1016 (409:016) Internship in History 0 s.h.

CCP:1019 (409:019) Internship in Journalism 0 s.h.

CCP:1020 (409:020) Internship in Classics 0 s.h.

CCP:1022 (409:022) Internship in Computer Science 0 s.h.

Prerequisites: CS:2230 (22C:021), and MATH:1550 (22M:031) or MATH:1850 (22M:025). Requirements: 24 s.h. of undergraduate course work.

CCP:1024 (409:024) Internship in Museum Studies 0 s.h.

CCP:1025 (409:025) Internship in Music 0 s.h.

CCP:1027 (409:027) Internship in Health and Human Physiology 0 s.h.

Requirements: admission to health and human physiology.

CCP:1029 (409:029) Internship in Physics and Astronomy 0 s.h.

CCP:1030 (409:030) Internship in Political Science 0 s.h.

CCP:1031 (409:031) Internship in Psychology 0 s.h.

Requirements: completion of 12 s.h. of departmental course work.

CCP:1032 (409:032) Internship in Religious Studies 0 s.h.

CCP:1033 (409:033) Internship in Literature, Science, and the Arts 0 s.h.

CCP:1034 (409:034) Internship in Sociology 0 s.h.

CCP:1035 (409:035) Internship in Spanish 0 s.h.

CCP:1036 (409:036) Internship in Communication Studies 0 s.h.

Requirements: declared communication studies major, completion of 12 s.h. of departmental course work, and minimum 2.50 cumulative g.p.a.

CCP:1039 (409:039) Internship in Asian Languages and Literature 0 s.h.

CCP:1041 (409:041) Internship in Russian 0 s.h.

CCP:1042 (409:042) Internship in Social Work 0 s.h.

CCP:1044 (409:044) Internship in Geography 0 s.h.

Requirements: sophomore standing, completion of 12 s.h. of departmental course work, and minimum 2.25 cumulative g.p.a.

CCP:1045 (409:045) Internship in American Studies 0 s.h.

CCP:1048 (409:048) Internship in Cinema and Comparative Literature 0 s.h.

CCP:1049 (409:049) Internship in Theatre Arts 0 s.h.

CCP:1061 (409:061) Internship in Microbiology 0 s.h.

CCP:1062 (409:062) Internship in Informatics 0 s.h.

Prerequisites: CS:2110 (22C:080), and CS:2420 (22C:084) or MSCl:3200 (06K:182). Requirements: 24 s.h. of undergraduate course work.

CCP:1070 (409:070) Global Internship Preparation 1 s.h.

Classroom preparation for international summer internship program in Paris, London, Hong Kong, or Madrid; internship goal setting, current event and host city research, reflective learning, and professional development concepts.

CCP:1071 (409:071) ROTC International Cultural Internship 0 s.h.

Internship opportunity to develop leaders capable of positive interactions with other cultures and their governments, and who possess the language skills to effectively communicate cultural sensitivities when interacting with American and international media; recent locations include China, Indonesia, Japan, Morocco, Russia, Senegal, Slovakia, Tajikistan, Tanzania, Ghana, Thailand, Botswana, Costa Rica, Czech Republic, and Vietnam. Requirements: ROTC member and Military Science program chair approval.

CCP:1072 (409:072) Internship in Human Rights 0 s.h.

Recognition of approved work in human rights arena.

CCP:1091 (409:091) Internship in Law 0 s.h.

CCP:1099 (409:099) Internship in Biochemistry 0 s.h.

CCP:1103 (409:103) Internship in Linguistics 0 s.h.

CCP:1113 (409:113) Internship in Anthropology 0 s.h.

CCP:1114 (409:114) International Internship: Madrid 2 s.h.

Ten-week program, includes orientation, Spanish language school, and eight-week unpaid internship. Requirements: acceptance to undergraduate internship program in Madrid.

CCP:1115 (409:115) International Internship: Paris 2 s.h.

Ten-week program, includes orientation, French language school, and eight-week unpaid internship. Requirements: acceptance to undergraduate internship program in Paris.

CCP:1122 (409:122) Internship in Mathematics 0 s.h.

Prerequisites: MATH:1550 (22M:031) or MATH:1850 (22M:025). Requirements: junior standing, completion of 12 s.h. of UI course work, and cumulative g.p.a. of at least 2.75.

CCP:1131 (409:131) Internship in Gender, Women's, and Sexuality Studies 0 s.h.

CCP:1137 (409:137) Internship in Dance 0 s.h.

CCP:1145 (409:145) Internship in Interdepartmental Studies 0 s.h.

CCP:1153 (409:153) Internship in Aging Studies 0 s.h.

CCP:1159 (409:159) Internship in Environmental Sciences 0 s.h.

Requirements: cumulative g.p.a. of at least 2.50.

CCP:1169 (409:169) Internship in Leisure Studies 0 s.h.

CCP:1187 (409:187) Internship in International Studies 0 s.h.

CCP:1188 (409:188) Internship in Performing Arts	0 s.h.	Internship placements for students in all University of Iowa majors (typical placements include Congress, the White House, the Center for Strategic and International Studies, the U.S. Department of Commerce, the U.S. Department of Defense, the Environmental Protection Agency, CNN, C-SPAN, BET, MCI Center, the Smithsonian Institution, the National Institutes of Health, Amnesty International, the Children's Defense Fund, Mexican Cultural Institute Embassies, the U.S. Marshall's Office, federal courts, law offices, and the U.S. Secret Service); participation in Presidential Lecture Series and Congressional Breakfast Series. Full semester or summer session.
CCP:1192 (409:192) Internship in Statistics and Actuarial Science	0 s.h.	
Requirements: junior standing.		
CCP:1193 (409:193) Internship in Accounting	0 s.h.	
Requirements: admission to Tippie College of Business and accounting major.		
CCP:1194 (409:194) Internship in Finance	0 s.h.	
Requirements: admission to Tippie College of Business and finance major.		
CCP:1195 (409:195) Internship in Marketing	0 s.h.	
Requirements: at least 3.00 g.p.a. in MKTG:3000 (06M:100) and MKTG:3100 (06M:134), admission to Tippie College of Business, and marketing major.		
CCP:1196 (409:196) Internship in Economics	0 s.h.	
Requirements: economics major.		
CCP:1197 (409:197) Internship in Management and Organizations	0 s.h.	
Requirements: admission to Tippie College of Business and management and organizations major.		
CCP:1198 (409:198) Internship in Management Information Systems	0 s.h.	
Requirements: admission to the Tippie College of Business and management sciences major.		
CCP:1201 (409:201) Academic Internship	1-3 s.h.	
Opportunity for students to expand on internship experiences by developing learning objectives and reflecting on experience; how internship experience relates to academic course work and future career goals. Requirements: secured internship, cumulative g.p.a. of at least 2.00, and completion of 24 s.h. of UI course work (12 s.h. for transfer students).		
CCP:1217 (409:217) Internship in Fundraising and Philanthropy Communication	0 s.h.	
Supervised experience working with fundraising and development professionals in nonprofit organization. Requirements: sophomore standing and completion of 12 s.h. of UI course work.		
CCP:2020 (409:190) Washington Center Internship Program	arr.	
		CCP:2021 (409:191) Washington Center Seminar arr.
		Combined classroom instruction, faculty-led discussions, and experiential work opportunities; usually offered in Washington, D.C., occasionally at other locations tied to an event (e.g., political convention); one or two weeks.
		CCP:2202 (409:073) ISSS Academic Internship 9 s.h.
		Academic credit for full-time internship employment out of area; for international students in the Tippie College of Business. Requirements: F-1 or J-1 visa international student, Tippie College of Business undergraduate standing, minimum 3.50 g.p.a., full-time internship offer letter in hand (at least 40 hours/week and one semester in length), internship approved by International Student and Scholar Services for F-1 Curricular Practical Training (CPT) or J-1 Academic Training (AT), concurrent registration in approved 3 s.h. distance education course, internship work location at least 100 miles from Iowa City, and preapproval of internship by Pomerantz Career Center.
		Internships, Upper-Level Undergraduate and Graduate
		Students must register before beginning an internship in order for the internship to be noted on the transcript.
		CCP:3021 (409:021) Internship in Library Science 0 s.h.
		CCP:3170 (409:170) Internship in Public Health 0 s.h.
		Requirements: admission to the College of Public Health.
		CCP:3171 (409:171) Internship in Biostatistics 0 s.h.
		Requirements: admission to the College of Public Health.
		CCP:3172 (409:172) Internship in Community and Behavioral Health 0 s.h.
		Requirements: admission to the College of Public Health.
		CCP:3173 (409:173) Internship in Epidemiology 0 s.h.
		Requirements: admission to the College of Public Health.
		CCP:3174 (409:174) Internship in Health Management and Policy 0 s.h.
		Requirements: admission to the College of Public Health.
		CCP:3175 (409:175) Internship in Occupational and Environmental Health 0 s.h.
		Requirements: admission to the College of Public Health.

Center for Diversity & Enrichment

Interim director

- Willie Fred Mims

Web site: <http://diversity.uiowa.edu/office/center-diversity-and-enrichment>

The Center for Diversity & Enrichment offers the Iowa First Nations summer program for high school students and the Iowa Edge program for students entering The University of Iowa.

Precollege Program of Study

Iowa First Nations

The Iowa First Nations program enables high school students to explore the educational opportunities offered on the University of Iowa campus and by higher education in general. Iowa First Nations students live on campus for a week (Monday through Friday), spending five nights in one of the University's residence halls. They go on structured field trips to campus departments, participate in hands-on classroom experiences, and take part in activities on campus and in the community.

Undergraduate Program

The Iowa Edge

The Iowa Edge program supports incoming students as they make their transition to The University of Iowa. The program takes place Sunday through Wednesday of the week before fall semester classes begin. Iowa Edge students move into the residence halls early, learn about campus resources, become familiar with the campus setting, and build community with other students. Current UI students serve as Iowa Edge peer leaders, facilitating the program.

Courses

Pre-Lower Level

CDE:0002 (402:002) Life Science Summer Program 0 s.h.

CDE:0023 (402:023) Iowa First Nations 0 s.h.

Lower-Level Undergraduate

CDE:2013 (402:013) Iowa Edge Peer Leader Training 1 s.h.

Preparation for role of Iowa Edge Peer Leader; working with African American, Alaskan Native, American Indian, Asian American, Pacific Islander, Latino/a, and first generation college students; development of leadership, group facilitation, presentation, and peer mentoring skills.

Clinical and Translational Science

Coordinator

- Beth Rydstrom Knudson

Undergraduate certificate: clinical and translational science

Web site: <http://www.icts.uiowa.edu/content/ccts>

Translational science focuses on applying biomedical discoveries to health care. It requires team-based interdisciplinary approaches to move research-generated discoveries into clinical trials and to facilitate the adoption of best practices in clinical and community settings. Investigators in translational science understand principles involved in foundational research and how such research relates to epidemiology, behavioral medicine, and patient-oriented research.

Opportunities for training in translational science are available through graduate and professional study in medicine, public health, nursing, dentistry, pharmacy, and other allied health professions, including biostatistics, behavioral medicine, clinical pharmacology, and epidemiology.

The certificate program in clinical and translational science provides undergraduates with opportunities to connect their research activities to translational science and to begin training in the discipline.

The Certificate in Clinical and Translational Science is presented by the Institute for Clinical and Translational Science and Iowa Biosciences Advantage (p. 1266); it is administered by University College.

Undergraduate Program of Study

- Certificate in Clinical and Translational Science

Certificate

The Certificate in Clinical and Translational Science requires 16 s.h. of credit. Students must complete all course work for the certificate within three years of entering the program. Completion of the certificate is noted on the student's transcript.

Admission to the certificate program is selective. Applicants must fulfill the following requirements by the end of the semester in which they apply:

- have a cumulative g.p.a. of at least 3.00;
- have earned a minimum of 45 s.h. of college-level credit;
- have been engaged in mentored scientific research at The University of Iowa;
- have completed one of these: BIOL:1411 (002:031) Foundations of Biology or BIOL:1141 (002:002) Introductory Animal Biology; and
- have completed one of these: MATH:1380 (22M:017) Calculus and Matrix Algebra for Business or MATH:1460 (22M:016) Calculus for the Biological Sciences or MATH:1550 (22M:031) Engineering Mathematics I: Single Variable Calculus or MATH:1850 (22M:025) Calculus I.

Work for the certificate includes core courses and electives. Students must maintain a g.p.a. of at least 3.00 in the certificate's core courses.

The Certificate in Clinical and Translational Science requires the following course work.

CORE COURSES

All of these (10 s.h.):

EPID:4400 (173:140) Epidemiology I: Principles	3 s.h.
STAT:3510 (22S:101) Biostatistics (or an equivalent course)	3 s.h.
TBM:3001 (163:001) Introduction to Translational Research	2 s.h.
TBM:3002 (163:002) Practicum in Clinical and Translational Science (capstone course)	2 s.h.

ELECTIVES

Students must earn a total of 6 s.h. in courses chosen from the following lists.

Creative Writing

CNW:3664 (08N:149) Writing About Science	3 s.h.
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Life Sciences

BIOC:3110 (099:110) Biochemistry	3 s.h.
BIOC:3120 (099:120) Biochemistry and Molecular Biology I	3 s.h.
BIOC:3130 (099:130) Biochemistry and Molecular Biology II	3 s.h.
BIOL:2254 (002:150) Endocrinology	3 s.h.
BIOL:2723 (002:114) Cell Biology	3 s.h.
BIOL:2753 (002:145) Introduction to Neurobiology	3 s.h.
BIOL:3233 (002:104) Introduction to Developmental Biology	3 s.h.
BIOL:3253 (002:180) Neurobiology	4 s.h.
BIOL:3713 (002:171) Molecular Genetics	4 s.h.
BIOL:4213 (002:170) Bioinformatics	4 s.h.
BIOL:4333 (002:168) Genes and Development	3 s.h.
BIOL:4753 (002:184) Developmental Neurobiology	3 s.h.
MICR:2157 (061:157) General Microbiology	5 s.h.
MICR:3147 (061:147) Survey of Immunology	3 s.h.

Global Health

GHS:3010 (152:150) Identifying and Developing a Global Health Project (when subtitle is Research Design in Global Health)	2-3 s.h.
GHS:3102 (152:185) Medical Anthropology	3 s.h.
GHS:3720 (152:160) Global Health Seminar	3 s.h.
GHS:4111 (152:131) Geography of Health	3 s.h.
GHS:4600 (152:120) Global Health and Human Rights	2-3 s.h.

Health and Human Physiology

HHP:1100 (027:053) Human Anatomy	3 s.h.
HHP:2130 (027:044) Human Development Through the Life Span	3 s.h.
HHP:2200 (027:039) Physical Activity and Health	3 s.h.
HHP:2310 (027:040) Nutrition and Health	3 s.h.

HHP:3020 (027:127) Nutrition for Health, Fitness, and Sport	3 s.h.
HHP:3500 (027:130) Human Physiology	3 s.h.
HHP:3850 (027:176) Promoting Health Globally	3 s.h.

Psychology

PSY:2301 (031:013) Introduction to Clinical Psychology	3 s.h.
PSY:2401 (031:014) Introduction to Developmental Science	3 s.h.
PSY:2501 (031:015) Introduction to Social Psychology	3 s.h.
PSY:2601 (031:016) Introduction to Cognitive Psychology	3 s.h.
PSY:2701 (031:002) Biological Psychology	4 s.h.
PSY:3010 (031:152) Health Psychology	3 s.h.

Public Health

CBH:5105 (172:101) Introduction to Health Promotion and Disease Prevention	3 s.h.
CBH:5215 (172:115) Community Preventive Programs and Services	3 s.h.
CBH:5225 (172:135) Health Disparities and Cultural Competence	2-4 s.h.
HMP:4000 (174:102) Introduction to the U.S. Health Care System	3 s.h.
MPH:3000 (170:099) Fundamentals of Public Health	3 s.h.
OEH:3210 (175:101) Health, Work, and the Environment	3 s.h.
OEH:4210 (175:111) International Health	3 s.h.
OEH:4240 (175:197) Global Environmental Health	3 s.h.

Application

Interested students should apply on the certificate program's student application system. Deadlines for review of applicants are November 1 and April 1. Applications should include the following:

- a description of the student's undergraduate research (maximum of 1000 words), including the approximate number of hours per week the student spends conducting the research and the name and e-mail address of the student's research mentor;
- a personal statement outlining the student's professional and career goals;
- a copy of the student's grades; and
- a letter of recommendation from the student's research mentor.

College Success Initiatives

Coordinator

- Lisa Ingram

The College Success Initiatives Program is designed to enrich students' experiences at The University of Iowa. The program's courses help first-year and entering students make a successful transition to the University.

The College Success Initiatives Program is administered by the associate provost for undergraduate education. For more information about the program's courses, contact the Academic Advising Center.

Courses

Lower-Level Undergraduate

CSI:1000 (407:025) Mindfulness: Being Here With It All 2 s.h.

Training in Mindfulness-Based Stress Reduction; application to dealing with life changes (i.e., transition to University life); navigating daily life (academics, roommates, schedules); improving academic skills; self-regulation of emotions; questions of meaning and purpose. Same as PSQF:1026 (07P:026).

CSI:1020 (407:021) Academic Seminar I 3 s.h.

Development of knowledge and skills essential for academic success at college level; reading, writing, and communication skills; focus on reading comprehension, class discussion, and development of writing process; various narratives including published collections of essays and peers' texts; writing process and techniques, and components that bring each piece together. Requirements: IowaLink participant.

CSI:1021 (407:022) Academic Seminar II 3 s.h.

Continued development of knowledge and skills necessary for academic success; reading, writing, and communication skills; experimentation with ethnographic research methods, exploration of cultures and subcultures; writing about findings in various experimental forms, suing as a model, short ethnographic essays, excerpts from a graphic novel; focus on reading comprehension strategies, class discussion, and development of writing process. Prerequisites: CSI:1020 (407:021). Requirements: IowaLink participant.

CSI:1100 (407:001) College Transition Seminar 1 s.h.

College culture, University of Iowa resources, refinement of study skills, test taking, identification of personal values, self-motivation, goal setting; taught in small sections with emphasis on classroom discussion. Requirements: entering first-year student.

CSI:1150 (407:004) College Transition Workshop 1 s.h.

Preparation for affiliated lecture course; practical context to apply, evaluate, and refine study skills strategies explored in CSI:1100 (407:001); expand study strategies, enhance grasp of affiliated course material, and apply study skills to future course work. Corequisites: CSI:1100 (407:001). Requirements: concurrent enrollment in a CIC affiliated lecture course.

CSI:1200 (407:029) First-Year Seminar 1 s.h.

Introduction to the intellectual life of the University; opportunity to work closely with a faculty member or senior administrator; active participation that eases the transition to college-level learning.

CSI:1250 (407:030) Introduction to Law Study and Legal Careers 1 s.h.

Introduction to legal education and careers; exploration of role of law in society, nature of legal education, careers in law, and current legal issues; opportunity for students to begin reflecting on their own interest in this field.

CSI:1300 (407:050) College Expectations: Safe and Smart 0 s.h.

Alcohol and sexual violence awareness training.

CSI:1350 (407:060) College Expectations for Transfer Students 0 s.h.

Alcohol and sexual violence awareness training.

CSI:1400 (407:090) The Passport Project: Exploring Knowledge and Culture Beyond the Classroom 1 s.h.

Attendance at 12 events selected from the University and Iowa City's rich intellectual and cultural offerings, including music concerts, art workshops and openings, literary readings, lectures in the sciences and humanities, hands-on engineering demonstrations, dance recitals, political forums, and theatrical productions; written and multimedia reviews and reflections in electronic passports; small-group discussions; special events featuring outstanding leaders in the arts, humanities, and sciences. Same as ARTS:1400 (01A:001).

CSI:1450 (407:095) Passport Project Colloquium 1 s.h.

Opportunities and challenges for peer mentors involved in CSI:1400 (407:090); activities including short readings and media screenings related to innovative and best practices in learning and teaching; emphasis on multi-modal writing online for peers; informal presentations and reflections. Same as ARTS:1450 (01A:002).

CSI:1500 (407:002) College Success Seminar 1 s.h.

Skills, habits, and attitudes essential for college success; self-assessment, goal setting, problem solving, motivation, time management, study skills, preparing for and taking tests; campus resources, including the Pomerantz Career Center, University Counseling Service; emphasis on class participation and completion of assignments related to course topics. Requirements: selected students with first-year standing in the College of Liberal Arts and Sciences.

CSI:1700 (407:007) Online at Iowa 1 s.h.

Web-based introduction to electronic tools and resources at The University of Iowa; web sites, e-mail, databases; how to research courses, register for classes, and review grades; computer security; virtual campus tour.

CSI:1800 (407:008) Managing Your Money: Personal Finance for College Students 1 s.h.

Introduction to basic concepts and practices for management of resources and prevention of financial problems commonly associated with college, including credit and student loans.

CSI:1900 (407:009) International at Iowa 1 s.h.

Introduction to immigration and other laws; academic expectations on the University of Iowa campus; cultural adjustment; how to succeed academically; caring for one's mental health; web-based course for new international undergraduate students.

CSI:2100 (407:011) The Transfer Transition 1 s.h.

University of Iowa resources, career and major selection, identification of personal values, self-motivation, goal setting, study and test-taking skills; small sections with classroom discussion. Requirements: entering transfer student standing.

Human Rights

Director

- Greg Hamot

Associate director

- Amy Weismann

Affiliated faculty

- Loyce Arthur (Theatre Arts), Jeremy Brigham (International Programs), Diana Cates (Religious Studies), Mary Cohen (Education/Music), Carolyn Colvin (Education), Jovana Davidovic (Philosophy), Brian Farrell (Law/International Programs), Elizabeth Heineman (History/Gender, Women's, and Sexuality Studies), Maureen McCue (Interdisciplinary Programs/International Programs/Epidemiology), Nathan Miller (Law), David Osterberg (Occupational and Environmental Health), Sally Scott (Public Policy Center), Shelton Stromquist (History), Burns H. Weston (Law), Andrew Willard (International Programs/University of Iowa Honors Program), Adrien Wing (Law)

Undergraduate certificate: human rights
Human rights concern the inherent dignity of all human beings and the promotion and protection of that dignity regardless of race, color, gender, sexual orientation, religion, culture, nationality, birth, or other status. The Certificate in Human Rights program broadens students' understanding of human rights issues and helps them learn how to use an interdisciplinary approach to identify solutions.

Course work for the certificate is drawn from units across The University of Iowa. It prepares students to examine societal problems critically and to design specific solutions to human rights dilemmas in a wide range of areas, such as civil governance, the situations of women and racial and sexual minorities, child welfare, socioeconomic development and well-being, hunger and poverty, education, health, immigration, ecological sustainability, and mass violence.

The Certificate in Human Rights is administered by the College of Law and awarded by University College.

Undergraduate Program of Study

- Certificate in Human Rights

Certificate

The Certificate in Human Rights requires 18 s.h. of credit. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. They may count a maximum of 6 s.h. of transfer credit toward the certificate with approval from the certificate program's faculty advisory group. Completion of the certificate is noted on the student's transcript.

Individuals must declare their intent to earn the certificate. They must consult with the Certificate in Human Rights advisor to complete a plan of study; see the Certificate in Human Rights web site for details.

The Certificate in Human Rights requires the following course work.

Philosophical foundations and contemporary issues in human rights—both of these (6 s.h.):

HRTS:2115 (216:080)/IS:2115 (187:080) Introduction to Human Rights	3 s.h.
PHIL:3430 (026:130) Philosophy of Human Rights	3 s.h.

Human rights in practice—all of these (total of 12 s.h.):

HRTS:3905 (216:176)/IS:3905 (187:176) Topics in Human Rights	3 s.h.
HRTS:3906 (216:177) Human Rights Systems: Institutions and Mechanisms Enforcing and Implementing Human Rights	3 s.h.
HRTS:3910 (216:180)/IS:3910 (187:180) Human Rights Advocacy	3 s.h.
HRTS:3920 (216:185) Seminar in Human Rights Praxis: Supervised Internship	3 s.h.

Contact the certificate program advisor to learn about additional University of Iowa courses that relate to human rights. Individual students who would like to make substitutions for required courses must meet with the certificate program advisor; then they must submit a petition form to the program's faculty advisory group.

Courses

HRTS:2115 (216:080) Introduction to Human Rights 3 s.h.

Analysis and evaluation of the international human rights program; relationship between human rights and international law. Same as IS:2115 (187:080).

HRTS:3895 (216:174) Human Rights and Community Development 3 s.h.

Exploration of connections and tensions between human rights as defined by member states of the United Nations; meaning and practice of community development, especially but not exclusively, in the United States; focus on critical thinking, in-depth discussion of readings, group work, and individual writing.

HRTS:3900 (216:175) Child Labor and International Human Rights 3 s.h.

Complexity of child labor in global, regional, national, and local contexts; international human rights system, current programs and strategies for reducing or eliminating abusive child labor. Same as IS:3900 (187:175).

HRTS:3905 (216:176) Topics in Human Rights 1-3 s.h.

Examination of emerging human rights issues from an interdisciplinary and international perspective. Same as IS:3905 (187:176).

HRTS:3906 (216:177) Human Rights Systems: Institutions and Mechanisms Enforcing and Implementing Human Rights 3 s.h.

Beginning of modern human rights era in 1948 and newly formed United Nations as one of the few institutions acting to protect human rights; present day aspiring advocates confronted by bewildering array of institutions to which they might bring human rights concerns; human rights enforcement mechanisms from an advocate's point of view; shortcomings of human rights enforcement and how it can be made better; broad definition of advocacy; legal and nonlegal conceptions of enforcement.

HRTS:3910 (216:180) Human Rights Advocacy 3 s.h.

Theoretical foundations and critical issues for international human rights advocacy and international humanitarian movements. Same as IS:3910 (187:180).

HRTS:3915 (216:181) Human Rights and the Arts 3 s.h.

Ways in which violations of and struggle for human rights have affected and been affected by literary, musical, visual, architectural, and theatrical/dramatic arts in various countries past and present; art considered as expression, as market of identity, and as historical document.

HRTS:3920 (216:185) Seminar in Human Rights Praxis: Supervised Internship arr.

Supervised internship in human rights praxis; focus on field-based advocacy and human rights frameworks.

HRTS:4283 (216:173) U.S. Women's History as the History of Human Rights 3-4 s.h.

History of human rights in the United States traced through the perspective of women; aspects of women's experience (social, political, intellectual) related to fundamental human rights—right to a nationality, right to life, liberty and personal security, right to freedom of movement, right to take part in the government of their country, right to own property; these and other rights specified by the United Nations in the Universal Declaration of Human Rights, 1948; different history of men and women enjoying these rights; how human rights have been constructed and experienced in the United States from the era of colonial settlement to present. Same as HIST:4283 (16A:173), AMST:4283 (045:173), GWSS:4283 (131:173).

Intercollegiate Athletic Participation

Director

- Elizabeth Tovar

Students who are members of University of Iowa intercollegiate athletics teams and are certified to participate in their sport may register for IAP:1021 (408:021) Intercollegiate Athletic Participation. Each section of the course represents a specific sports team; students register for the appropriate section. Registration requires approval from the director of student athletic academic services. Qualified students may repeat the course. Members of University of Iowa sport clubs are not eligible to enroll in IAP:1021 (408:021).

Courses

Lower-Level Undergraduate

IAP:1021 (408:021) Intercollegiate Athletic Participation 1 s.h.

Iowa Biosciences Advantage

Codirectors

- Vincent G.J. Rodgers (Physics and Astronomy), Lori Adams (Biology)

Lecturer

- Meaghan Rowe-Johnson

Web site: <http://iba.biology.uiowa.edu/>

Undergraduate Program

Iowa Biosciences Advantage (IBA) is a highly competitive undergraduate research and academic enrichment program funded by the National Institutes of Health. The program identifies academically talented undergraduate, underrepresented students who aspire to research careers and gives them first-rate training that facilitates entry into doctoral programs in biomedical, behavioral, and biophysical sciences.

Iowa Biosciences Advantage students have opportunities to work in research laboratories with faculty mentors during the course of their undergraduate careers. The program's faculty represents a broad range of disciplines in the basic and biomedical sciences. IBA students also benefit from specialized course work, career counseling, and academic advising for biomedical and bioscience careers.

Students selected for IBA must maintain good standing in academics and research. Good academic standing requires a g.p.a. of at least 3.00 and is evaluated at the end of each semester. Good research standing is determined by each student's research mentor. Students work with their mentors throughout the academic year and summer.

STUDENTS ACCEPTED FROM HIGH SCHOOL

Students admitted to IBA from high school spend their first year at The University of Iowa establishing good academic standing and conducting laboratory rotations.

During fall semester, IBA students enroll in IBA:1041 (168:041) IBA Student Development Seminar (1 s.h.), where they explore topics such as college culture, University resources, study skills, test taking, and goal setting.

During spring semester, IBA students again enroll in IBA:1041 (168:041); this semester of the course is designed to help them navigate their laboratory rotations. They also enroll in IBA:1047 (168:047) IBA Research in Biomedical Science (0 s.h.) and complete a research rotation. The rotation, which is set up by IBA staff, introduces students to laboratory research at the University.

Students may choose to remain on campus for the eight-week summer session. They earn pay for laboratory work with their research mentors and may participate in IBA events. After completing a full year of research experience, each student is evaluated for admission to the IBA Scholar Program. Students who earn admission may continue in IBA throughout the year.

STUDENTS ACCEPTED FROM COLLEGE

Applications also are accepted from current University of Iowa undergraduates majoring in the sciences as well

as students transferring to Iowa. Students accepted to IBA during their first, second, or third year of college join the appropriate class of IBA scholars. During their first semester of participation, new undergraduates complete lab rotations and establish good academic standing. They also enroll in IBA:1041 (168:041) IBA Student Development Seminar (1 s.h.). Once students are matched with a research mentor, they earn pay for their laboratory work during summer and the academic year. They also enroll in IBA:1047 (168:047) IBA Research in Biomedical Science (0 s.h.).

Admission

Students apply to Iowa Biosciences Advantage during their senior year of high school or once they are undergraduate students.

Applicants must:

- have a strong interest in pursuing a research career;
- have a qualifying academic major;
- be in good academic standing;
- submit an IBA application, including short essays; and
- submit one letter of recommendation from a science or math instructor.

Admission requires an interview. Admission decisions are generally made in March, July, and October.

Faculty

Faculty members from the University's broad range of basic and biomedical science disciplines serve as teachers and mentors to IBA students. They represent many departments, including anatomy and cell biology, biochemistry, biology, biomedical engineering, chemistry, health and human physiology, microbiology, molecular physiology and biophysics, neuroscience, and psychology.

Courses

Lower-Level Undergraduate

IBA:1041 (168:041) IBA Student Development Seminar 1 s.h.

Academic and professional development; presentations by faculty researchers, admissions representatives, or students in graduate bioscience programs; discussions about succeeding at the University; talks by professional educators on topics such as effective study skills.

IBA:1047 (168:047) IBA Research in Biomedical Science 0 s.h.

Registration in a section taught by student's research mentor. Requirements: enrollment in IBA.

Iowa Lakeside Laboratory

Associate provost and dean

- Chet Rzonca

Director, academics and research

- Stephen Hendrix (Biology)

Associate director, academics and research

- Michael J. Lannoo (Anatomy and Cell Biology, Indiana University School of Medicine)

Iowa State University participating faculty

- James Colbert (Ecology, Evolution, and Organismal Biology), Amy Toth (Ecology, Evolution, and Organismal Biology)

University of Iowa participating faculty

- John F. Doershuk (Anthropology)

University of Northern Iowa participating faculty

- Kavita Dhanwada (Biology), Laura Jackson (Biology), Daryl D. Smith (Biology)

Web site: <http://www.continuetolearn.uiowa.edu/lakesidelab/>

Iowa Lakeside Laboratory is a field station run cooperatively by The University of Iowa, Iowa State University, and the University of Northern Iowa. Students at all three institutions may take Iowa Lakeside Laboratory courses for credit. They should check with their advisors to determine whether specific courses count toward requirements of their academic majors or minors or toward other requirements.

Iowa Lakeside Laboratory was established in 1909 for the conservation and study of the rich flora and fauna of northwest Iowa, especially the numerous lakes, wetlands, and prairies of the Iowa Great Lakes region. The campus is located on approximately 140 acres of restored prairie, wetland, and gallery forest along the west shore of West Okoboji Lake. Lakeside's mission is to provide undergraduate and graduate students an opportunity for hands-on experience in a variety of natural and human environments through its field-oriented summer courses, and to provide research facilities and support for graduate students and faculty members working on research projects in northwestern Iowa.

Each summer Iowa Lakeside Laboratory offers students a unique educational experience—small, full-immersion, field-oriented courses in the natural sciences (archaeology, botany, ecology, hydrology, soils, zoology). Courses are taught at the sophomore/junior level and the senior/graduate level. Enrollment usually is limited to 10 or fewer students per course. Most courses meet all day Monday through Friday, last four weeks, and offer 1 s.h. of credit for each week (40 clock hours) in class. One- and two-week courses also are available, including courses designed especially for teachers.

Weather permitting, students normally spend at least part of each day doing fieldwork, either as part of their class work or for individual or group projects.

Not all courses are offered every year; visit Courses on the Iowa Lakeside Laboratory web site or consult the University of Iowa summer course offerings on ISIS (Iowa Student Information Services) to learn which courses will be offered during a particular summer session.

Research projects by undergraduates, graduate students, and faculty members can be completed either on the Iowa Lakeside Laboratory campus or at many nearby natural areas. Undergraduate and graduate students are strongly encouraged to do independent projects at the laboratory, and graduate students are welcome to use Lakeside as a base for their thesis and dissertation research. Laboratory space and other facilities are available for long-term or short-term research projects.

Teaching and research facilities include eight laboratory buildings, a library, and a lecture hall. Living accommodations include cottages, motel-style units, and a large mess hall. All students are encouraged to stay at Lakeside while they are taking courses to derive full advantage of its educational, professional, and social life.

Registration

Students may enroll in Iowa Lakeside Laboratory courses only by submitting an Iowa Lakeside Laboratory Registration and Housing Form to the Iowa Lakeside Laboratory Administrative Office. Information about current courses and housing is available on the Iowa Lakeside Laboratory web site.

Registration usually opens in early January. Enrollment is limited, so students should register early. When they register, they must apply for housing or indicate that they plan to live off campus.

Financial Support

Financial support is available for undergraduate and graduate students. The Friends of Lakeside Lab organization provides a merit scholarship that is equivalent to the cost of room and board. Additional financial support may be available from Iowa Lakeside Laboratory and from other sources. Consult the Office of Student Financial Aid for information about support, including work-study and loan programs.

Courses

Lower-Level Undergraduate

IALL:1010 (OOL:010) Earth, Air, and Sky 3 s.h.

Essentials of earth science, including astronomy, meteorology, geology, and paleontology; includes laboratory and fieldwork.

IALL:1019 (OOL:019) Soils and Environmental Quality 3-4 s.h.

The role of soils in environmental quality and natural resources management; soil erosion and conservation, water quality, environmental planning; weekend field trip.

IALL:1030 (OOL:030) Natural History Workshop 1-2 s.h.

A specific aspect of the upper Midwest's natural history, or techniques for studying natural history; amphibians and reptiles, birds and birding, nature photography, mushrooms and other fungi, Iowa's trees and forests, fish biology, prairies, common algae, common insects, aquatic plants, life in rivers, life in lakes, mosses and liverworts, natural history of Iowa Great Lakes region, field archaeology, scuba diving, astronomy, nature sketching; five-day, nontechnical introductions.

IAL:1034 (00L:034) Topics in Ecology and Sustainability 1-4 s.h.

Scientific introduction to ecology and evolution of important groups of organisms: algae to vertebrates, different ecological phenomena (e.g., fire and climate change), varying landforms, different ecosystems (e.g., prairies and aquatic systems); emphasis on sustainability with introduction to concepts, issues, and practices; ability to communicate environmental information through a variety of means. Requirements: one general biology course.

IAL:1040 (00L:040) Field Archaeology 4 s.h.

Nature of cultural and environmental evidence in archaeology, how such evidence is used to model past human behavior and land use; emphasis on Iowa prehistory; basic reconnaissance surveying, excavation techniques.

IAL:1050 (00L:050) Undergraduate Internship 1-4 s.h.

Placement with county conservation boards, camps, parks, and other agencies for experience as interpreters, rangers, technicians. Requirements: sophomore standing.

Upper-Level Undergraduate and Graduate

IAL:3100 (00L:100) Techniques for Biology Teaching 1-2 s.h.

Development and implementation of laboratory exercises suitable for inclusion in elementary, middle, high school, and community college biology and environmental courses; exercises built around common organisms and ecosystems in Iowa; animal biology, plant biology, fungi and lichens, aquatic ecology, prairie ecology, wetland ecology, limnology, animal behavior, insect ecology, biology of invertebrates, noninvasive use of living organisms, Project WET; field trips.

IAL:3102 (00L:102) Plant-Animal Interactions 4 s.h.

Introduction to ecology and co-evolution of plants and animals; emphasis on dispersal, pollination, plant-herbivore interactions; field and laboratory work, reading, discussion. Requirements: one biological science course.

IAL:3103 (00L:103) Aquatic Ecology 4 s.h.

Analysis of aquatic ecosystems; emphasis on basic ecological principles; ecological theories tested in the field; identification of common plants and animals. Requirements: ecology, chemistry, and physics courses.

IAL:3105 (00L:105) Plant Taxonomy 4 s.h.

Principles of classification and evolution of vascular plants; taxonomic tools and collection techniques; use of keys;

field and laboratory studies emphasizing identification of local flowering plants, recognition of major plant families.

IAL:3109 (00L:109) Ecology and Systematics of Algae 4 s.h.

Ecology, morphological structure, phylogeny, and taxonomy of freshwater algae based on field material collected; emphasis on genus-level identifications, biodiversity, ecology; habitat visits to lakes, fens, streams, rivers; algal ecology.

IAL:3111 (00L:111) Summer Writing Festival at Iowa Lakeside Laboratory 1 s.h.

Application of imagination to life experiences to become more effective writers; writing exercises invite imaginative leaps, thoughtful reflections, humor, and seriousness; participants work in various forms of expression, including personal essay, poetry, and short fiction; designed for young adult to adult writers of all levels. One week.

IAL:3113 (00L:113) Undergraduate Independent Study 1-4 s.h.

Requirements: junior or senior standing.

IAL:3115 (00L:115) Field Mycology 4 s.h.

Identification and classification of the common fungi; techniques for identification, preservation, and culture practiced with members of the various fungi groups.

IAL:3117 (00L:117) Ecology and Systematics of Diatoms 4 s.h.

Field and laboratory study of freshwater diatoms; techniques in collection, preparation, and identification of diatom samples; study of environmental factors affecting growth, distribution, taxonomic characters; project design and execution, including construction of reference and voucher collections; data organization and analysis.

IAL:3121 (00L:121) Plant Ecology 4 s.h.

Principles of plant population, community, and ecosystem ecology illustrated through studies of native vegetation in local prairies, wetlands, forests; group or individual projects.

IAL:3122 (00L:122) Prairie Ecology 4 s.h.

Basic patterns, underlying physical and biotic causes of regional and local distributions of North American prairie plants and animals; field and laboratory analysis and projects. Requirements: familiarity with basic principles of biology and ecology.

IAL:3126 (00L:126) Ornithology 4 s.h.

Biology, ecology, and behavior of birds; emphasis on field studies of local avifauna; group projects with focus on techniques of population analysis and methodology for population studies.

IAL:3131 (00L:131) Ecology 4 s.h.

Introduction to the principles of ecology at the population, community, ecosystem levels; field studies of local lakes, wetlands, and prairies used to examine factors that control distributions, interactions, and roles of plants and animals in native ecosystems. Requirements: two semesters of introductory biology.

IAL:3133 (00L:133) Animals and Their Ecosystems 4 s.h.

Vertebrate and invertebrate animals of the Midwest; observation of animals in nature, either through passive observational techniques or active trapping exercises; once identified, placement of animals in proper taxonomic position (i.e., "Tree of Life"); ecological perspective, including habitat preferences (i.e., wetland, lake, prairie, forest, river, edge), trophic position, and activity patterns; discussion and emphasis on conservation status. Requirements: introductory biology course.

IALL:3140 (00L:140) Water Policy and Politics 1 s.h.

Historical, legal, economic, cultural, and political dimensions of water resources; public perception and enjoyment of this abundant and important natural resource; how public policy developed; private rights; differences between the previous appropriation system in the western U.S. and eastern riparian rights law; public rights regarding water for navigation, recreation, and environmental protection; water-related institutions such as suppliers of municipal water and irrigation water; interbasin transport of water.

IALL:3142 (00L:142) Watershed Hydrology and Surficial Processes 4 s.h.

Effects of geomorphology, soils, and land use on transport of water and materials (nutrients, contaminants) in watersheds; fieldwork emphasizing investigations of the Iowa Great Lakes watershed. Requirements: four courses in physical or biological sciences or engineering.

IALL:3151 (00L:151) Analysis of Environmental Data 2 s.h.

Theory and application of statistical techniques for analysis of ecological and paleoecological data.

IALL:3160 (00L:160) Restoration Ecology 4 s.h.

Ecological principles for restoration of native ecosystems; establishment (site preparation, selection of seed mixes, planting techniques) and management (fire, mowing, weed control) of native vegetation; evaluation of restorations; emphasis on prairie restoration, wetland vegetation. Requirements: an ecology course.

IALL:3163 (00L:163) Conservation Biology 4 s.h.

Population- and community-level examination of factors influencing viability of plant and animal populations from demographic and genetic perspectives; assessment of biodiversity; design, management of preserves. Offered summer sessions of odd years. Prerequisites: IALL:3131 (00L:131).

IALL:3165 (00L:165) Behavioral Ecology 4 s.h.

Ecological and evolutionary theories of animal behavior examined through field studies of animal coloniality, courtship, territoriality, predator defense, habitat selection, foraging, mating systems, parental care. Requirements: two biology courses.

IALL:3175 (00L:175) Soil Formation and Landscape Relationships 4 s.h.

Relationships between soil formation, geomorphology, environment; soil description, classification, geography, mapping, interpretation for land use. Prerequisites: IALL:3142 (00L:142).

IALL:3199 (00L:199) Undergraduate Research 1-4 s.h.

Requirements: junior or senior standing.

Graduate

IALL:5210 (00L:210) Global Climate Change: Causes, Connections, and Cures 2 s.h.

Underlying causes of global climate change, both natural and human; web of interrelated links affecting the physical and living world, including human society; cause-and-effect relationships and interventions that may reduce negative consequences; for teachers of grades 7-12 and students enrolled in teacher education programs for those grades. Requirements: bachelor's degree.

IALL:5213 (00L:213) Graduate Independent Study 1-4 s.h.

IALL:5217 (00L:217) Ecology and Systematics of Diatoms 4 s.h.

IALL:5225 (00L:225) Physical Limnology 2-4 s.h.

Mechanisms of physical transport of heat and contaminants in lakes; temperature cycle and stratification; disturbances to seasonal temperature structure, including the diurnal mixed layer, waves, upwelling, differential heating; turbulence, mixing, transport; field measurements of physical processes, computer models of transport.

IALL:5234 (00L:234) Topics in Ecology and Sustainability 1-4 s.h.

Scientific introduction at graduate level to important groups of organisms: algae to vertebrates, different ecological phenomena (e.g., fire and climate change), varying landforms, and different ecosystems (e.g., prairies and aquatic systems); emphasis on sustainability with an introduction to concepts, issues, and practices; communication of environmental information through a variety of means.

IALL:5240 (00L:240) Natural History Workshop 1-3 s.h.

An aspect of the upper Midwest's natural history, or techniques for studying natural history.

IALL:5250 (00L:250) Graduate Internship 1-5 s.h.

Experience as interpreters, rangers, technicians, and teachers through placement with county conservation boards, camps, parks, schools, other agencies.

IALL:5299 (00L:299) Research 1-4 s.h.

Iowa Young Writers' Studio

Director

- Stephen Lovely

Web site: <http://iowayoungwritersstudio.org/>

Precollege Program of Study

The Iowa Young Writers' Studio is a residential creative writing program for high school students offered during summer at The University of Iowa. Students in the program build a community of peers while working with experienced writing teachers, primarily students and graduates of the University's M.F.A. program in creative writing.

The studio offers three courses of study: poetry, fiction, and creative writing (a mix of poetry, fiction, and creative nonfiction). Each course consists of a seminar and a workshop. In seminars, students read literature by established writers. In workshops they share their own writing, get feedback from their classmates and teacher, and discuss issues of narrative and form.

The studio offers two two-week sessions: one in June and one in July.

Young writers who have completed grade 10, 11, or 12 are eligible to attend the studio. Application materials include an application, a creative writing sample, a statement of purpose, a high school transcript, and a letter of recommendation from an English teacher or another instructor familiar with the applicant's writing. Application is done entirely online. For complete application information, contact the Iowa Young Writers' Studio or visit its web site.

Application deadline is early February for the following summer.

Courses

Pre-Lower Level

IYWS:1001 (406:001) Iowa Young Writers' Studio 0 s.h.

Leadership Studies

Codirectors

- Kelley Ashby, William Nelson

Affiliated faculty

- Joseph Albrecht (Military Science), Amy Colbert (Management and Organizations), Cary Covington (Political Science), Motier Haskins (Social Work), Mary High (Communication Studies), Diane Jeske (Philosophy), Craig Just (Civil and Environmental Engineering)

Undergraduate certificate: leadership studies

Web site: <http://careers.uiowa.edu/students/leadership-studies-courses>

Leadership studies is a multidisciplinary academic field that draws upon theories and applications from a wide variety of related disciplines, such as the social sciences (e.g., psychology, sociology, political science, and anthropology) and the humanities (e.g., philosophy and history), as well as professional fields, including management and education. The University of Iowa's Leadership Studies Program examines ethical issues, principles, theories, and styles of leadership; the dynamics of interactions between leaders, followers, and group members; leaders' impact on organizations and communities; and leadership skills such as goal setting, communicating effectively, creating a vision, and empowering others.

The Leadership Studies Program offers the undergraduate Certificate in Leadership Studies as well as the Career Leadership Academy, a four-course sequence designed to help undergraduate students develop leadership and employment skills, and the online course Global Leadership Initiative. See "Undergraduate Program of Study" and "Other Undergraduate Programs" below.

Undergraduate Program of Study

- Certificate in Leadership Studies

The Certificate in Leadership Studies is an interdisciplinary program coordinated by the Pomerantz Career Center and supported by the Tippie College of Business, the College of Education, the College of Liberal Arts and Sciences, and the Center for Student Involvement and Leadership.

Certificate

The Certificate in Leadership Studies requires 21 s.h. of credit. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

Students must declare their intent to earn the certificate to a leadership studies advisor in the Pomerantz Career Center; see Certificate in Leadership Studies on the center's web site for information on how to enter the certificate program.

The certificate program provides a structure for involvement and commitment to leadership. It introduces students to leadership concepts and offers them hands-on

leadership experiences they will need in order to begin the life-long development of these skills. Certificate students complete an interdisciplinary core course (3 s.h.), area electives (15 s.h.), an experiential learning course (3 s.h.), and a final personal and program evaluation.

The Certificate in Leadership Studies requires the following course work.

INTERDISCIPLINARY CORE COURSE

All certificate students are required to complete the interdisciplinary core course (3 s.h.). In order to enroll in the course, they must have earned a minimum of 30 s.h. of credit and must be in good academic standing as defined by the College of Liberal Arts and Sciences (cumulative g.p.a. of at least 2.00).

LS:2010 (421:072) Perspectives on Leadership: Principles and Practices	3 s.h.
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The core course provides students with a broad foundation of leadership knowledge. It introduces diverse approaches to studying and practicing leadership and gives students a structure for organizing knowledge and skills from other leadership courses and experiences. The course features presentations by guest instructors from across the University, offering students an interdisciplinary perspective on leadership.

Certificate students must complete LS:2010 (421:072) before they may enroll in the required experiential learning or service learning course.

AREA ELECTIVES

Area electives are drawn from five developmental areas central to effective leadership: self-leadership, group leadership, communication, cultural competence, and ethics and integrity. Students must complete 3 s.h. from each of these areas (total of 15 s.h.).

Self-Leadership

At least 3 s.h. from these:

LS:1007 (421:077) The 7 Habits of Highly Successful College Students	1 s.h.
LS:1020 (421:020) Introduction to Leadership	3 s.h.
LS:1022 (421:022) President's Leadership Class (PLC)	3 s.h.
LS:2000 (421:106) Career Leadership Academy—Phase 1	2 s.h.
LS:2002 (421:076) Career Leadership Academy—Phase 1 and 2	3 s.h.
LS:3010 (421:071) Global Leadership Initiative	1 s.h.
LS:4001 (421:109) Career Leadership Academy—Phase 4	1 s.h.
LLS:1045 (410:045) Leadership in the Outdoors	3 s.h.
MGMT:4300 (06J:162) Leadership and Personal Development	3 s.h.
MILS:1010 (023:101) Leadership and Personal Development MSL101	1 s.h.
MILS:1020 (023:102) Introduction to Tactical Leadership MSL102	1 s.h.
SOC:4225 (034:123) The Social Psychology of Leadership	3 s.h.

Group Leadership

At least 3 s.h. from these:

LS:2001 (421:107) Career Leadership Academy—Phase 2	2 s.h.
LS:3001 (421:108) Career Leadership Academy—Phase 3	2 s.h.
LS:3002 (421:110) Career Leadership Academy—Phase 3 and 4	3 s.h.
AERO:3100 (23A:130) Air Force Leadership Studies I	3 s.h.
AERO:3200 (23A:132) Air Force Leadership Studies II	3 s.h.
COMM:1819 (036:019) Organizational Leadership	2-3 s.h.
COMM:2011 (036:011) Group Communication	3 s.h.
LEIS:1061 (169:061) Recreation Leadership and Programming	3 s.h.
LLS:1067 (410:067) Team Building Challenge Course	1 s.h.
MGMT:2100 (06J:048) Introduction to Management	3 s.h.
MGMT:3200 (06J:130) Individuals, Teams, and Organizations	3 s.h.
MILS:2010 (023:103) Innovative Team Leadership MSL201	2 s.h.
MILS:2020 (023:104) Foundations of Tactical Leadership MSL202	2 s.h.
PSY:2501 (031:015) Introduction to Social Psychology	3 s.h.
SOC:3210 (034:020) Principles of Social Psychology	3 s.h.
SOC:3610 (034:164) Organizations and Modern Society	3 s.h.
SOC:4225 (034:123) The Social Psychology of Leadership	3 s.h.
SSW:3500 (042:157) Nonprofit Organizational Effectiveness I	3 s.h.
SSW:3600 (042:158) Nonprofit Organizational Effectiveness II	3 s.h.

Communication

At least 3 s.h. from these:

BUS:3000 (06B:100) Business Communication and Protocol	3 s.h.
BUS:3800 (06B:140) Business Writing	3 s.h.
CNW:3640 (08N:113) Writing for Business and Industry	3 s.h.
COMM:1112 (036:012) Interpersonal Communication	3 s.h.
COMM:1117 (036:017) Theory and Practice of Argument	4 s.h.
COMM:1130 (036:030) The Art of Persuading Others	3 s.h.
COMM:1170 (036:070) Communication Theory in Everyday Life	3 s.h.
COMM:1301 (036:001) Core Concepts in Communication Studies	3 s.h.
COMM:1818 (036:018) Leadership and Organizational Procedures	2 s.h.
COMM:1819 (036:019) Organizational Leadership	2-3 s.h.

COMM:2091 (036:091) Organizational Communication	3 s.h.
INTM:3755 (01J:115) What is Storytelling For?	4 s.h.
MGMT:4100 (06J:156) Dynamics of Negotiations	3 s.h.

Cultural Competence

At least 3 s.h. from these:

ABRD:3352 (165:126) & LS:3009 (421:126) International Perspectives: Xicotepec - Global Leadership Initiative in Xicotepec (both courses are required)	arr.
AFAM:3459 (129:116) African American Literature Before 1900	3 s.h.
CCCC:2220 (208:120) Foundations of Critical Cultural Competence	3 s.h.
EPLS:4150 (07B:150)-EPLS:4151 (07B:151) Leadership and Public Service I-II (both courses are required)	5 s.h.
GWSS:1002 (131:055) Diversity and Power in the U.S.	3 s.h.
HIST:1040 (016:040) Perspectives: Diversity in American History	3 s.h.
HIST:3254 (16A:154)/GWSS:3154 (131:158) Sexuality in the United States	3 s.h.
MUS:3310 (025:103) World Music	3 s.h.
One elective approved for the Certificate in Critical Cultural Competence	3 s.h.

Students who use an elective approved for the Certificate in Critical Cultural Competence to satisfy this requirement must choose it from elective courses listed on the Certificate in Critical Cultural Competence web site.

Ethics and Integrity

At least 3 s.h. from these:

ARTH:4040 (01H:182)/LAW:8163 (091:192) Art, Law, and Ethics	3 s.h.
HMP:6315 (174:223) Seminar in Health Care Ethics	1-2 s.h.
HRTS:2115 (216:080) Introduction to Human Rights	3 s.h.
JMC:3180 (019:168) Journalism Ethics	3 s.h.
JMC:3300 (019:140) Media Law and Communication	3 s.h.
MGMT:3400 (06J:132) Employment Law	3 s.h.
PHIL:1034 (026:034) Philosophy and the Just Society	3 s.h.
PHIL:1636 (026:036) Principles of Reasoning: Argument and Debate	3 s.h.
PHIL:2401 (026:001) Matters of Life and Death	3 s.h.
PHIL:2402 (026:102) Introduction to Ethics	3 s.h.
PHIL:3432 (026:132) Introduction to Political Philosophy	3 s.h.
PHIL:3435 (026:135) Philosophy of Law	3 s.h.
PTRS:5100 (101:120) Professional Issues and Ethics	1 s.h.
RCE:4195 (07C:195) Ethics in Human Relations and Counseling	3 s.h.

EXPERIENTIAL LEARNING

Certificate students must earn 3 s.h. in a course focused on experiential, or hands-on, learning. An experiential learning course may take different forms, such as a service learning experience, an internship, or an on-campus leadership practicum.

Before they may enroll in the hands-on course, students must have completed at least 9 s.h. of work toward the certificate, including the core course LS:2010 (421:072) Perspectives on Leadership: Principles and Practices, so that they have a solid foundation of knowledge to apply to the experience.

Service Learning Courses

Service learning courses incorporate community engagement with academic course work. They allow students to gain hands-on experience along with a deeper understanding of course content while responding to real community needs. Students may satisfy the certificate's experiential learning requirement by earning 3 s.h. in service learning courses approved by the University of Iowa Center for Teaching or by completing LS:1008 (421:078) Service Learning Experience.

Students who satisfy the requirement with LS:1008 (421:078) register for the course in order to receive credit for their service learning experience. Students must complete all course assignments and must earn 3 s.h. in order to fulfill the experiential learning requirement. The service learning experience must take place during the semester in which LS:1008 (421:078) is offered. Service learning experiences completed during fall and spring semesters must last at least 15 weeks and must require eight hours of service per week; those completed during a summer session must last at least 10 weeks and must require 12 hours of service per week.

Students enrolled in LS:1008 (421:078) meet weekly to discuss topics related to theory and practices of academic service learning, including how service learning relates to democracy, citizenship, and civic responsibility.

Service that fulfills the certificate's experiential learning requirement must be approved in advance by the instructor of LS:1008 (421:078); contact the Pomerantz Career Center.

Internship

Internships consist of preapproved, supervised on-the-job learning; they may be paid or unpaid.

Students register for LS:3011 (421:073) Leadership Certificate Internship in order to receive certificate credit for the internship; they must complete all course assignments and must earn 3 s.h. in order to fulfill the experiential learning requirement.

To meet the certificate's experiential learning requirement, an internship must consist of professional experience that relates to the student's major field of study or career interest area and allows the student to build on the academic course work he or she has completed in the certificate program. At least 80 percent of the student's internship duties must be professional-level work, and the student must receive continuous supervision by a professional (not a student) in the internship field. The internship must last a minimum of 6 weeks and must require 225 hours of work.

Internships that fulfill the certificate's experiential learning requirement must be approved in advance by one of the certificate program's internship advisors, and the internship site supervisor must agree to the terms of the internship and must complete the required form before the internship may be approved. Students may work with staff at the Pomerantz Career Center to find an approved internship opportunity, or they may develop their own internship.

For more information about internships, see Internships on the Pomerantz Career Center web site.

On-Campus Leadership Practicum

Students who wish to fulfill the experiential learning requirement with an on-campus leadership practicum must engage in a formal, approved experience that is meaningful, educational, and cocurricular. It must require the student to take initiative and pursue active leadership roles and responsibilities. Examples include positions as student organization leaders, student government leaders, University Housing resident assistants, student orientation advisors, peer educators, and fraternity and sorority leaders. Practicums may be paid or unpaid.

Students register for LS:1023 (421:023) Leadership Certificate Practicum Class in order to receive certificate credit for the practicum; they must earn 3 s.h. in order to fulfill the experiential learning requirement. Students meet weekly in the practicum course to discuss topics related to the academic course work as applied in practice, and they must successfully complete a goal-setting assignment and a reflection assignment.

To meet the certificate's experiential learning requirement, a practicum must last at least 15 weeks during the semester in which LS:1023 (421:023) Leadership Certificate Practicum Class is offered and must require 10-15 hours of work per week [LS:1023 (421:023) is not offered every semester].

Practicums that fulfill the certificate's experiential learning requirement must be approved in advance by the leadership practicum instructor in the University's Center for Student Involvement and Leadership. Students must submit a list of goals and assignments and/or duties they will complete during the practicum, to demonstrate that the practicum will provide substantive work assignments and opportunities to build on the academic course work they have completed in the certificate program.

Each student also must identify a practicum mentor and demonstrate that the mentor will be willing to guide and evaluate the student's work and development of leadership skills, and will participate in reviewing the student's goal-setting assignment and in the final review of the student's performance.

PERSONAL AND PROGRAM EVALUATION

In order to be awarded the Certificate in Leadership Studies, students must complete a final report detailing how they completed the certificate requirements. The report should include a list of all courses taken for the certificate, indicating the requirement each course met, when each course was taken, and what grade the student earned for each course.

Other Undergraduate Programs

Career Leadership Academy

The Career Leadership Academy is a four-semester sequence of courses designed to help undergraduate students develop vital skills for leadership and employment: communication, interpersonal, and presentation skills and the ability to work well with others. The program consists of weekly seminars, activities, and events. Participants also have access to exclusive programs such as career exploration opportunities, networking events, and leadership development experiences.

LS:2000 (421:106) Career Leadership Academy—Phase 1	2 s.h.
LS:2001 (421:107) Career Leadership Academy—Phase 2	2 s.h.
LS:2002 (421:076) Career Leadership Academy—Phase 1 and 2	3 s.h.
LS:3001 (421:108) Career Leadership Academy—Phase 3	2 s.h.
LS:3002 (421:110) Career Leadership Academy—Phase 3 and 4	3 s.h.
LS:4001 (421:109) Career Leadership Academy—Phase 4	1 s.h.

For more information, see Career Leadership Academy on the Pomerantz Career Center web site.

Global Leadership Initiative

The Leadership Studies Program offers LS:3010 (421:071) Global Leadership Initiative (1 s.h.), an online course designed to help those engaged in international experiences develop their leadership knowledge, awareness, and skills. Individuals involved in study abroad, international internships, international exchange programs, or employment opportunities that involve international cooperation may enroll in the course concurrently with their international experiences. The course includes online discussion with other students, guided reflection, opportunities to engage with successful leaders in cross-cultural roles, pre- and postexperience assessment, and direction for continued development of global leadership competence after the course concludes.

Professional Development

Professional development courses provide students with opportunities to engage in practical, hands-on, skills-based instruction relevant to careers and leadership development. The topics and curricula for the following courses incorporate input from employers, who were surveyed about their experiences, real-world examples, guidance, and which skills they most often seek when hiring new graduates.

LS:2012 (421:010) Communication Skills for Leaders	1 s.h.
LS:2013 (421:011) Strengths-Based Leadership	1 s.h.
LS:3003 (421:101) Culturally Intelligent Leadership	1 s.h.

Courses

Lower-Level Undergraduate

LS:1005 (421:075) Leadership Community Seminar 0-1 s.h.

Opportunity to develop leadership knowledge and skills through workshops and programs; meaningful involvement and engagement on campus and in community through service learning opportunities; team building through a variety of initiatives and student-led programming; interaction with students who are making their own personal impact. Requirements: Personal Impact living-learning community member.

LS:1007 (421:077) The 7 Habits of Highly Successful College Students 1 s.h.

Workshop to help students change their approach to responsibilities, relationships, problems, and opportunities; balancing aspects of college life through time management skills; uncovering and exploring a personal mission and setting goals; increase trust levels and proactive behaviors; developing strong relationships with other students and professors; understand and effectively meet needs and expectations of professors, family, and others most important to student; setting priorities to achieve what matters most.

LS:1008 (421:078) Service Learning Experience 3 s.h.

Basic theory and practices of academic service-learning, including how it connects to higher education priorities of democracy, citizenship, and civic responsibility; practical skills and deep learning related to student's major and/or career goals by incorporating community engagement with academic course work; key theoretical elements of establishing and maintaining successful community partnerships; awareness of potential benefits to students and communities derived from development of civic capacity and community leadership skills. Requirements: For leadership studies certificate students — LS:2010 (421:072) and an additional 6 s.h. of approved leadership course work; for noncertificate students — completion of 9 s.h. of course work in student's major and agreement of major department faculty mentor to validate student learning goals.

LS:1009 (421:080) Mock Trial 2 s.h.

Legal analysis and argumentation, public performance, participation in the University of Iowa Mock Trial Club; mock trial role preparation, tournament competition, stage annual club tournament.

LS:1017 (421:017) Orientation Leader Training 1-2 s.h.

Preparation for role of Hawkeye Guide in the Office of Orientation Services; knowledge of academic requirements, policies, and procedures at The University of Iowa; development of leadership, group facilitation, presentation, and peer mentoring skills.

LS:1018 (421:018) Issues in College Residence Halls I 1 s.h.

Development of knowledge and skills required for work as a resident assistant; creating community, handling crises and emergencies; leadership.

LS:1019 (421:019) Issues in College Residence Halls II	1 s.h.	Leadership history and concepts, goal setting, the Relational Leadership Model, personal values and ethics, meaningful involvement and engagement, time and stress management, career development information, and varied self-awareness assessments and interest inventories. First in a four-semester sequence. Requirements: completion of 15 s.h.
Continuation of LS:1018 (421:018).		
LS:1020 (421:020) Introduction to Leadership	3 s.h.	
Overview of leadership theory and skills for effective leadership; historical perspective, development of a personal philosophy of leadership, self-assessments, leadership models; study of groups, culture, and communities; application of experiential learning settings; community service project; geared toward emerging student leaders.		
LS:1021 (421:021) Current Issues and Leadership in Fraternity and Sorority Life	3 s.h.	
Current issues facing leaders (alcohol and hazing education, conflict management, lasting impact of organizations on members); lifetime membership and values-based decision making; for leaders of fraternity and sorority community.		
LS:1022 (421:022) President's Leadership Class (PLC)	3 s.h.	
Meetings on current UI issues and the UI Presidents' philosophy on leadership; leaders from inside and outside the University, including Board of Regents, political leaders, influential alumni, student leaders, professors, coaches, other administrators; activities linked to the development of personal leadership style. Requirements: first-year standing and application.		
LS:1023 (421:023) Leadership Certificate Practicum Class	3 s.h.	
Meaningful and educational cocurricular experiences in on-campus leadership positions (i.e., student organization leader, student government leader, residence assistant, student orientation advisor, peer educator, fraternity/sorority leader); active leadership roles and responsibilities (i.e., executive leadership position, initiating and organizing a major event); application of leadership models and theories to practical experiences; for students completing the leadership certificate. Requirements: leadership certificate program enrollment, completion of introductory course requirements (general leadership pillar), completion of 9 s.h. in certificate program, and meet with instructor prior to enrollment.		
LS:1024 (421:024) Alternative Break Service Learning	arr.	
Introduction to theoretical approaches to service learning; shared experiential learning event off campus (i.e., alternative break) coordinated by professional or graduate staff member; variety of concepts including intersectionality of varied social and community issues, reflection and reciprocity, active citizenship and community building, practical implementation of skills from student's academic disciplines, leadership development, and other related areas; five expectations of the IOWA Challenge, with emphasis on STRETCH and SERVE, through education, direct service, and reflection. Requirements: application and acceptance to program.		
LS:2000 (421:106) Career Leadership Academy—Phase 1	2 s.h.	
LS:2001 (421:107) Career Leadership Academy—Phase 2	2 s.h.	
Group dynamics and teambuilding, understanding others, effective communication and listening, delivering presentations, problem solving, and dealing with difficult people; participation in a team-building workshop. Second in a four-semester sequence. Prerequisites: LS:2000 (421:106).		
LS:2002 (421:076) Career Leadership Academy—Phase 1 and 2	3 s.h.	
Combines LS:2000 (421:106) and LS:2001 (421:107) into one course; intensive instruction and preparation to enter LS:3001 (421:108) or LS:3002 (421:110). Requirements: completion of 15 s.h.		
LS:2010 (421:072) Perspectives on Leadership: Principles and Practices	3 s.h.	
Broad foundation of leadership knowledge representing diverse approaches to studying and practicing leadership; core course for students pursuing the leadership certificate. Requirements: sophomore standing.		
LS:2012 (421:010) Communication Skills for Leaders	1 s.h.	
Shortcomings that exist in today's world, where messages are typically conveyed in 140 characters or less, and when people need to communicate effectively as leaders; how to develop and improve essential communication skills in order to be effective leaders in professional and personal relationships; road trip with visits to different organizations to learn how communication is used effectively in the workplace in a variety of settings; opportunity to network and develop communication skills in interactions with employers.		
LS:2013 (421:011) Strengths-Based Leadership	1 s.h.	
Examination and evaluation of personal unique talents, be more engaged, and gain better understanding of leadership from a "Strengths" perspective; how to maximize strengths to stand out from the crowd; how society encourages people to be well-rounded (according to Gallup Organization's Strengths research) and how this pursuit of many goals can actually result in mediocrity.		
LS:2014 (421:012) PCC Leadership Internship	0 s.h.	
Opportunity to develop and improve leadership and professional skills in a structured environment; skills employers seek in new graduates; evaluation of internship experience; for students who have secured an internship focused on leadership and professional skills development in the Pomerantz Career Center and related programs. Requirements: sophomore or higher standing, completion of at least 12 s.h. of UI course work, secured internship approved in advance by instructor, and compliance with Pomerantz Career Center internship requirements.		

LS:2017 (421:015) Leadership Theory to Practice 3 s.h.

Major theories and models of leadership; compare and contrast various theories and models; how each theory and model can be applied to leadership practice and real-world organizations.

Upper-Level Undergraduate and Graduate

LS:3001 (421:108) Career Leadership Academy—Phase 3 2 s.h.

Collaboration, conflict resolution, delegation and empowerment, interviewing, networking, understanding power, service project management, and motivation. Third in a four-semester sequence. Prerequisites: LS:2002 (421:076), or LS:2000 (421:106) and LS:2001 (421:107).

LS:3002 (421:110) Career Leadership Academy—Phase 3 and 4 3 s.h.

Combines LS:3001 (421:108) and LS:4001 (421:109) into one course. Prerequisites: LS:2002 (421:076), or LS:2000 (421:106) and LS:2001 (421:107).

LS:3003 (421:101) Culturally Intelligent Leadership 1 s.h.

National Coalition Building Institute (NCBI) and Cultural Intelligence Quotient (CQ) skill-based training to become more culturally intelligent leaders; in-class participation by employers, networking, learning how these principles take shape in the real world at their respective organizations; book of student's résumés provided to employers at completion of course. Requirements: sophomore or higher standing.

LS:3009 (421:126) Global Leadership Initiative in Xicotepec 1-3 s.h.

Culture, history, and values of Mexico; leadership skills and work on civil and humanitarian projects; reflection of learning and experiences; spring break week in Xicotepec, Mexico. Requirements: participation in Career Leadership Academy.

LS:3010 (421:071) Global Leadership Initiative 1 s.h.

Development of knowledge, attitudes, and skills to be effective global leaders regardless of the industry or field; working effectively in a global environment with empathy; ability to deal with ambiguity and unfamiliarity; critical thinking and comparative skills, including the ability to think creatively and integrate knowledge; pre- and post-travel assessment, guided reflection, guest speakers, online discussion; intercultural communication; online course for students engaged in a study abroad experience or international internship. Requirements: concurrent enrollment in a study abroad or international internship experience, or completing an international component of current employment.

LS:3011 (421:073) Leadership Certificate Internship 0,3 s.h.

Registration of practical work experience (internship) with leadership components, for students pursuing the leadership certificate. Prerequisites: LS:2010 (421:072). Requirements: an additional 6 s.h. of approved leadership course work.

LS:4001 (421:109) Career Leadership Academy—Phase 4 1 s.h.

Professionalism and office communication, marketing one's skills, transitioning from college to the workforce, negotiating salaries, understanding benefits, realistic expectations of an entry-level position, and building a career. Last in a four-semester sequence. Prerequisites: LS:2002 (421:076), or LS:2000 (421:106) and LS:2001 (421:107); and LS:3001 (421:108).

Lifetime Leisure Skills

Director

- Robert DuBay

Web site: <http://www.recserv.uiowa.edu/>

Lifetime Leisure Skills courses are open to University of Iowa undergraduate and graduate students. Undergraduates in the College of Liberal Arts and Sciences may count credit earned in Lifetime Leisure Skills courses toward the minimum of 120 s.h. required for a bachelor's degree. Students should consult with their academic advisors.

Courses

Lower-Level Undergraduate

- | | |
|---|--------|
| <p>LLS:1002 (410:002) Water Safety Instructor</p> <p>Training for instructor candidates to teach courses in the American Red Cross Swimming and Water Safety Program; how to use course materials, conduct training sessions, and evaluate participants' progress.</p> | 1 s.h. |
| <p>LLS:1003 (410:003) Wilderness First Responder</p> <p>Tools to make critical medical and evacuation decisions in remote locations; practical skills, case studies, and scenarios designed to challenge decision making abilities; Wilderness Medicine Institute (WMI) adult and child CPR.</p> | 2 s.h. |
| <p>LLS:1004 (410:004) Waltz</p> <p>Beginning through intermediate-level waltz figures; performing a beautiful waltz routine; skills and knowledge to dance with confidence at any formal dance occasion.</p> | 1 s.h. |
| <p>LLS:1005 (410:005) Intermediate Ballroom Dancing: Rhumba, Cha Cha, Merengue</p> <p>Intermediate-level figures in three of the most popular, sexy, energy- charged Latin dances of today—rhumba, cha cha, and merengue; review of basics. Recommendations: LLS:1060 (410:060).</p> | 1 s.h. |
| <p>LLS:1006 (410:006) Intermediate Ballroom Dancing: Foxtrot, Waltz, Tango</p> <p>Intermediate-level figures in three of the most beautiful and popular dances in the world—foxtrot, waltz, and tango; review of basics. Recommendations: LLS:1060 (410:060).</p> | 1 s.h. |
| <p>LLS:1007 (410:007) Introduction to Rowing</p> <p>Introduction to technique, vocabulary, and procedures needed to safely participate in the sport of rowing; use of rowing machines, rowing tank, and rowing shells.</p> | 1 s.h. |
| <p>LLS:1008 (410:008) Intermediate Kickboxing</p> <p>Aggressive workout utilizing heavy bags, coach's mitts, and other equipment; conducted at moderate to intense pace using competitive kickboxing techniques, training methods, and equipment; kickboxing as a conditioning tool with self-defense as a byproduct; not designed to prepare for competition. Prerequisites: LLS:1047 (410:047).</p> | 1 s.h. |
| <p>LLS:1009 (410:009) Introduction to the Outdoors</p> <p>Mastering fundamental skills needed to safely enjoy an extended experience in an outdoor environment; development of technical skills in "Leave No Trace" principles, outdoor cooking, useful knots, campsite selection, setup; participation in overnight experiential learning camping class; team work to demonstrate skills in completing camp chores.</p> | 1 s.h. |
| <p>LLS:1010 (410:010) Whitewater Kayak Playboating</p> <p>Basic paddle strokes and techniques of whitewater kayak playboating; taught in Field House pool and rivers in Iowa with whitewater kayaking parks. Recommendations: basic understanding of kayak paddling techniques, and previous whitewater kayaking experience or LLS:1049 (410:049).</p> | 1 s.h. |
| <p>LLS:1011 (410:011) Stand Up Paddleboarding Fundamentals</p> <p>Introduction to skills, knowledge, and equipment to safely enjoy participating on flat, calm water; paddling environment, board and paddle control, standing and balancing, personal preparation and safety.</p> | 1 s.h. |
| <p>LLS:1041 (410:041) Scuba</p> <p>Basics of scuba diving. Taught in CRWC wet classroom and natatorium. Seven weeks.</p> | 1 s.h. |
| <p>LLS:1042 (410:042) Introduction to Rock Climbing</p> <p>Basics of rock climbing. Taught at Pictured Rocks County Park. Two days.</p> | 1 s.h. |
| <p>LLS:1043 (410:043) Bicycle Touring</p> <p>Basics of bicycle touring. Taught on Johnson County area roads.</p> | 1 s.h. |
| <p>LLS:1044 (410:044) Mountain Bicycling</p> <p>Basics of mountain bicycling. Taught on Sugar Bottom recreation trail system.</p> | 1 s.h. |
| <p>LLS:1045 (410:045) Leadership in the Outdoors</p> <p>Leadership theories, group dynamics, permits, outdoor leadership skills; experience as leader for a day during a weeklong wilderness field trip.</p> | 3 s.h. |
| <p>LLS:1046 (410:046) Tae Kwon Do</p> <p>Basics of Tae Kwon Do. Eight weeks.</p> | 1 s.h. |
| <p>LLS:1047 (410:047) Kickboxing</p> <p>Basics of kickboxing. Eight weeks.</p> | 1 s.h. |
| <p>LLS:1048 (410:048) Canoeing</p> <p>Basics of canoeing. Taught at Macbride Nature Recreation Area. Two days.</p> | 1 s.h. |
| <p>LLS:1049 (410:049) White Water Kayaking</p> <p>Basics of white-water kayaking. Taught in Field House pool, rivers in Wisconsin, Missouri.</p> | 1 s.h. |
| <p>LLS:1050 (410:050) White Water Canoeing</p> <p>Basics of white-water canoeing. Taught on rivers in Wisconsin, Missouri.</p> | 1 s.h. |

LLS:1051 (410:051) Marathon Training and Racing	1 s.h.	LLS:1068 (410:068) Wilderness Appreciation	1 s.h.
Multiweek training program culminating in the Midwest; for students who run 30-40 miles per week.		Basics of wilderness appreciation; one overnight camping experience. Taught at Macbride Nature Recreation Area.	
LLS:1052 (410:052) Intermediate Cross-Country Skiing	1 s.h.	LLS:1069 (410:069) Basic Snowshoeing	1 s.h.
Skate skiing in northern Wisconsin. Prerequisites: LLS:1075 (410:075).		Basics of snowshoeing. Taught on trails in Wisconsin.	
LLS:1053 (410:053) River Canoeing	1 s.h.	LLS:1070 (410:070) Intermediate Bicycle Touring	1 s.h.
		Bicycling on roads and trails in Wisconsin; focus on bike touring skills. Prerequisites: LLS:1043 (410:043).	
LLS:1054 (410:054) Dog Sledding	1 s.h.	LLS:1071 (410:071) Advanced Open Water Scuba	1 s.h.
Basics of dog sledding and winter camping.		Participation in five scuba diving specialty activities. Prerequisites: LLS:1041 (410:041). Requirements: certification as open water scuba diver.	
LLS:1055 (410:055) Intermediate Rock Climbing	1 s.h.	LLS:1072 (410:072) Basic Sea Kayaking	1 s.h.
Belaying, anchor placement. Prerequisites: LLS:1042 (410:042).		Basics of sea kayaking using solo and tandem boats. Taught at Lake Macbride.	
LLS:1056 (410:056) Hiking	1 s.h.	LLS:1073 (410:073) Winter Camping	1 s.h.
Basics of hiking. Taught at Governor Dodge or Devil's Lake State Parks in Wisconsin.		Basics of winter camping; snow shelters, hydration, meal preparation, clothing needs, snowshoe/ski travel with sleds.	
LLS:1057 (410:057) Backcountry Skiing and Snowshoeing	1 s.h.	LLS:1074 (410:074) Intermediate Mountain Bicycling	1 s.h.
Basics of backcountry winter travel and camping.		Mountain bicycling knowledge and skill developed on intermediate-level trails; on-trail maintenance. Prerequisites: LLS:1044 (410:044).	
LLS:1058 (410:058) Basic Self Defense	1 s.h.	LLS:1075 (410:075) Basic Cross-Country Skiing	1 s.h.
Basics of self-defense.		Basics of cross-country skiing in northern Wisconsin.	
LLS:1059 (410:059) Intermediate Tae Kwon Do	1 s.h.	LLS:1076 (410:076) Mountain Bicycling in Moab	1 s.h.
Development of knowledge and skills learned in beginning Tae Kwon Do. Prerequisites: LLS:1046 (410:046).		Advanced mountain bicycling techniques. Taught near Moab, Utah. Prerequisites: LLS:1044 (410:044).	
LLS:1060 (410:060) Ballroom Dancing	1 s.h.	LLS:1077 (410:077) Backpacking	1 s.h.
Basics of ballroom dancing.		Remote backcountry experience traveling iconic backpacking trails in the United States, including the Grand Canyon region or the Appalachian Trail; minimum-impact camping; very strenuous.	
LLS:1062 (410:062) Trail Running	1 s.h.	LLS:1078 (410:078) Ballroom Dancing—Nightclub Series	1 s.h.
Training, clothing, equipment, nutrition.		Salsa, the Hustle, Nightclub Two-Step, Argentine tango.	
LLS:1063 (410:063) Introduction to Nature Photography	1 s.h.	LLS:1079 (410:079) Ballroom Dancing—Rhythm and Smooth	1 s.h.
Basics of outdoor photography; no darkroom requirement. Taught at Macbride Nature Recreation Area.		Mambo, samba, waltz, Viennese waltz.	
LLS:1064 (410:064) Basic Orienteering	1 s.h.	LLS:1080 (410:080) Challenge Course Facilitation	1 s.h.
Basics of orienteering, including map and compass skills. Taught at Macbride Nature Recreation Area.		How to lead groups through a low- and high-elements challenge course; sequencing of events, processing and debriefing techniques, front-loading games and initiatives, introducing games and initiatives; risk management issues in conducting challenge course activities; history of challenge courses.	
LLS:1065 (410:065) Low Impact Camping	1 s.h.		
Basics of low-impact camping; one overnight camping experience. Taught at Macbride Nature Recreation Area.			
LLS:1066 (410:066) Exploring the Natural Wonders of Iowa	1 s.h.		
History of the Loess Hills area of western Iowa or Yellow River Forest of northeastern Iowa; includes a weekend of hiking and camping.			
LLS:1067 (410:067) Team Building Challenge Course	1 s.h.		
How to work in a group setting and be responsible group members.			

- LLS:1081 (410:081) Hut-to-Hut Skiing** 1 s.h.
Cross-country skiing in Colorado's 10th Mountain Hut System.
- LLS:1082 (410:082) Introduction to Bouldering** 1 s.h.
Basic skills and technique for bouldering with a partner. Taught at Horse Pens 40 in Alabama, and Rocktown in Georgia.
- LLS:1083 (410:083) Tandem Biking** 1 s.h.
How to ride a tandem bicycle with a partner; traffic principles for bike operation, safety for road operations, safe and comfortable tandem bike operations; equipment and accessories for tandem bikes.
- LLS:1084 (410:084) Late Night Outdoor Recreation** 1 s.h.
Nighttime outdoor activities such as moonlight kayaking and canoeing, night hiking, orienteering, bouldering.
- LLS:1085 (410:085) Bicycle Racing Techniques** 1 s.h.
Basic skills and techniques of bicycle racing.
- LLS:1086 (410:086) Stretch Strength Relaxation (RelaXercise)** 1 s.h.
Thorough exercise; strength, flexibility, full-body breathing techniques, relaxation methods for stress reduction and body-mind integration.
- LLS:1087 (410:087) Modern Dance for Fitness** 1 s.h.
Basic working knowledge of modern dance; introduction to modern dance styles, skills, physical art, and discipline; focus on movement, dance techniques and skill, performance, creative experience.
- LLS:1088 (410:088) Salsa Dancing** 1 s.h.
Fundamentals of Latin/Salsa dancing; musical rhythms, cultural history, postures, technique, basic movements; techniques for developing strength, stamina, balance, poise, and partner dancing skills; gender interaction and traditional social behaviors in salsa's cultural context.
- LLS:1089 (410:089) Service Learning** 1 s.h.
Service learning project in an urban or wilderness setting; learn about local community, environment; projects depend on location, season.
- LLS:1090 (410:090) Rock Climbing Anchor Systems** 2 s.h.
Development of basic skills for climbing anchors; understanding setting top-rope anchors; use of bolts, trees, and passive and mechanical chocks for anchor setting; equalization of anchors; basic knots for rope, webbing, and cordelettes; basic understanding of the structural integrity and frictional forces important to anchor setting.
- LLS:1091 (410:091) Lifeguarding** 1 s.h.
American Red Cross lifeguard training through classroom learning, hands-on practice; surveillance skills for preventing and recognizing injuries; land and water rescue skills; first-aid training, professional rescuer CPR; professional lifeguard responsibilities (e.g., interacting with the public, addressing uncooperative persons); certification in lifeguarding, first aid, professional rescuer CPR, AED.
- LLS:1092 (410:092) Bicycling Southern States** 1 s.h.
Ride routes and trails between Memphis, TN and Vicksburg, MS; see everything from Graceland to cotton fields by bicycle; vehicle supported adventure, camp while exploring the Southern states.
- LLS:1093 (410:093) Intermediate Sea Kayaking** 1 s.h.
Experience paddling in the beautiful blue waters of Lake Powell, exploring remote hidden side canyons, enjoying the stunning landscape, camping on secluded beaches under the star filled sky; learn skills needed to be a safe and efficient sea kayak adventurer, including transportation of boats, entering and exiting the kayak in different conditions, paddle strokes, and rescue techniques; learn what equipment to bring on a sea kayak adventure and how to effectively pack boats while traveling and camping around Lake Powell.
- LLS:1094 (410:094) Land Navigation** 1 s.h.
Travel to the Southwest and learn navigation skills with map and compass; topics include declination, bearings, map reading and recognizing land features on topographical map; camping and backpacking to multiple campsites.
- LLS:1095 (410:095) Movement Analysis and Relaxation Techniques for Fitness** 1 s.h.
Intensive workshop about connections: body to mind, breathing to efficient strengthening and stretching, stability to mobility, exertion to recuperation, function to expression; objectively observe, record, analyze, and understand student's own movement and that of classmates to bring positive change to movement habits and behavior which block energy and create unneeded stress, inhibit full movement ability and not allow for optimal, desired performance; mindful, efficient, articulate movement.
- LLS:1096 (410:096) Brazilian Jiu-Jitsu** 1 s.h.
Introduction to the sport of Brazilian Jiu Jitsu; basic self-defense, positional grappling, submissions, submission defense.
- LLS:1097 (410:097) Introduction to Lead Climbing** 1 s.h.
Lead climb using the 52.5 foot tall climbing wall at CRWC; lead fall, lead belay, and clip bolts while climbing; eligible to lead climb at UI Climbing Wall after completion of course. Prerequisites: LLS:1042 (410:042).
- LLS:1098 (410:098) Yoga** 1 s.h.
Emphasis on mindfulness, breath awareness, and attention to alignment.

LLS:1099 (410:099) Golf 1 s.h.

Basic principles and fundamentals of the golf swing (i.e., full swing, pitching, chipping, putting); opportunity to practice skills at various facilities; history, basic rules, proper golf etiquette, and the evolution of golf related to technology.

Upper-Level Undergraduate and Graduate

LLS:4000 (410:001) Independent Study arr.

Individual study in an area of interest to students; course work determined by faculty supervisor.

Military Science (Army ROTC)

Head

- MAJ Joseph Albrecht

Professor

- LTC Joseph Albrecht

Instructor

- MAJ Chris Guderski

Undergraduate minor: military science
Web site: <http://www.uiowa.edu/armyrotc/>

The Military Science Program administers Iowa Army ROTC. It gives students who wish to serve on active or reserve status in the U.S. Army the opportunity to earn commissions as army officers. It also administers merit scholarships from the United States government to qualified students.

Although the Military Science Program does not offer degrees, students can earn a minor in military science. ROTC courses provide education in the military's role and instruction in leadership and management. The program's courses are an essential part of the Iowa ROTC program, which competes annually in national leadership assessments.

Military Science Program courses are open to all students. Course credit that counts toward graduation varies by college. Students in the College of Liberal Arts and Sciences may count up to 20 s.h. earned in military science courses toward graduation.

Undergraduate and Graduate Programs

Basic Course

The ROTC basic course is designed primarily for first- and second-year students. It provides the fundamentals of leadership and management and introduces the roles of the military as influenced by national and foreign policy. Students incur no obligation to the military for participation in the basic course.

The following four courses satisfy the basic course requirement.

MILS:1010 (023:101) Leadership and Personal Development MSL101	1 s.h.
MILS:1020 (023:102) Introduction to Tactical Leadership MSL102	1 s.h.
MILS:2010 (023:103) Innovative Team Leadership MSL201	2 s.h.
MILS:2020 (023:104) Foundations of Tactical Leadership MSL202	2 s.h.

Two of these courses have prerequisites; students must complete all of a course's prerequisites before they may register for the course. Courses MILS:1010 (023:101) and MILS:1020 (023:102) are prerequisites for MILS:2010 (023:103); all three courses are prerequisites for MILS:2020 (023:104).

The basic course requirements may be taken over a one- or two-year period or during a four-week paid summer

camp, the Leader's Training Course (LTC), at Fort Knox, Kentucky. Students with prior military training normally are exempt from the basic course requirements.

Advanced Course

The ROTC advanced course is open to any student who meets the prerequisites, but it is designed primarily for cadets who wish to pursue a commission as a lieutenant in the U.S. Army upon graduation. It is open to both undergraduate and graduate students. Most cadets in the advanced course incur an obligation to the military that can be satisfied in the Active Army, Army Reserve, or Army National Guard.

To enter the advanced course, students must satisfy the basic course requirements, earn at least 54 s.h., and have a cumulative g.p.a. of at least 2.00. In order to become U.S. Army officers, cadets must complete the Leadership Development and Assessment course (LDAC), a five-week session held at Fort Lewis, Washington. Cadets normally attend LDAC during the summer between their third and fourth years. With the military science professor's permission, cadets may delay LDAC until the summer after their final ROTC class.

A tax-free monthly stipend is provided to cadets who enter a contractual agreement with ROTC to serve in the armed forces. Additional financial assistance may be provided through scholarships.

The following courses are the academic requirements for completion of the advanced course. Some of these courses have prerequisites and corequisites, so students must be careful to take courses in the correct order. Prerequisites and corequisites for each course are listed with course descriptions; see "Courses" at the end of this section.

MILS:1090 (023:090) Leadership Laboratory	0 s.h.
MILS:1095 (023:095) Advanced Military Fitness Training	1 s.h.
MILS:3010 (023:105) Adaptive Tactical Leadership MSL301	3 s.h.
MILS:3020 (023:106) Leadership in Changing Environments MSL302	3 s.h.
MILS:4010 (023:107) Developing Adaptive Leaders MSL401	3 s.h.
MILS:4020 (023:108) Leadership in a Complex World MSL402	3 s.h.

Additional Course Work

Cadets whose aim is a commission must satisfy a Professional Military Education (PME) requirement. They must complete at least one course in military history from the following list. This course may be the same as one used to complete the College of Liberal Arts and Sciences General Education Program (p. 323). Cadets may use other courses to meet the requirement, with the military science professor's approval.

HIST:1012 (016:014) Issues in Human History: Europe's Expansion Overseas	3 s.h.
HIST:1016 (016:011) Issues in Human History: The Vietnam War in Historical Perspective	3 s.h.
HIST:4256 (16A:166) The Progressive Era in America	3 s.h.
HIST:4264 (16A:153) U.S.A. in a World at War 1931-1945	3 s.h.

HIST:4268 (16A:168) The Contemporary U.S. 1940-Present	3 s.h.
HIST:4271 (16A:162) American Revolutionary Period 1740-1789	3 s.h.

Undergraduate Program of Study

- Minor in military science

The minor in military science requires a minimum of 20 s.h. of course work taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. In order to count course work taken at other institutions toward the minor, students must have approval from the director of military science. The minor requires the following course work.

All of these:

MILS:1010 (023:101) Leadership and Personal Development MSL101	1 s.h.
MILS:1020 (023:102) Introduction to Tactical Leadership MSL102	1 s.h.
MILS:2010 (023:103) Innovative Team Leadership MSL201	2 s.h.
MILS:2020 (023:104) Foundations of Tactical Leadership MSL202	2 s.h.
MILS:3010 (023:105) Adaptive Tactical Leadership MSL301	3 s.h.
MILS:3020 (023:106) Leadership in Changing Environments MSL302	3 s.h.
MILS:4010 (023:107) Developing Adaptive Leaders MSL401	3 s.h.
MILS:4020 (023:108) Leadership in a Complex World MSL402	3 s.h.

One of these:

MILS:3121 (023:121) Readings in Contemporary Military Issues (taken with a qualified IMHIC instructor)	2-3 s.h.
HIST:1000 (016:049) First-Year Seminar (when topic is history in the making: world events in historical context)	2 s.h.
HIST:1012 (016:014) Issues in Human History: Europe's Expansion Overseas	3 s.h.
HIST:1014 (016:017) Issues: Twentieth-Century Crisis (when topic is history of World War II)	3 s.h.
HIST:1016 (016:011) Issues in Human History: The Vietnam War in Historical Perspective	3 s.h.
HIST:2261 (16A:061) American History 1492-1877	3 s.h.
HIST:2262 (16A:062) American History 1877-Present	3 s.h.
HIST:3145 (16W:155) Europe and the U.S. in the Twentieth Century	3 s.h.
HIST:3255 (016:082) The World Since 1945	3 s.h.
HIST:4125 (016:144) War and Peace in the Twentieth Century	3 s.h.
HIST:4232 (16A:152) United States in World Affairs	3-4 s.h.
HIST:4256 (16A:166) The Progressive Era in America	3 s.h.

HIST:4264 (16A:153) U.S.A. in a World at War 1931-1945	3 s.h.
HIST:4268 (16A:168) The Contemporary U.S. 1940-Present	3 s.h.
HIST:4271 (16A:162) American Revolutionary Period 1740-1789	3 s.h.
HIST:4334 (16W:134) Topics in American Borderlands History	3 s.h.
HIST:4475 (16E:156) Germany Since 1914: Weimar, Hitler, and After	3-4 s.h.
HIST:4499 (16E:185) First World War	3-4 s.h.
HIST:4617 (16W:174) History, Memory, and Pacific War	3 s.h.
HIST:4810 (16W:152) History of the Modern Middle East (when topic is historical survey of Southwest Asia and North Africa)	3 s.h.
HIST:4815 (16W:153) Topics in the Modern Middle East	3 s.h.

Financial Aid

Military Science offers two-, three-, and four-year ROTC scholarships for students who enter the ROTC program. These scholarships pay tuition at The University of Iowa, an allotment for books and supplies each semester, most mandatory educational fees, and a tax-free monthly stipend during the academic year. Scholarships also are available for nursing students who wish to become Army nurses.

Courses

Lower-Level Undergraduate

MILS:1010 (023:101) Leadership and Personal Development MSL101	1 s.h.
Introduction to the personal challenges and competencies critical for effective leadership; how skills such as critical thinking, goal setting, time management, physical fitness, and stress management relate to leadership, officership, and the army as a profession; dimensions of army leadership; understanding of the ROTC program, its purpose in the army, its advantages for students. Offered fall semesters.	
MILS:1020 (023:102) Introduction to Tactical Leadership MSL102	1 s.h.
Leadership fundamentals such as setting direction, problem solving, listening, presenting briefs, providing feedback, using effective writing skills; leadership values, attributes, skills, and actions explored through hands-on, interactive exercises; cadre role models, development of strong relationships among students through common experience, practical interaction. Offered spring semesters.	
MILS:1090 (023:090) Leadership Laboratory	0 s.h.
Hands-on training in basic soldier skills, such as customs and courtesies, drill and ceremony, first aid, weapons employment, troop movement techniques; leadership training for U.S. army officership. Offered fall and spring semesters.	
MILS:1095 (023:095) Advanced Military Fitness Training	1 s.h.

Aerobics and running, muscular strength and endurance, flexibility, and nutrition through exercise and classroom instruction; how to evaluate and measure fitness improvement; developed around Army physical fitness training program. Offered fall and spring semesters.

MILS:2010 (023:103) Innovative Team Leadership MSL201 2 s.h.

Dimensions of creative, innovative tactical leadership strategies and styles explored through team dynamics and historical leadership theories (trait and behavior) central to the Army leadership framework; personal motivation and team building through planning, executing, and assessing team exercises and participating in leadership labs; continued development of leadership values and attributes through understanding army rank, structure, duties, basic aspects of land navigation and squad tactics; case studies on soldier's creed and warrior ethos in the contemporary operating environment. Offered fall semesters. Prerequisites: MILS:1010 (023:101) and MILS:1020 (023:102).

MILS:2020 (023:104) Foundations of Tactical Leadership MSL202 2 s.h.

Challenges of leading tactical teams in the complex contemporary operating environment; dimensions of terrain analysis, patrolling, operation orders; theoretical basis of the army leadership framework, dynamics of adaptive leadership in the context of military operations; self-assessment of cadet leadership styles, practice in communication and team building skills; case studies on importance and practice of teamwork and tactics in real-world scenarios. Offered spring semesters. Prerequisites: MILS:1010 (023:101), MILS:1020 (023:102), and MILS:2010 (023:103).

Upper-Level Undergraduate and Graduate

MILS:3010 (023:105) Adaptive Tactical Leadership MSL301 3 s.h.

Study, practice, and evaluation of adaptive leadership skills in challenging scenarios related to squad tactical operations; feedback on cadets' leadership attributes and actions, continued development of leadership and critical thinking abilities; development of tactical leadership abilities in preparation for Leadership Development and Assessment Course (LDAC). Offered fall semesters. Corequisites: MILS:1090 (023:090) and MILS:1095 (023:095). Requirements: MILS:1010 (023:101), MILS:1020 (023:102), MILS:2010 (023:103), and MILS:2020 (023:104); or completion of army basic training or Leader's Training Course.

MILS:3020 (023:106) Leadership in Changing Environments MSL302 3 s.h.

Development of cadet awareness and tactical leadership to platoon level, through increasingly intense situational leadership challenges; experience reviewing combat, stability, and support operations, conducting military briefings, developing proficiency in garrison operation orders; focus on exploring, evaluating, and developing skills in decision making, persuasion, and motivation of team members in a contemporary operating environment; preparation for summer Leader Development Assessment Course. Offered spring semesters. Prerequisites: MILS:3010 (023:105). Corequisites: MILS:1090 (023:090) and MILS:1095 (023:095). Requirements: MILS:1010 (023:101), MILS:1020 (023:102), MILS:2010 (023:103), and MILS:2020 (023:104); or completion of army basic training or Leader's Training Course.

MILS:3121 (023:121) Readings in Contemporary Military Issues 1-3 s.h.

Preparation of book reviews from a reading list provided by the instructor, with topics ranging from historical battles and campaigns to global impact of U.S. political policies; or writing of an operations order relating to an ROTC event or similar project of historical significance (work in conjunction with instructor). Requirements: MILS:1010 (023:101), MILS:1020 (023:102), MILS:2010 (023:103), and MILS:2020 (023:104); or completion of army basic training or Leader's Training Course.

MILS:4010 (023:107) Developing Adaptive Leaders MSL401 3 s.h.

Development of proficiency in planning, executing, and assessing complex operations, functioning as member of a staff, providing performance feedback to subordinates; experience assessing risk, making ethical decisions, leading fellow cadets; military justice and personnel processes in preparation for officership; identification of key staff responsibilities, coordination of staff roles, use of situational opportunities to teach, train, and develop subordinates. Offered fall semesters. Prerequisites: MILS:3010 (023:105) and MILS:3020 (023:106). Corequisites: MILS:1090 (023:090) and MILS:1095 (023:095).

MILS:4020 (023:108) Leadership in a Complex World MSL402 3 s.h.

Leadership dynamics in complex military operations of the contemporary operating environment; differences in customs and courtesies, military law, principles of war, rules of engagement in the face of international terrorism; interaction with nongovernmental organizations, civilians on the battlefield, host nation support; ethical and practical demands on army commissioned officers; preparation for first unit assignment through case studies, scenarios, exercises. Offered spring semesters. Prerequisites: MILS:3010 (023:105), MILS:3020 (023:106), and MILS:4010 (023:107). Corequisites: MILS:1090 (023:090) and MILS:1095 (023:095).

Nonprofit Management

Director

- Joseph Sulentic (Management and Organizations)

Undergraduate certificate: nonprofit management

Web site: <http://www.continuetolearn.uiowa.edu/programs/certificates/nonprofmanagement.html>

Nonprofit organizations play vital roles in our communities and contribute to our quality of life. Nonprofit organizations have unique management, funding, and finance issues that require specialized training. The Certificate in Nonprofit Management is designed to help staff members, board members, and volunteers develop the business and leadership skills necessary for building a successful nonprofit organization. The program provides a balance of academic principles and real-world experience as well as a fundamental understanding of how nonprofit organizations participate in building communities.

Certificate courses cover a wide range of topics and issues, such as community and government partnerships, organizational leadership, planning, human resources, financial accountability, grant writing, and web site creation and maintenance.

Courses are offered primarily online.

The Certificate in Nonprofit Management is administered by the Division of Continuing Education and the Larned A. Waterman Iowa Nonprofit Resource Center, in collaboration with University College.

Undergraduate Program of Study

- Certificate in Nonprofit Management

Certificate

The Certificate in Nonprofit Management requires a minimum of 18 s.h. of credit. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

See the Certificate in Nonprofit Management web site for details about how to enter the program.

Bachelor of Applied Studies (p. 1245) and Bachelor of Liberal Studies (p. 1248) students may be able to incorporate certificate courses into their degree programs; students should consult with their advisors.

The Certificate in Nonprofit Management requires the following course work.

FOUNDATION COURSES

Students should complete these two courses before they enroll in the remaining certificate course work.

MGMT:3500 (06J:147)/ENTR:3595 (06T:144)/MUSM:3500 (024:147)/SSW:3500 (042:157)/NURS:3595 (096:168)/RELS:3700 (032:127) Nonprofit Organizational Effectiveness I	3 s.h.
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MGMT:3600 (06J:148)/MUSM:3600 (024:148)/NURS:3600 (096:169)/SSW:3600 (042:158)/RELS:3701 (032:128) Nonprofit Organizational Effectiveness II	3 s.h.
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Students complete one of the following three courses. Two of them, ENTR:2000 (06T:120) and ENTR:3520 (06T:125), have corequisites; see the course descriptions on ISIS for choice of corequisites [ENTR:1350 (06T:050) Foundations in Entrepreneurship is the only corequisite that may be taken online].

ENTR:2000 (06T:120) Entrepreneurship and Innovation	3 s.h.
ENTR:3520 (06T:125)/THTR:3520 (049:111)/INTD:3520 (145:111)/DPA:3520 (188:111) New Ventures in the Arts	3 s.h.
MGMT:3100 (06J:125) Entrepreneurial Strategy	3 s.h.

ELECTIVES

Students earn a minimum of 9 s.h. in courses chosen from this list.

ARTS:3400 (01P:185) Grant Writing in the Arts	3 s.h.
COMM:1819 (036:019) Organizational Leadership	2-3 s.h.
DPA:3510 (188:109)/THTR:3510 (049:109)/INTD:3510 (145:109) Introduction to Arts Management	3 s.h.
EDTL:4081 (07E:181)/PSQF:4081 (07P:181)/EALL:4081 (07X:181)/RCE:4081 (07C:181)/EPLS:4081 (07B:181) ePortfolio Production	1-2 s.h.
EDTL:4936 (07U:136)/PSQF:4136 (07P:136) Home/School/Community Partnerships	3 s.h.
ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.
IS:3910 (187:180)/HRTS:3910 (216:180) Human Rights Advocacy	3 s.h.
POLI:3110 (030:111) Local Politics	3 s.h.
POLI:3123 (030:110) State Politics in Iowa	3 s.h.
SOC:4225 (034:123) The Social Psychology of Leadership	3 s.h.
SSW:3904 (042:204) Human Services Administration	2 s.h.

Patient Care Practicum

Director

- Lon D. Moeller

The Patient Care Practicum prepares students for work and/or internships at University of Iowa Hospitals and Clinics (UIHC). Students complete required online training modules through the University's course management system. Once the training modules are completed, students are certified to work at UIHC.

Courses

Upper-Level Undergraduate and Graduate

PCP:3198 (414:198) UIHC Compliance Training 0 s.h.

Secondary Student Training Program

Director

- Lori M. Ihrig

Web site: <http://www2.education.uiowa.edu/belinblank/students/summer/Classes.aspx?P=SSTP>

Precollege Program

Students who are currently in grades 10-11 may nominate themselves for the Secondary Student Training Program (SSTP), a five-week residential summer research program at The University of Iowa. SSTP students conduct original research in University laboratories under the guidance of a faculty mentor. They also produce a research abstract and an academic poster as a part of the program.

Students who participate in the program pay an SSTP fee that covers room, board, all materials, and admission to all regularly scheduled activities. They also pay University of Iowa tuition for a required 3 s.h. of credit. Students and their families are responsible for their transportation to and from SSTP and for incidental expenses, such as souvenirs and snacks. Students are considered for financial aid after they are selected for the program.

The Secondary Student Training Program is administered by the Belin-Blank International Center for Gifted Education and Talent Development. For more information, contact the Belin-Blank Center.

Courses

Pre-Lower Level

SSTP:1001 (418:001) Secondary Student Training Program 3 s.h.

Experience conducting research under the guidance of a faculty mentor; presentation of research findings at concluding seminar. Six weeks.

Student Information Technology Skills

Director

- Mary Grabe (Information Technology Services)

Web site: <http://helpdesk.its.uiowa.edu/training/>

Student Information Technology Skills offers a course for students who are interested in on-campus employment providing IT support or creating and maintaining web sites.

Students are graded on participation in online and class discussions and projects. They must obtain the instructor's consent before registering for this course.

Courses

Upper-Level Undergraduate and Graduate

SITS:3102 (416:102) Core IT Support Skills 2 s.h.

Knowledge and hands-on skills necessary for supporting computers in an institutional setting; basic hardware, operating systems, application, and networking support topics.

Study Abroad

Director

- Douglas J. Lee

Web site: <http://international.uiowa.edu/study-abroad/>

The University of Iowa sponsors or cosponsors a wide variety of study abroad programs in approximately 50 countries. Students may choose from summer, fall or spring semester, academic year, and winter session programs that complement and extend the University's academic programs across the curriculum.

Students also may participate in study abroad programs sponsored by other accredited U.S. and foreign institutions. They should obtain advance approval of all transfer credit by completing a Study Abroad Credit Approval Form.

Information on University of Iowa and other study abroad programs is available from International Programs Study Abroad.

Courses

Lower-Level Undergraduate

ABRD:1525 (165:925) Iowa International Summer Institute arr.

Several three-week courses, all satisfying various General Education Program requirements, offered in succession each summer; taught by UI professors; course offerings and locations vary; students may take one, two, or three courses. Requirements: 2.50 g.p.a. and completion of at least 24 s.h. college-level credit before departure.

Upper-Level Undergraduate and Graduate

ABRD:3010 (165:805) Iowa Regents Semester in Wales arr.

University of Swansea, Wales; three-week interdisciplinary course on British life and culture, followed by regular degree course work in the humanities, social sciences, physical sciences, business, engineering. Fall and spring semesters. Requirements: g.p.a. of at least 2.80.

ABRD:3012 (165:806) Iowa Regents Semester in Scotland arr.

Advanced undergraduate study at the University of Edinburgh; humanities, social sciences, science, engineering. Fall and/or spring. Requirements: g.p.a. of at least 3.00.

ABRD:3020 (165:829) London Performance Study arr.

Selected theater productions, lectures, performances, discussions, written exercises, workshops, cultural activities. Credit may be applied toward a University of Iowa major in English or theatre arts. Summer.

ABRD:3025 (165:854) Undergraduate International Business Abroad arr.

Study of the international business environment in one of the world's financial capitals; may count toward undergraduate business major or Certificate in International Business. Winter. Prerequisites vary depending on classes being offered. Requirements: junior standing.

ABRD:3027 (165:927) Crime and Justice in Britain 3 s.h.

Introduction to crime and criminal justice in Britain, drawing comparisons and highlighting features important to understanding crime and justice in the United States; first week on campus in Iowa City, second two weeks overseas; classroom and experiential learning through visits to key sites in London in Edinburgh; unique opportunity to visit sites that aid understanding of British justice and prison systems; contemporary patterns of crime and justice in Great Britain. Three-weeks in summer. Requirements: completion of one academic year of work (24 s.h. minimum) at The University of Iowa at time of application or 2.50 g.p.a., and good academic standing.

ABRD:3029 (165:879) Health Promotion in Great Britain arr.

Health care as offered by Great Britain's National Health Service and private providers, compared to health care delivery systems in the United States. Offered every other year during spring break.

ABRD:3030 (165:866) Iowa Regents Semester in Ireland arr.

Regular course work in all disciplines at University College Cork in Ireland. Fall and spring semesters. Requirements: sophomore standing and g.p.a. of at least 3.00.

ABRD:3035 (165:838) Irish Writing Program arr.

Dublin, Ireland; writing workshops directed by Irish writers, literature courses taught by faculty. Summer.

ABRD:3045 (165:833) Academic Year in Freiburg arr.

Combination of special program classes, German for foreigners, and regular degree course work in most liberal arts subjects at Albert-Ludwigs University, Freiburg, Germany. Academic year. Requirements: at least four semesters college German with g.p.a. of at least 3.00.

ABRD:3062 (165:357) CIEE Paris Critical Studies Program arr.

Analysis of literature, film, and other forms of visual expression through use of contemporary critical theory; interaction among fields of literature, aesthetics, and psychoanalysis; examination of problems involved in such analysis; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for students with advanced French language skills. Requirements: 3.00 cumulative g.p.a., five semesters of college-level French, and previous course work in relevant fields.

ABRD:3063 (165:358) CIEE Paris Contemporary French Studies Program 12 s.h.

Combines an interdisciplinary academic program on contemporary French society and culture (taught in French or English) with opportunity to develop strong language skills; contemporary social issues in politics, Francophone cultures, and Muslim communities in Europe; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for intermediate-level French students. Requirements: 3.00 cumulative g.p.a. and at least two to five semesters of college-level French.

ABRD:3064 (165:359) CIEE Rennes Liberal Arts Program 12 s.h.

Increase language ability and knowledge of France and French culture; opportunity to take regular university classes alongside French students; intensive language and humanities course work; cultural activities; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for intermediate or advanced intermediate students. Requirements: 2.75 cumulative g.p.a., 3.00 g.p.a. in French language, and four semesters of college-level French.

ABRD:3066 (165:360) CIEE Paris Language and Culture Program 3,6 s.h.

Introduction to French society through an interdisciplinary course on culture or study of French language in the world metropolis of Paris; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Two three-week sessions. Requirements: 2.75 g.p.a. and four semesters of college-level French.

ABRD:3070 (165:869) USAC Studies in France arr.

Beginning through advanced French language study at the University of Pau; additional courses in French culture, literature, politics, history, and other disciplines. Taught in English and French. No previous study of French required. Requirements: g.p.a. of at least 2.50.

ABRD:3071 (165:871) Study Abroad in Montpellier arr.

Special courses for foreign students or regular courses with French students at University of Montpellier; taught in French. Semester or academic year. Requirements: four semesters of French.

ABRD:3072 (165:441) Montpellier Summer Language Program 4,6,8 s.h.

Advanced French language and course on contemporary France that explores current perspectives on immigration; visits to local organizations dedicated to naturalization services; public housing; immigrants' rights, nonviolence, antiracism, and antidiscrimination; excursions around Montpellier and other social activities; option to take accelerated language track in either four- or eight-week program; development of language skills in various contexts depending on level (beginning through advanced) and prescribed curriculum at each level. Six weeks. Requirements: 2.50 g.p.a. and average grade of B in French course work.

ABRD:3081 (165:905) John Cabot University in Rome, Italy arr.

Business, social science, humanities, art, and language courses at John Cabot University; located in the heart of Rome and surrounded by the extraordinarily rich offerings of a city of culture, history, art, creativity, business, and international affairs.

ABRD:3082 (165:906) Studio Art Centers International in Florence, Italy arr.

Studio art, design, art conservation, art history, Italian language, and creative writing instruction at Studio Art Centers International (SACI) in Florence, Italy; focus on art courses; engagement in leading areas of research and exploration; opportunities to interact with the Florentine community through a variety of social and humanitarian programs. Summer, semester, or academic year.

ABRD:3083 (165:398) USAC Turin Program 4,6,8,12 s.h.

Academic course work, practical learning, tours, site visits, and integrated cultural experience; content in diverse academic areas of business, architecture, and Italian studies; Italian language courses; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Semester, summer, or academic year. Requirements: 2.50 g.p.a. and appointment with Italy study abroad advisor prior to application.

ABRD:3084 (165:399) USAC Viterbo Program arr.

Academic course work at Viterbo's historical Tuscia University of Viterbo; practical learning, tours, site visits, and integrated cultural experience; high-quality educational experience in art history and Italian studies; Italian language course; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Semester, academic year, or five-week summer session. Requirements: 2.50 g.p.a., good academic standing, and appointment with Italy study abroad advisor prior to application.

ABRD:3085 (165:926) Natural Disasters 3 s.h.

How normal processes of earth-atmosphere-hydrosphere-space systems result in events that are capable of dealing disastrous blows to humans on the scale of individual lives to civilizations; focus on geologic processes that have impacted Mediterranean civilization (i.e., earthquakes, volcanic eruptions, floods, tsunami) including their local, national, and global impact; case studies drawn from contemporary and ancient societies, and feature ancient and modern Italy. Requirements: 2.50 g.p.a. and good academic and disciplinary standing.

ABRD:3087 (165:930) USAC Reggio Emilia Program arr.

Language study and additional course work in English or Italian; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Summer, semester, or academic year. Requirements: 2.50 g.p.a. and good academic and disciplinary standing.

- ABRD:3088 (165:893) CIMBA Italy Program** arr. Established in 1999, the CIEE Study Center at the Universidad de Alcala (Alcala de Henares, Spain) provides an academic program for students with a high-intermediate to advanced-level of Spanish; the summer program (established in 2008) consists of language and culture courses offered through the Institute; all courses offered in Spanish; many approved for Spanish majors, minors, and general education requirements, and may be approved for other degree requirements; 6 s.h. taken in each four-and-one-half-week session. Requirements: 2.75 cumulative g.p.a., 3.00 g.p.a. in most recent Spanish course, four semesters of college-level Spanish, and valid passport at time of application.
- Course work in business and related disciplines in the Veneto region of Italy, taught in English. Four weeks in summer or 13-week semesters.
- ABRD:3120 (165:856) Regents Hispanic Institute** arr. Study of Spanish language and culture in Valladolid, Spain. Six weeks in summer. Requirements: four semesters of college-level Spanish.
- ABRD:3121 (165:929) Cultures of Spain** 3 s.h. Study abroad in Madrid, the geographic and sociocultural center of Spain; overview of heterogeneous cultural landscape of Spain through interdisciplinary approach to its history; special attention given to conflict between two antagonistic national projects—one that understands Spain as a homogeneous entity and historically based on authoritarian forms of government, Catholic faith, and centralistic culture, and one that advocates for a plural conception of the country and emphasizes a liberal government, tolerance, and cultural diversity. Four weeks. Requirements: 2.50 cumulative g.p.a and good academic and disciplinary standing.
- ABRD:3135 (165:909) CIEE Portugal Program** arr. Intensive Portuguese language study (beginning to advanced levels) and area studies courses taught in English at Lisbon's Universidade Nova; regular university courses are available to semester students with sufficient language proficiency. Summer, semester, or academic year. Requirements: g.p.a. of at least 2.75.
- ABRD:3140 (165:867) American College of Thessaloniki Semester** arr. Undergraduate studies in varied academic disciplines (business, history, international relations, psychology, fine arts, literature, philosophy, modern Greek language) at the American College of Thessaloniki. Taught in English.
- ABRD:3165 (165:840) Archaeological Field Work Abroad** arr. Major archeology projects hosted at international excavation sites. Summer.
- ABRD:3190 (165:910) European Art History Study Abroad Tour** arr. Travel to Rome, Florence, and Paris; may include Amsterdam and other significant sites of art production and display; historic monuments and museums in capitals of European culture.
- ABRD:3200 (165:200) CIEE Alcala Liberal Arts Program** 12 s.h. Solidify informal and academic language skills of advanced students of Spanish; development of appreciation and understanding of issues relevant to contemporary Spain and its people. Semester or academic year program. Requirements: 2.75 g.p.a. and at least four to five semesters of college-level Spanish.
- ABRD:3201 (165:201) CIEE Alcala Language and Culture Program** 6,12 s.h.
- ABRD:3205 (165:205) CIEE Alicante Language and Culture Program** 12 s.h. Rapid progress in language skills while taking area studies courses related to Europe and Spain; linguistic development and cultural immersion promoted through housing in Spanish-speaking homes and supplementary visits and excursions; administered by the Council on International Education Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Semester or academic year. Requirements: 2.75 minimum g.p.a., three to four semesters of college-level Spanish, and valid passport at time of application.
- ABRD:3206 (165:206) CIEE Alicante Language and Culture Summer Program** 6 s.h. Development of Spanish language skills and knowledge of Spanish art, cinema, and culture in Alicante, Spain; linguistic development and cultural immersion through housing in Spanish-speaking homes, supplementary visits and excursions, content courses in Spanish, and direct enrollment at the University of Alicante; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member; for students with varying levels of Spanish. Summer. Requirements: 2.75 cumulative g.p.a., four semesters of college-level Spanish, and valid passport at time of application.
- ABRD:3207 (165:207) CIEE Alicante Language in Context Program** 12 s.h. Solid foundation provided in Spanish language; improvement of language skills while pursuing studies focusing on Spain and Europe; topics in history, art history, political science, and international business; intensive language course work; area studies courses in English, conversation exchange program, excursions, and homestays; administered by the Council on International Educational Exchange (CIEE). Requirements: 2.75 minimum g.p.a., two semesters or less of college-level Spanish, and valid passport at time of application.
- ABRD:3208 (165:208) CIEE Alicante Liberal Arts Program** 12 s.h.

Development of spoken and written Spanish language skills; linguistic development and cultural immersion promoted through housing in Spanish-speaking homes, supplementary visits and excursions, content courses in Spanish, and direct enrollment at the University of Alicante; administered by the Council on International Education Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Semester or academic year. Requirements: 2.75 minimum g.p.a., at least five semesters of college-level Spanish, and valid passport at time of application.

ABRD:3215 (165:215) CIEE Barcelona arr.
Advanced Liberal Arts Program

Development of fluency through direct enrollment in a wide range of regular university classes; classes taken alongside Spanish classmates who become friends and guides to the culture; dramatic improvement of Spanish language skills while living the language every day in the city and the university; for students with advanced Spanish language skills. Semester or academic year. Requirements: 3.00 minimum g.p.a., at least six semesters of college-level Spanish, and valid passport at time of application.

ABRD:3216 (165:216) CIEE Barcelona 12 s.h.
Architecture and Design Program

Exploration of the intersection of two fields in a city famous for its vibrant architecture and innovative design; courses offered by ELISAVA and CIEE allow a unique opportunity to collaborate in a joint core class alongside courses in student's track and Spanish language; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Requirements: 3.00 cumulative g.p.a. and valid passport at time of application; for design track students — design or related major or minor and four semesters of college-level Spanish.

ABRD:3217 (165:217) CIEE Barcelona 12 s.h.
Business and Culture Program

Development of competency in Spanish language while studying issues related to business in Spain and the European Union, Spanish language and culture; company visits, excursions, and homestays or student residence option in the vibrant city of Barcelona contribute to students' cultural immersion and development of language skills; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium; designed for students with varied levels of Spanish. Semester or academic year. Requirements: 3.00 cumulative g.p.a.; three semesters of microeconomics, macroeconomics, accounting, finance, management, or statistics; and valid passport at time of application.

ABRD:3218 (165:218) CIEE Barcelona 12 s.h.
Economics and Culture Program

Classes at a Spanish university for students with varying levels of Spanish and a strong background in economics; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Semester or academic year. Requirements: 3.25 cumulative g.p.a., three semesters of microeconomics or macroeconomics, one semester of calculus, and valid passport at time of application.

ABRD:3219 (165:219) CIEE Barcelona 12 s.h.
Language and Culture Program

Development of skills and competency in Spanish language while studying Spanish history, arts, politics, and culture; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Requirements: 3.00 cumulative g.p.a., junior standing, one to three semesters of college-level Spanish, and valid passport at time of application.

ABRD:3220 (165:220) CIEE Barcelona 6 s.h.
Language and Culture Summer Program

Rapid progress in language skills while taking language, culture, or business courses in Barcelona; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member; for students with varying levels of Spanish. Summer. Requirements: 2.75 cumulative g.p.a. and four semesters of college-level Spanish.

ABRD:3221 (165:221) CIEE Barcelona 12 s.h.
Liberal Arts Program

Development of skills and competency in Spanish language while studying Spanish history, politics, and culture at Universitat Pompeu Fabra; cultural immersion and development of language skills through excursions and homestays or student residence option in the vibrant city of Barcelona; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Requirements: 3.00 cumulative g.p.a., junior standing, four semesters of college-level Spanish, and valid passport at time of application.

ABRD:3230 (165:230) CIEE Madrid Legal 12 s.h.
Studies Program

Opportunity to further develop Spanish language skills while pursuing cocurricular program focused on law and public policy in Spain; goals achieved through a specially-designed language course, course on legal issues in Spain, an optional internship, and law and political science elective course at the Universidad Carlos III de Madrid; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member; for highly motivated students with a strong Spanish background, from any academic discipline. Requirements: g.p.a. of at least 3.00, six semesters of college-level Spanish, junior standing or above, and valid passport at time of application. Recommendations: good background in math/statistics in order to grasp the more theoretical focus of European business instruction.

ABRD:3231 (165:231) CIEE Madrid Liberal 12 s.h.
Arts Program

Opportunity to matriculate in a combination of content courses in Hispanic studies, regular university courses, and short seminars while continuing to improve language skills and take advantage of the vibrant and rich cultural milieu of Madrid; linguistic development and cultural immersion promoted through housing in Spanish-speaking homes, and supplementary visits and excursions; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member; for independent, advanced-level students. Semester or academic year. Requirements: 3.00 minimum g.p.a., five or six semesters of college-level Spanish, and valid passport at time of application.

ABRD:3240 (165:240) CIEE Palma de Mallorca Liberal Arts Program arr.

Established in 2006, the CIEE study center at Universitat de les Illes Balears provides an academic program for students with an advanced level of Spanish who are interested in tourism studies, business, humanities, Spanish literature and language, and social sciences; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a., five semesters of college-level Spanish, and valid passport at time of application.

ABRD:3241 (165:241) CIEE Palma de Mallorca Business and Tourism Program 12 s.h.

Study business, tourism, and hospitality alongside Spanish students in a direct enrollment environment with a global perspective in Palma de Mallorca; development of management skills for future leadership in the tourism and hospitality industry; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a. and valid passport at time of application. Recommendations: two semesters of college-level Spanish.

ABRD:3242 (165:242) CIEE Palma de Mallorca Language and Culture Summer Program 3,6 s.h.

Established in 2006, the CIEE Study Center at Universitat de les Illes Balears provides an academic summer program for students interested in tourism; development or improvement of Spanish language skills while learning about Spain and Europe; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a., four semesters of college-level Spanish, and valid passport at time of application.

ABRD:3243 (165:243) CIEE Palma de Mallorca Summer Internship Program 6 s.h.

Enhancement of academic and language skills in a professional context while being immersed in Spanish professional work environment; intensive Spanish language course related to business and tourism taken during first three weeks with substantial interactive and practical component; five-week internship in hotel, company, or nonprofit organization with completion of 130 hours of work and meeting three hours each week with a university professor; designed for business and tourism students. Requirements: 2.75 cumulative g.p.a., four semesters of college-level Spanish, and valid passport at time of application.

ABRD:3250 (165:250) CIEE Seville Advanced Liberal Arts Program 12 s.h.

Achievement of fluency in spoken and written Spanish; wide variety of academic fields to gain deeper understanding from a Spanish perspective; direct matriculation in university courses, homestays, local and overnight excursions, conversational exchange program, volunteer opportunities, and independent study options in Seville, Spain. Requirements: 3.00 cumulative g.p.a., 3.00 minimum g.p.a. in Spanish courses, six semesters of college-level Spanish, and valid passport at time of application.

ABRD:3251 (165:251) CIEE Seville Business and Society Program arr.

Opportunity to study business in an international context through a combination of course work in Spanish business, society, and language; related field visits to Spanish companies; designed for highly motivated students of business with advanced-level Spanish skills at the University of Seville's Business School; unpaid internships may be available to students with advanced language ability; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Semester or academic year. Requirements: at least 2.75 g.p.a.; five semesters of college-level Spanish; 6 s.h. of microeconomics, macroeconomics, accounting, finance, management, or statistics; and valid passport at time of application. Recommendations: good background in math/statistics to grasp the more theoretical focus of European business instruction.

ABRD:3252 (165:252) CIEE Seville Business Internship Program 6 s.h.

Exposure to a professional workplace atmosphere in Seville, Spain for business students; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Eight weeks. Requirements: 2.75 cumulative g.p.a., five semesters of college-level Spanish, and valid passport at time of application.

ABRD:3253 (165:253) CIEE Seville Communications, New Media, and Journalism Program arr.

Valuable hands-on experience in a multifaceted academic and professional environment; courses through CIEE and with Spanish students at the Universidad de Sevilla; may include CIEE classes offered through the Liberal Arts program; social and cultural immersion of participants in the host society through specialized projects and extracurricular activities; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member; for students considering a career in any communication environment. Requirements: 2.75 cumulative g.p.a., five semesters of college-level Spanish, and valid passport at time of application.

ABRD:3254 (165:254) CIEE Seville International Business and Culture Program 12 s.h.

Spanish language improvement in Seville, Spain; courses in English, primarily in the field of international business; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for beginning to intermediate students. Semester or academic year. Requirements: 2.75 g.p.a., four semesters or less of college-level Spanish, and valid passport at time of application.

ABRD:3255 (165:255) CIEE Seville Language and Culture Summer Program 3,6,9 s.h.

Development of Spanish language skills and exposure to Spanish culture through an intense immersion experience; courses in Spanish language and culture, conversational exchange program, homestay program, and local visits and excursions; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Three, six, or nine weeks. Requirements: 2.75 cumulative g.p.a., four semesters of college-level Spanish, and valid passport at time of application.

ABRD:3257 (165:257) CIEE Seville Language and Society Program 12 s.h.

Rapid improvement of Spanish language skills; Spanish culture and its artistic, literary, historical, or political traditions; linguistic and cross-cultural development enhanced by participation in community life, volunteer work, field trips, and housing with Spanish-speakers in homestays; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for intermediate or low-advanced level students. Fall or spring semester. Requirements: 2.75 minimum g.p.a., completion of three and no more than four semesters of college-level Spanish, and valid passport at time of application.

ABRD:3258 (165:258) CIEE Seville Liberal Arts Program arr.

Achieve fluency in written and spoken Spanish; language acquisition and cultural immersion through housing in Spanish-speaking homes, involvement in volunteer opportunities, and conversation exchanges; courses at the CIEE Study Center, the University of Seville, and Pablo de Olavide University (UPO); administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Semester or academic year. Requirements: 2.75 cumulative g.p.a., five semesters of college-level Spanish, and valid passport at time of application.

ABRD:3259 (165:259) CIEE Seville Teaching Development Program 12 s.h.

Achieve greater competency in written and spoken Spanish while developing specific expertise in international education and second language acquisition; academic program, teaching development course, homestay, excursions and cultural activities, conversation exchanges, and volunteer opportunities; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Semester or academic year. Requirements: 2.75 cumulative g.p.a., five semesters of college-level Spanish, and valid passport at time of application.

ABRD:3260 (165:260) CIEE Madrid Business, Economics, and Culture 12 s.h.

Development of skills and competency in Spanish language while studying business, economics, and culture at CIEE Madrid study center and/or Universidad Carlos III; cultural immersion and development of language skills through excursions and homestays or student residence option in energetic city of Madrid; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Requirements: 3.00 cumulative g.p.a., two semesters of college-level Spanish, and three semesters of college-level microeconomics, macroeconomics, accounting, finance, management, marketing, or statistics; for students taking economics courses—two additional college-level microeconomics or macroeconomics courses and one semester of calculus.

ABRD:3270 (165:270) USAC Alicante Program 3,4,6,8,12 s.h.

Intensive language study in Alicante, Spain; up to two years of university language requirements may be met in one semester; additional courses taught in English or Spanish; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Summer, semester or academic year. Requirements: 2.50 g.p.a. and good academic standing.

ABRD:3272 (165:272) USAC Bilbao Program 3,6,12 s.h.

Intensive language study; up to two years of university language requirements may be met in one semester; additional courses taught in English or Spanish and include offerings in business and environmental sustainability; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Summer, semester or academic year. Requirements: 2.50 g.p.a. and good academic standing.

ABRD:3274 (165:274) USAC Madrid Program arr.

Intensive language study; up to two years of university language requirements may be met in one semester; additional courses taught in English or Spanish; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Summer, semester, or academic year. Requirements: 2.50 g.p.a. and good academic standing.

ABRD:3276 (165:276) USAC San Sebastian Program arr.

Intensive language study; up to two years of university language requirements may be met in one semester; additional courses taught in English or Spanish; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Summer, semester, or academic year. Requirements: 2.50 g.p.a. and good academic standing.

ABRD:3310 (165:816) Dominican Republic: Health, Nutrition, and Environmental Issues 8,12 s.h.

Interdisciplinary and field-based study with course work in Spanish language, public health, social sciences, humanities; independent research project. Summer and/or fall semesters. Requirements: one year of Spanish (summer), or two years of Spanish (summer and fall), or three years of Spanish (fall); and g.p.a. of at least 2.50.

ABRD:3311 (165:817) CIC Program in Mexico arr.

University of Guanajuato; advanced Spanish language, Latin American literature, art, history, anthropology, film, political science; homestays with Mexican families. Summer. Requirements: five semesters of Spanish and g.p.a. of at least 3.00.

ABRD:3312 (165:413) CIEE Buenos Aires Liberal Arts Program 12 s.h.

Critical appreciation of Argentina and its importance in Latin America from perspective of social sciences and humanities; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for advanced Spanish students with strong language preparation. Requirements: 2.75 cumulative g.p.a. and six semesters of college-level Spanish. Recommendations: completion of Spanish language course in session prior to study abroad and college-level course work in Latin American Studies.

ABRD:3313 (165:419) CIEE Bahia Liberal Arts Program 6,12 s.h.

Special CIEE courses and direct enrollment in regular classes at two local universities; improvement of Portuguese language skills; the northeast region of Brazil and its Afro-Brazilian culture; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a., and four semesters of college-level Spanish or two semesters of college-level Portuguese.

ABRD:3314 (165:420) CIEE Sao Paulo Liberal Arts Program 5,12 s.h.

Language-learning course in Brazil; direct enrollment in a host of English-taught courses at Pontificia Universidade Catolica de Sao Paulo; subjects range from anthropology, history, and international relations to business administration, journalism, and performing arts; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for students with multiple levels of Portuguese fluency. Requirements: 2.75 g.p.a., and four semesters of college-level Spanish or two semesters of college-level Portuguese. Recommendations: Portuguese or Spanish course taken within past year.

ABRD:3315 (165:421) CIEE Sao Paulo Business and Culture Program arr.

Opportunity to begin or continue study of Portuguese while studying issues related to economy and business in Brazil and Latin America alongside Brazilian and other international students at the International Program in Management at the prestigious Getulio Vargas Foundation; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for students with varying levels of Portuguese language skills. Requirements: 3.00 cumulative g.p.a. and three semesters of microeconomics, macroeconomics, accounting, finance, management, marketing, or statistics.

ABRD:3316 (165:422) CIEE Bahia Intensive Language and Culture 6 s.h.

Intensive summer program to develop Portuguese language proficiency and a critical appreciation of Brazilian life and society; cultural immersion through classroom, homestay living, program excursions and activities; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Five weeks. Requirements: 2.75 cumulative g.p.a., and four semesters of college-level Spanish or two semesters of college-level Portuguese.

ABRD:3317 (165:409) CIEE Santiago (Chile) Business and Culture Program 12 s.h.

Development of competency in Spanish language while studying issues related to local and regional business environment, management practices, and entrepreneurship in Chile and the southern cone; homestay living provides opportunities for cultural and linguistic immersion; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for students with varying levels of Spanish. Requirements: 2.75 cumulative g.p.a. Recommendations: completion of Spanish language course within past year.

ABRD:3318 (165:410) CIEE Santiago (Chile) Liberal Arts Program 12 s.h.

Special CIEE courses and direct enrollment with Chilean students in regular courses at the Pontificia Universidad Catolica de Chile and the Universidad de Chile; first-hand knowledge of contemporary issues and cultural patterns in Chile; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Semester or academic year. Requirements: 2.75 cumulative g.p.a. and six semesters of college-level Spanish.

- ABRD:3321 (165:851) USAC Studies in Chile** arr.
Intensive beginning-level Spanish language; advanced language, literature, civilization at third-year level; area studies. Some courses taught in English. Requirements: g.p.a. of at least 2.50.
- ABRD:3322 (165:877) USAC Studies in Mexico** arr.
Universidad Iberoamericana in Puebla: intensive beginning and intermediate Spanish language; advanced language and literature; Mexican studies and Spanish for health care professionals. Summer or semester. Requirements: g.p.a. of at least 2.50.
- ABRD:3323 (165:411) CIEE Valparaiso Liberal Arts Program** 12 s.h.
Special CIEE courses and direct enrollment with Chilean students in regular courses at the Universidad Catolica de Valparaiso; first-hand knowledge of contemporary issues to better understand Chilean society and an appreciation for Chilean history and identity; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a. and six semesters of college-level Spanish.
- ABRD:3324 (165:423) CIEE Monteverde Tropical Ecology and Conservation** 10,12 s.h.
Rich understanding of tropical ecology through hands-on exposure, direct experimentation, study of theory, taxonomy of major groups, and observation of empirical patterns; science courses taught in English; Spanish-language course for various levels; travel to diverse ecosystems; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a. and two semesters of college-level biology. Recommendations: college-level ecology or environmental science course, and college-level Spanish.
- ABRD:3325 (165:424) CIEE Monteverde Sustainability and the Environment** 12 s.h.
Insight into complexity of pressures that confront global biodiversity (e.g., population growth, consumption, urbanization, globalization); homestay with local families provides exposure to Spanish language and Costa Rican culture; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member; for students with an interest in environmental studies. Requirements: 2.75 g.p.a. and three semesters of college-level environmental studies. Recommendations: college-level Spanish.
- ABRD:3326 (165:414) CIEE Santiago (DR) Liberal Arts Program** 12 s.h.
Enrollment in one of three distinct academic tracks based on language proficiency level; tracks offer a variety of courses on society, culture, economics, and politics of Hispaniola and the Greater Hispanic Caribbean; regional literature, history, and widely variant sociocultural issues facing the region; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a., 3.00 g.p.a. in Spanish language, and four semesters of college-level Spanish.
- ABRD:3327 (165:415) CIEE Santo Domingo Liberal Arts Program** 12 s.h.
Direct enrollment at three local universities in a wide range of courses in humanities and social sciences, in addition to a number of CIEE advanced language and area studies courses; optional track of study focused solely on the region with courses in social and ethno-cultural identity, authors of Hispanic Caribbean, and Dominican-Haitian relations; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a. and five semesters of college-level Spanish. Recommendations: Spanish language course within past year.
- ABRD:3328 (165:408) CIEE Guanajuato Liberal Arts Program** arr.
Personal reflection of identity, culture, and contemporary society encouraged through active reading and writing; development of Spanish language proficiency in course work and homestay living; Mexican literature, history, and art studied alongside Mexican peers at the University of Guanajuato; courses in migration, revolution, and community-based Spanish specially designed for CIEE. Requirements: 2.75 g.p.a. and four semesters of college-level Spanish.
- ABRD:3329 (165:412) CIEE Managua Social Justice and Development Program** 12 s.h.
Contemporary Nicaraguan society and work of cooperatives, nongovernmental organizations, and social movements striving to achieve social justice in the country; impact of revolutionary and neoliberal policies in advancement of human development goals in Nicaragua; intensive course work, language study, rural immersion, and volunteer opportunities; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a. and five semesters of college-level Spanish.
- ABRD:3332 (165:417) CIEE Lima Liberal Arts Program** 12 s.h.
CIEE-taught course, homestay, and city-based cultural activities with direct enrollment alongside Peruvian students at the Pontificia Universidad Catolica del Peru; immersion to refine language skills and develop understanding of contemporary Peruvian society; administered by the Council on International Educational Exchange (CIEE) on behalf of a consortium of which The University of Iowa is a member. Requirements: 2.75 cumulative g.p.a. and five semesters of college-level Spanish. Recommendations: completion of Spanish language course within past year.

- ABRD:3333 (165:442) CIEE Guanajuato Summer Language and Culture Program** 3,6 s.h.
 Opportunity to further develop Spanish language skills while expanding knowledge and understanding of Mexico; key elements include homestay, day-to-day engagement with local community, and intensive Spanish-taught courses in Mexican studies. Requirements: 2.75 cumulative g.p.a. and five semesters of college-level Spanish.
- ABRD:3334 (165:920) CIEE Valparaiso Language in Context** 12 s.h.
 Development of Spanish language skills; Chile and its role in Latin America; intensive language study and choice of courses in history, literature, economics, and international relations taught in English; excursions, homestay, and opportunities for community service; administered by the Council on International Educational Exchange (CIEE). Requirements: 2.75 g.p.a.
- ABRD:3335 (165:400) USAC Heredia Program** arr.
 Culture and physical beauty of Costa Rica experienced through specially designed courses combined with family home stay and some program travel; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Requirements: 2.50 g.p.a.
- ABRD:3336 (165:401) USAC Puntarenas Program** 3,4,6,8,12 s.h.
 Expansion of Spanish language skills through personal interaction with host culture in homestay setting, field trips and optional tours, and accelerated classroom study according to tracks; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Requirements: 2.50 g.p.a. and good academic standing.
- ABRD:3337 (165:402) USAC San Ramon Program** 4,6,8,12 s.h.
 Life and health sciences, Spanish language and culture studies program; tropical ecology, tropical marine biology, conversation biology, and environmental policy courses taught in English; science curriculum combined with Spanish language or literature classes designed by tracks according to level; administered by the University Studies Abroad Consortium (USAC) of which the University of Iowa is a member; for science majors interested in learning more about ecology and conservation biology in Costa Rica. Requirements: 2.50 g.p.a. and one year of college-level general biology with lab.
- ABRD:3338 (165:919) USAC Havana Program** 3,6 s.h.
 Appreciation of Cuban society through area studies course work in history, culture, and politics of the region; courses taught in English and Spanish; administered by the University Studies Abroad Consortium of which The University of Iowa is a member. Requirements: 2.50 g.p.a. and good academic standing.
- ABRD:3339 (165:931) CIEE Buenos Aires Community Public Health Program** 9 s.h.
 Classroom-based theory and language instruction to support extensive, offsite field work; examination of Argentine health care system through lens of social sciences; exposure to challenges facing global health arena and diversity of solutions being implemented locally to resolve them. Summer. Requirements: five semesters of college-level Spanish and 2.75 cumulative g.p.a. Recommendations: college-level course work in public health, and course work in history or politics of Latin America or Argentina.
- ABRD:3342 (165:894) Brazilian Carnival: Music and Dance** 3 s.h.
- ABRD:3350 (165:849) Social Work International Travel/Study Seminar** arr.
 Impact of socio/political economy on family and community systems in the country visited; seminars, guest speakers, field visits. Summer. Prerequisites: SSW:4843 (042:143).
- ABRD:3352 (165:126) International Perspectives: Xicotepec** arr.
 Introduction to providing service to communities in underdeveloped countries through discipline-specific projects to improve community life in Xicotepec, Mexico; cultural and professional preparation for team work in an international environment; service-learning course in collaboration with Rotary International. Spring break in Xicotepec, Mexico.
- ABRD:3364 (165:898) Pharmacy Rotations Abroad** arr.
 Practicum experience; focus on best practices for pharmaceutical management, ways to enhance access to medicine; promotion in underserved and resource-limited environments abroad. Recommendations: successful completion of all requirements listed as prerequisites for rotations in the advanced practice experience syllabus.
- ABRD:3370 (165:880) Spanish Language and Service Learning in Peru** arr.
 Spanish language and Peruvian civilization course work (6 s.h.) and 100 hours of community service learning in Cusco, Peru. Two months in summer. Requirements: two years of college-level Spanish.
- ABRD:3372 (165:439) USAC Florianopolis Program** arr.
 Brazilian culture studies, global economy, and natural resource management; opportunity to develop language skills while taking courses taught in English by local faculty from the Universidade Federal de Santa Catarina; administered by the University Studies Abroad Consortium (USAC) of which The University of Iowa is a member. Summer, semester, or academic year. Requirements: 2.50 g.p.a.
- ABRD:3401 (165:361) CIEE Beijing Advanced Chinese Studies** 12 s.h.
 Important topics in Chinese from a Chinese perspective; development of professional writing and research skills in Chinese; designed for students interested in using their superior level of Chinese to study international affairs, business, history, or Chinese literature.

- ABRD:3402 (165:362) CIEE Beijing Intensive Chinese Language** 10,12 s.h.
CIEE's Intensive Chinese Language study abroad program at Peking University in Beijing, China, is one of the oldest and most recognized intensive Chinese language programs; the Peking University Center for Teaching Chinese houses over eight different language levels and many other elective courses; intensive language courses coupled with individual language tutorials, diversified field trips, modern housing facilities, and experienced onsite staff make the CIEE Study Center in Beijing an incredible place to study and learn under the auspices of the most famous university in China. Requirements: 2.75 g.p.a. and two to six semesters of college-level Chinese. Recommendations: completion of at least one Chinese area studies course before departure.
- ABRD:3403 (165:363) CIEE Beijing Ethnic Identity and Cultural Studies** 12 s.h.
Language study in Beijing, China; exploration of China; for students with background in Chinese, Tibetan, or Uyghur language. Requirements: 2.75 g.p.a. Recommendations: one semester of college-level Chinese and previous course work in anthropology, sociology, development, religious studies, or global studies.
- ABRD:3411 (165:814) Iowa in Tianjin** arr.
Chinese language, area studies, and folk art; based at Tianjin University of Technology. Summer or semester. Requirements: one to three years of college-level Chinese.
- ABRD:3415 (165:364) CIEE Nanjing Intensive Chinese Language and Culture** arr.
CIEE's intensive Chinese language and culture program in Nanjing, China; Chinese studies and immersion in a more traditional and accessible locale against the backdrop of a large developing Chinese city; for students with background in Mandarin Chinese. Requirements: 2.75 g.p.a. and two to six semesters of college-level Chinese. Recommendations: completion of one Chinese area studies course.
- ABRD:3420 (165:847) Japan Summer Language Institute** arr.
Development of strong communication skills and cultural awareness through integrated language study and homestay, cultural immersion; Hokkaido, eight weeks. Requirements: one semester college-level Japanese.
- ABRD:3425 (165:365) CIEE Shanghai Accelerated Chinese Language** 10,12 s.h.
Accelerated language program in Shanghai, China; one year of Chinese language training accomplished during summer; for intermediate and advanced Chinese language students. Requirements: 3.00 g.p.a.
- ABRD:3426 (165:366) CIEE Shanghai Advanced Chinese Studies** 12 s.h.
- CIEE study abroad program in Shanghai, China; development of advanced communicative skills in Mandarin Chinese through small classes, tutors, and language clinics; contemporary economic and political issues affecting China and effects of China as a rising power in the world today; application of skills learned in classroom to environment outside through independent field work and volunteer opportunities; for students with background in Mandarin Chinese. Requirements: 3.00 g.p.a., four to six semesters of college-level Chinese, and completion of one Chinese area studies course.
- ABRD:3427 (165:367) CIEE Shanghai Business, Language, and Culture** 9,12 s.h.
CIEE study abroad program in Shanghai, China; Chinese language training at standard and intensive levels; courses (taught in English) in business, marketing, economics, international relations, and area studies; contemporary business issues affecting China; effects of China as a rising power in the business world today; for students majoring in business with no Chinese language background and those who have studied Chinese for several semesters. Requirements: 2.75 g.p.a., seven semesters or less of college-level Chinese, and three or more semesters of microeconomics, macroeconomics, accounting, finance, management, or marketing.
- ABRD:3428 (165:368) CIEE Shanghai China in a Global Context** 12 s.h.
CIEE study abroad program in Shanghai, China; focus on China in a global context; Chinese language training at standard and intensive levels; courses (taught in English) in global studies, economics, international relations, and area studies; for students with no Chinese language background and those who have studied Chinese for several semesters. Requirements: 2.75 g.p.a. and seven semesters or less of college-level Chinese. Recommendations: completion of one Chinese area studies course.
- ABRD:3440 (165:836) Semester in South India** arr.
Indian civilization and culture; science, technology, and sustainable development; women's studies; environment and health, Hindi, Kannada, or Sanskrit; internship or independent research project. Based in Mysore. Fall semester.
- ABRD:3441 (165:897) Global Health in Rural and Resource-Limited India** arr.
Experience in a comprehensive care system where institutional and community health care complement each other in a resource-limited setting; attendance at seminars, participation in clinical discussions, contribution to case reports in the hospital's specialty areas; participation in community outreach and mobile clinics that serve remote tribal populations; individual projects; for clinical or advanced health science students. Requirements: good academic standing and enrollment/participation in a medical or health-related field.
- ABRD:3442 (165:374) CIEE Taipei Communications, Business, and Political Economy** 12 s.h.

Intensive Mandarin Chinese language courses; courses in business, communications, political sciences, and other academic areas taught in English; internships in various fields; administered by the Council on International Educational Exchange (CIEE) on behalf of an academic consortium of which The University of Iowa is a member. Requirements: 2.75 g.p.a. Recommendations: one Chinese area studies course.

ABRD:3443 (165:369) CIEE Taipei Intensive Chinese Language and Culture 12 s.h.

CIEE intensive Chinese language and culture program in Taipei, Taiwan; for beginning through advanced language students who have an interest in improving their Chinese; opportunity to take non-language courses taught in English to aid understanding of Taiwanese culture and society; flexible and supportive environment to experience life at one of Taiwan's most prestigious national universities. Requirements: 2.75 g.p.a. and two to eight semesters of college-level Chinese. Recommendations: completion of one Chinese area studies course.

ABRD:3445 (165:197) International Development: India arr.

Exploration of student interests in social entrepreneurship, global health, microfinance, cultural production, environmental sustainability, or other development issues in India; varied disciplinary perspectives (i.e., public health, business, social work, geography, art); student work with Indian NGOs employing a diverse variety of techniques to address social problems such as child labor, health care for the poor, illiteracy, and disability services; led by UI faculty. Winter session.

ABRD:3500 (165:500) Study Abroad arr.

Students participating in study abroad programs at other U.S. or foreign universities maintain their status at The University of Iowa by registering for this course.

ABRD:3501 (165:501) Study Abroad arr.

ABRD:3502 (165:600) Study Abroad Independent Enrollment arr.

ABRD:3510 (165:839) International Student Exchange Program Direct arr.

Study at some ISEP member institutions in Brazil, Chile, Costa Rica, Estonia, Ghana, Italy, Malta, The Netherlands, New Zealand, South Africa, Thailand, the United Kingdom; fields and terms vary.

ABRD:3515 (165:855) Business Internships Abroad arr.

Orientation, academic course work, internship; London, Madrid and Paris. Requirements: g.p.a. of at least 2.75, 45 s.h. earned, at least one semester at The University of Iowa; and Spanish proficiency for Madrid program or French proficiency for Paris program.

ABRD:3530 (165:831) Elementary Student Teaching Abroad arr.

Supervised student teaching in an overseas school.

ABRD:3531 (165:832) Secondary Student Teaching Abroad arr.

Supervised student teaching in an overseas school.

ABRD:3545 (165:915) Spring Break Experiential Learning Programs Abroad 1 s.h.

Combination of academic content with an intensive, week-long international experience; activities may include workshops, lectures, field trips, service learning, and research that provide students with unique opportunities to engage with communities, individuals, and specific topical areas of interest; destinations and topics vary each year.

ABRD:3566 (165:914) Overseas Writing Workshop 3 s.h.

Nonfiction writing workshop to hone writing and observation skills while exploring influences of the world at large; traditional writing workshop with immersion into contemporary and historical writing associated with chosen locale; destination varies from year to year; activities include workshops, lectures, field trips, and writing exercises. Taught in English. Recommendations: declared major or minor in English.

ABRD:3580 (165:873) USAC Direct Programs arr.

Direct enrollment in foreign universities in 15 countries. Semester or academic year.

ABRD:3601 (165:375) Iowa Regents Semester in Australia: University of Newcastle arr.

Opportunity to study at the University of Newcastle in Australia; full academic and social integration with Australian peers. Requirements: 2.50 minimum g.p.a. and sophomore standing.

ABRD:3602 (165:376) Iowa Regents Semester in Australia: University of Tasmania 12 s.h.

Study at the University of Tasmania; full academic and social integration with Australian peers. Semester. Requirements: 2.50 minimum g.p.a. and sophomore standing at time of application.

ABRD:3712 (165:916) Child Life Experiential Learning Program 3 s.h.

Preparation to work with children and their families in a variety of health care settings through a practical experience in Cape Town, South Africa; impact of illness, injury, trauma, and health care environments on patients and families; hands-on opportunity to explore how the Red Cross and hospitals operate on a daily basis. Requirements: good academic standing.

ABRD:3750 (165:895) Arabic Language and Culture in Morocco arr.

Moroccan colloquial Arabic, modern standard Arabic, and Moroccan culture; development of communication skills and cultural awareness through language study, homestays, cultural immersion; based in Fez, Morocco. Seven weeks in summer. Requirements: completion of General Education Program foreign language requirement and 3.00 minimum g.p.a.

- ABRD:3751 (165:921) Archaeology in Israel** arr. Reciprocal exchange programs between The University of Iowa and Lancaster University in Lancaster, England; full integration with British students in student housing and regular classes. Semester or academic year. Requirements: 3.00 cumulative g.p.a., junior or senior standing, declared major, and good understanding of requirements for major.
- Opportunity to participate in an active archaeological dig alongside local professionals and faculty in Israel; part of an international consortium participating the Lautenschlage Tel Azekah archaeological excavation; morning excavation time complemented by daily afternoon lectures from leading local archaeologists and University of Iowa faculty. Requirements: good academic and disciplinary standing.
- ABRD:3805 (165:883) Russian Politics and Foreign Affairs** arr. Reciprocal exchange program between The University of Iowa and the University of Strathclyde in Glasgow, Scotland; full integration with British students in student housing and regular classes. Semester or academic year. Requirements: 3.00 cumulative g.p.a., junior or senior standing, declared major, and good understanding of requirements for major.
- Courses in Moscow (Russian politics and institutions, Russian foreign policy) taught in English by Russian professors; additional basic Russian language course (1 s.h.). Summer.
- ABRD:3810 (165:370) ACTR Contemporary Russian Program** 12 s.h. Reciprocal exchange programs between The University of Iowa and University of Hull in Kingston-upon-Hull, England; full integration with British students in student housing and regular classes. Semester or academic year. Requirements: 3.00 cumulative g.p.a., junior or senior standing, declared major, and good understanding of requirements for major.
- Russian language study; Russian economics, politics, and culture classes taught in English; content-based courses taught by faculty of the State University Higher School of Economics in Moscow; full-time resident director oversees academic and cultural programs and assists participants with academic, administrative and personal matters; for students and working professionals at all levels of Russian-language proficiency, including no prior study of the language. Requirements: good academic and disciplinary standing.
- ABRD:3811 (165:371) ACTR Language & Area Studies Program** 8,12 s.h. Reciprocal exchange program between The University of Iowa and the University of Birmingham in Birmingham, England; full integration with British students in student housing and regular classes. Semester or academic year. Requirements: 3.00 cumulative g.p.a., junior or senior standing, declared major, and good understanding of requirements for major.
- Russian Language and Area Studies Program of the American Council of Teachers of Russian (ACTR); designed for improvement of oral, listening, reading and writing proficiency in Russian language; Russian history, politics, culture, and society; offered at one of three locations (St. Petersburg, Moscow, or Vladimir) with final placement determined by ACTR; full-time U.S. resident director provides ongoing logistical support and emergency assistance to participants. Requirements: four semesters of college-level Russian language.
- ABRD:3812 (165:372) ACTR Business Russian Language & Internship Program** 12 s.h. Regular degree course work in business and economics at Johann Wolfgang Goethe Universität; courses taught in German. Semester or academic year. Arranged through Tippie College of Business. Requirements: two years of college German or equivalent, and relevant academic background.
- Curriculum focusing on language of Russian business combined with an internship at a multinational company, business, or NGO agency in Russia; highly-individualized curriculum; offered at one of two locations (St. Petersburg or Moscow) with final placement determined by ACTR; full-time U.S. resident director provides ongoing logistical support and emergency assistance to participants; for intermediate- to near-native speakers of Russian. Requirements: prior Russian language study and a strong command of Russian grammar.
- ABRD:3830 (165:885) USAC Studies in the Czech Republic** arr. Regular degree course work in business administration and economics at Wirtschatsuniversität in Vienna, Austria; taught in English and German. Semester or academic year. Arranged through Tippie College of Business. Requirements: one year of college German, g.p.a. of at least 2.75, and relevant academic background.
- Introductory Czech language and culture courses taught in English at Charles University. Summer, semester, or academic year.
- ABRD:4001 (165:330) Lancaster University Exchange** arr. Reciprocal exchange programs between The University of Iowa and Lancaster University in Lancaster, England; full integration with British students in student housing and regular classes. Semester or academic year. Requirements: 3.00 cumulative g.p.a., junior or senior standing, declared major, and good understanding of requirements for major.
- ABRD:4002 (165:331) University of Strathclyde Exchange** 12 s.h. Reciprocal exchange program between The University of Iowa and the University of Strathclyde in Glasgow, Scotland; full integration with British students in student housing and regular classes. Semester or academic year. Requirements: 3.00 cumulative g.p.a., junior or senior standing, declared major, and good understanding of requirements for major.
- ABRD:4003 (165:329) University of Hull Exchange** 12 s.h. Reciprocal exchange programs between The University of Iowa and University of Hull in Kingston-upon-Hull, England; full integration with British students in student housing and regular classes. Semester or academic year. Requirements: 3.00 cumulative g.p.a., junior or senior standing, declared major, and good understanding of requirements for major.
- ABRD:4004 (165:328) University of Birmingham Exchange** arr. Reciprocal exchange program between The University of Iowa and the University of Birmingham in Birmingham, England; full integration with British students in student housing and regular classes. Semester or academic year. Requirements: 3.00 cumulative g.p.a., junior or senior standing, declared major, and good understanding of requirements for major.
- ABRD:4040 (165:117) Frankfurt Exchange Program** arr. Regular degree course work in business and economics at Johann Wolfgang Goethe Universität; courses taught in German. Semester or academic year. Arranged through Tippie College of Business. Requirements: two years of college German or equivalent, and relevant academic background.
- ABRD:4055 (165:119) Vienna Exchange Program** arr. Regular degree course work in business administration and economics at Wirtschatsuniversität in Vienna, Austria; taught in English and German. Semester or academic year. Arranged through Tippie College of Business. Requirements: one year of college German, g.p.a. of at least 2.75, and relevant academic background.
- ABRD:4056 (165:315) Charles University Exchange** 12 s.h. Reciprocal exchange programs between The University of Iowa and Charles University in Prague, Czech Republic; full integration with Czech students in student housing and regular classes. Semester or academic year. Requirements: 3.00 cumulative g.p.a., junior or senior standing, declared major, and good understanding of requirements for major.

The Czech Studies Program offered by the Charles University Faculty of Arts and Philosophy and the Institute of Czech Studies is a comprehensive program covering Czech language, literature, history, and culture; for students furthering their studies in Czech language and culture at intermediate level; especially well-suited for students interested in Slavonic studies or related disciplines. Requirements: one or two years of prior Czech language study and good academic standing.

ABRD:4057 (165:306) Aalborg University Exchange 12 s.h.

Reciprocal exchange agreement between The University of Iowa and Aalborg University; students study in Denmark alongside local students in regular classes and standard student housing; language of instruction is Danish and there is a commitment to use of other languages of instruction where relevant, including a number of offerings taught in English (Spanish, German, and French) in various subjects and disciplines; particularly suitable for students interested in globalization, communication studies, political science, and psychology, who have a firm commitment to their major. Semester or academic year. Requirements: 2.80 cumulative g.p.a., completion of at least one semester in residence at The University of Iowa, and junior or senior standing during session abroad.

ABRD:4059 (165:303) Dortmund University Exchange 6,12 s.h.

Direct exchange program between the Technical University of Dortmund and The University of Iowa; students remain registered at their own institution and receive student status at the guest university; unique blend of courses that combine language and culture courses with academic work in student's major and minor subjects; university studies and life outside the classroom are synthesized in a holistic learning process. Requirements: German language proficiency and 2.80 g.p.a.

ABRD:4060 (165:302) Giessen-Friedburg Engineering Exchange 12 s.h.

Reciprocal exchange for engineering students to study at the Giessen-Friedberg University of Applied Sciences; education/research collective with emphasis on practice-oriented research and development projects; main focus on engineering sciences; courses are application-oriented in subject and methodology; course work similar to that offered at The University of Iowa; academic credit may be earned in biomedical, chemical, civil, and environmental engineering. Semester or academic year. Requirements: two years of college-level German, 3.00 g.p.a., and relevant academic background.

ABRD:4063 (165:300) University of Iceland Exchange arr.

Reciprocal exchange program between The University of Iowa and the University of Iceland; a year of study in Reykjavik alongside local students in regular classes; option of selecting classes from those taught in English in different departments, or an academic year of intensive Icelandic language study; science majors interested in geophysics are encouraged to explore English-taught classes in geography, geology, and geophysics. Requirements: 2.80 cumulative g.p.a., completion of at least one semester in residence at The University of Iowa, and junior or senior standing during session abroad.

ABRD:4065 (165:309) Tilburg University Exchange 3,12 s.h.

Tilburg University in the Netherlands offers English-language courses in business administration (accounting, applied microeconomics, finance, production management, international marketing, and electronic commerce) and other subjects; suitable for upper-level business majors and students pursuing an international business certificate. Requirements: 3.00 g.p.a. and junior or higher standing.

ABRD:4066 (165:301) University of Nijmegen Exchange 12 s.h.

Reciprocal exchange agreement between The University of Iowa and Radboud University Nijmegen; students study in the Netherlands alongside local students in regular classes; language of instruction is Dutch and a number of classes throughout the curriculum are taught in English; particularly suitable for students interested in American studies, European studies, and pre-Law, as well as majors in German, linguistics, and political science; Dutch language not required for participation. Semester or academic year. Requirements: 2.80 cumulative g.p.a., completion of at least one semester in residence at The University of Iowa, and junior or senior standing during session abroad.

ABRD:4067 (165:327) Bogazici University Exchange arr.

Exchange program with Bogazici University in Istanbul, Turkey allows students to study in Turkey while fully integrating with Turkish students in student housing and regular classes; courses taught in English. Semester or academic year. Requirements: 3.00 minimum g.p.a. and junior or senior standing.

ABRD:4068 (165:440) WHU-Otto Beisheim School of Management Exchange 3,4,12 s.h.

WHU-Otto Beisheim School of Management is a privately financed business school founded in 1984 near Koblenz, Germany; cities of Cologne, Mainz, and Frankfurt can be reached in under an hour; WHU maintains a network of more than 150 partner universities worldwide and has consistently high national and international rankings; areas of study include economics, finance, accounting, management, marketing, and entrepreneurship; courses taught in English; a variety of courses are offered for students who wish to continue study of German. Requirements: completion of at least one year of university study, good academic standing, and sufficient command of English to follow selected course of study; and minimum 2.75 g.p.a. for undergraduates.

ABRD:4300 (165:438) Curitiba Exchange Program 12 s.h.

Reciprocal exchange to study at FAE Centro Universitario (Curitiba, Brazil); courses from regular curriculum for local students, in any one of their undergraduate programs in economics, business, mechanical/environmental engineering, or letters; students must have sufficient Portuguese language ability to follow courses taught in Portuguese. Semester or calendar year. Requirements: 2.80 g.p.a. and advanced-level Portuguese.

ABRD:4422 (165:333) Kanda University of International Studies Exchange 12 s.h.

Reciprocal exchange program between The University of Iowa and Kanda University of International Studies; year of study at the Japanese Language and Culture Program at Kanda; small, ultramodern university; facilities designed to promote cross-cultural experience; Multilingual Communication Center has resources and equipment pertaining to Japanese, Korean, Spanish, Portuguese, Indonesian, Vietnamese, and Thai. Requirements: 3.00 minimum g.p.a. and completion of at least one semester in residence at The University of Iowa. Recommendations: strong record in Japanese.

ABRD:4424 (165:334) University of Meiji Exchange 12 s.h.

Reciprocal exchange program between The University of Iowa and Meiji University; study in Tokyo as visiting foreign student in a department of one of Meiji's various academic divisions; for undergraduates and graduate students with an appropriate research interest; the Japanese academic calendar runs late March through late January the following year, which involves spring through fall semesters at The University of Iowa. Requirements: 3.00 minimum g.p.a., sophomore standing or higher at time of enrollment in Meiji, and enrollment in fourth-year Japanese at time of application; graduate students intending to do research must have an appropriate project and proficiency at third-year level Japanese; graduate students participating in English-taught curriculum of the Special Graduate Student Exchange Program, Department of Political Science and Economics, must have sufficient Japanese to function in everyday living.

ABRD:4425 (165:876) Nagoya University of Foreign Studies Exchange arr.

Language instruction at all levels and Japanese studies taught in English at Nagoya University of Foreign Studies. Semester or year.

ABRD:4426 (165:332) University of Nanzan Exchange arr.

Reciprocal exchange program between The University of Iowa and Nanzan University in Nagoya; study at Nanzan's Center for Japanese Studies; living options include a home stay program that places students in a Japanese home as a family member or residence hall accommodations; for students interested in developing fluency in Japanese language. Semester or year. Requirements: 3.00 minimum g.p.a. and completion of at least one semester in residence at The University of Iowa. Recommendations: strong record in Japanese.

ABRD:4430 (165:912) Teaching and Learning in Korea Program arr.

Teach and Learn in Korea (TaLK) sends native English speakers to teach English to elementary school children in South Korea; prior to leaving for South Korea, participants receive training to teach English as a second language from UI College of Education faculty and have access to crash courses in Korean language and culture; on-site orientation, training, and excursions familiarize participants with Korean classrooms and culture; free housing, airfare reimbursement, and monthly stipend; no prior knowledge of Korean language/culture required. Requirements: junior standing.

ABRD:4431 (165:319) Ajou University Exchange 12 s.h.

The Ajou University Exchange program is designed for students interested in South Korea; emphasis on global education, Ajou University offers a variety of courses taught in English; excellent opportunity for international and Korean students to take classes in their chosen fields while immersed in an international atmosphere; beneficial for international students anticipating careers in Asia or with multinational corporations, as well as to those seeking advanced degrees in international or area studies. Semester or academic year. Requirements: good academic and disciplinary standing.

ABRD:4432 (165:320) Ewha Womans University Exchange 6,9,12 s.h.

The Ewha Womans University Exchange program offers a coeducational international program and welcomes all students, male and female, to study for one or two semesters as a nondegree seeking exchange or visiting student; variety of high-quality courses in various fields, including studies on Asia and Korea. Requirements: 2.50 g.p.a.

ABRD:4433 (165:322) KAIST Exchange 12 s.h.

Bilateral exchange agreement between The University of Iowa and the Korea Advanced Institute of Science and Technology (KAIST); study abroad in Korea at KAIST; wide range of classes offered on campus; for mature and independent students looking for more direct interaction with local students and culture. Requirements: good academic and disciplinary standing.

ABRD:4436 (165:323) Sungkyunkwan University Exchange 12 s.h.

Sungkyunkwan University Exchange program designed for students to enroll at a Korean university; challenging academic experience and unique cultural opportunity; plethora of courses in foreign languages provided to meet academic needs of international students; intriguing cultural activities where students can experience Korean culture and history. Requirements: 2.70 g.p.a. and sophomore or higher standing.

ABRD:4437 (165:326) University of Seoul Exchange 4,12 s.h.

The University of Iowa and the University of Seoul (UOS) maintain a bilateral exchange agreement that allows UI students to study abroad in Korea at UOS; wide range of English-taught classes in a number of different colleges, including liberal arts, humanities, social science, business, and engineering. Requirements: good standing at The University of Iowa.

ABRD:4438 (165:923) Business and Culture in China 3 s.h.

Exploration of business and cultural environment through a University of Iowa faculty-led study program in China; lectures, readings, case studies, company visits, and immersion in cultural experiences; development of greater awareness of Chinese history, politics, business, economics, and culture; topics may include Chinese business culture and relationships, local companies going global; business strategies of multinational companies in Chinese market; United States-China trade relations; entrepreneurship, Chinese consumer, sustainability, and social responsibility. Prerequisites: ECON:1100 (06E:001) and ECON:1200 (06E:002). Requirements: 2.75 cumulative and UI g.p.a., and minimum of 30 s.h. completed prior to program.

ABRD:4439 (165:318) Chinese University of Hong Kong Exchange 12 s.h.

The Chinese University of Hong Kong (CUHK) Accounting Exchange Program provides University of Iowa accounting students the ability to integrate a unique international experience with their academic program. Semester. Requirements: 3.00 UI and cumulative g.p.a., completion of one semester toward UI accounting major, and good academic standing.

ABRD:4440 (165:922) Hong Kong University of Science and Technology Exchange arr.

The University of Iowa and Hong Kong University of Science (HKUST) maintain a bilateral exchange agreement that allows engineering undergraduate students to study abroad in Hong Kong at HKUST; courses taught in English alongside with local students and other exchange students. Requirements: engineering major and 2.70 g.p.a.

ABRD:4441 (165:317) City University of Hong Kong Exchange 12 s.h.

The University of Iowa and the City University of Hong Kong (CityU) have initiated an agreement allowing the schools to exchange students on a one-to-one ratio; one of the leading universities in Asia, CityU has a wide range of English-taught classes; originally targeted toward science and engineering majors, this agreement is open to students in all majors; wide range of courses that meet academic needs of students in liberal arts and science, business, and engineering. Requirements: good academic and disciplinary standing.

ABRD:4442 (165:917) Seoul National University Exchange 12 s.h.

The University of Iowa and Seoul National University (SNU) maintain a bilateral exchange agreement that allows students to study abroad in Korea at SNU; wide range of English-taught classes offered in a number of different colleges including engineering, business, liberal arts, humanities, social science, and education. Requirements: sophomore or higher standing and minimum 3.00 g.p.a.

ABRD:4443 (165:918) Peking University Engineering Exchange 3 s.h.

College of Engineering partnership with Peking University; wide range of engineering classes offered; intensive summer session. Requirements: engineering major and good academic standing.

ABRD:4510 (165:105) International Student Exchange Program arr.

Study on reciprocal exchange at foreign universities worldwide; some instruction in English. Year-long, one semester, and summer options. Requirements: 40 s.h. of credit, g.p.a. of at least 3.00, and in some cases, command of a foreign language.

ABRD:4701 (165:848) University of KwaZulu-Natal Exchange arr.

Introduction to South African culture from varied academic perspectives, summer session. Enrollment in regular University courses; fall and spring semesters.

ABRD:4901 (165:311) Universidad Autónoma de Baja Journalism Exchange 12 s.h.

Project VITAL students from Canada, the United States, and Mexico work to develop a better understanding and journalistic reporting of environmental, social, economic, and political issues surrounding management of continental water supplies in a variety of contexts, including impacts of global warming; exchange students and several hundred non-exchange peers are connected to one another, faculty, and subject experts through individual journalistic projects, a series of special forums, and development of a project web site. Requirements: nomination by School of Journalism and Mass Communication.

ABRD:4902 (165:308) Universidad de Colima Journalism Exchange 12 s.h.

Project VITAL students from Canada, the United States, and Mexico work to develop a better understanding and journalistic reporting of environmental, social, economic, and political issues surrounding management of continental water supplies in a variety of contexts, including impacts of global warming; exchange students and several hundred non-exchange peers are connected to one another, faculty, and subject experts through individual journalistic projects, a series of special forums, and development of a project web site. Requirements: nomination by School of Journalism and Mass Communication.

ABRD:4903 (165:312) King's College Journalism Exchange 12 s.h.

Project VITAL students from Canada, the United States, and Mexico work to develop a better understanding and journalistic reporting of environmental, social, economic, and political issues surrounding management of continental water supplies in a variety of contexts, including impacts of global warming; exchange students and several hundred non-exchange peers are connected to one another, faculty, and subject experts through individual journalistic projects, a series of special forums, and development of a project web site. Requirements: nomination by School of Journalism and Mass Communication.

ABRD:4904 (165:313) Mount Royal College Journalism Exchange 12 s.h.

Project VITAL students from Canada, the United States, and Mexico work to develop a better understanding and journalistic reporting of environmental, social, economic, and political issues surrounding management of continental water supplies in a variety of contexts, including impacts of global warming; exchange students and several hundred non-exchange peers are connected to one another, faculty, and subject experts through individual journalistic projects, a series of special forums, and development of a project web site. Requirements: nomination by School of Journalism and Mass Communication.

Graduate

ABRD:6064 (165:314) Erasmus/Rotterdam 9 s.h.
School of Management Exchange

Reciprocal exchange program between The University of Iowa and Erasmus University Rotterdam; full-time students in M.B.A. and M.Ac. programs study for a semester in Rotterdam, The Netherlands; students from Tippie School of Management take courses in Rotterdam School of Management during fall semester, students from M.Ac. program take courses offered through Rotterdam School of Management's Master Programme in Accounting and Control during spring semester. Requirements: completion of at least one year of graduate study prior to participation in exchange and good academic standing; at least three years of work experience and non-Dutch citizen for M.B.A. student.

ABRD:6560 (165:841) International arr.
Perspectives: Engineering

Exploration of historical, cultural, social, economic, ethical, environmental, and/or political conditions that may affect engineering projects in a specific country or world region; location and topics vary.

ABRD:7670 (165:875) Overseas Writers arr.
Workshop

Opportunity for students to meet with and have their creative nonfiction read and critiqued by prominent host country writers; location, dates, and duration vary.

Sustainability

Coordinator

- Franklin L. Yoder

Affiliated faculty

- David A. Bennett (Geographical and Sustainability Sciences), Ann F. Budd (Earth and Environmental Sciences), Carolyn Colvin (Teaching and Learning), Charles E. Connerly (Urban and Regional Planning), Craig Just (Civil and Environmental Engineering), Laura Rigal (English/American Studies)

Undergraduate certificate: sustainability

Web site: <http://sustainability.uiowa.edu/teaching-research/certificate/>

For decades, world leaders have defined sustainability as the implementation of policies, processes, and practices that meet the needs of the present without compromising the ability of future generations to meet their own needs. Achievement of sustainability requires an understanding of human and environmental systems and the complex interactions between them.

The Certificate in Sustainability provides students with the knowledge and skills they will need in order to contribute to sustainable systems and their interactions, especially those related to energy, society, culture, economics, the built environment, health, and public policy. The program helps students become effective leaders and agents of change for sustainability in a wide range of vocations, such as academic researcher, teacher, corporate officer, technology specialist, farmer, grassroots advocate, or government official.

The Certificate in Sustainability is administered by University College.

Undergraduate Program of Study

- Certificate in Sustainability

Certificate

The Certificate in Sustainability requires 24 s.h. of credit. The certificate program is open to current University of Iowa undergraduate students and to all individuals who hold a bachelor's degree and are not enrolled in a graduate or professional degree program. Students must maintain a g.p.a. of at least 2.00 in work for the certificate. Completion of the certificate is noted on the student's transcript.

Individuals must declare their intent to earn the certificate; see the Certificate in Sustainability web site for details.

Sustainability embraces many disciplines, methodologies, and institutional practices. Certificate students must have knowledge of the multidisciplinary breadth of the field, which is represented by the program's four areas of breadth electives: changing environments and human health; energy, climate, and built environments; ethics, economics, and public policy; and the power of culture and society. They also must have experience with analyzing real-life problems in and outside of the classroom and with working collaboratively to solve such problems.

Work for the certificate includes three introductory core courses; four breadth electives—one from each of the

program's four elective areas; and one project course. Students may be able to count some certificate courses toward requirements for their majors or minors. They may count a maximum of three courses in a single department or program toward the certificate. A maximum of 6 s.h. of approved transfer credit may be counted toward the certificate. Certificate courses may not be taken pass/nonpass. A course may be used to satisfy only one certificate requirement.

The Certificate in Sustainability requires the following course work.

INTRODUCTORY CORE

Students complete the following three introductory core courses.

EES:1080 (012:008)/ENVS:1080 (159:008) Introduction to Environmental Science	3-4 s.h.
ENGR:4013 (057:013) Introduction to Sustainability	3 s.h.
GEOG:1070 (044:019) Contemporary Environmental Issues	3 s.h.

BREADTH ELECTIVES

Students complete at least 3 s.h. in each of the following four breadth areas, choosing from the courses in each list below.

Changing Environments and Human Health

BIOL:2346 (002:108) Vertebrate Zoology	4 s.h.
BIOL:2374 (002:103)/GEOG:2374 (044:103) Biogeography	3 s.h.
BIOL:2673 (002:134)/ENVS:2673 (159:134) Ecology	3-4 s.h.
CEE:2150 (053:050) Natural Environmental Systems	3-4 s.h.
CHEM:4873 (004:173) Atmospheric and Environmental Chemistry	3 s.h.
EES:1040 (012:004) Evolution and the History of Life	3-4 s.h.
EES:1400 (012:140) Natural Disasters	3 s.h.
EES:3070 (012:107) Marine Ecosystems and Conservation	3 s.h.
EES:3080 (012:108) & ENVS:3000 (159:100) Introduction to Oceanography - Environmental Sciences Seminar	3 s.h.
EES:3390 (012:139) Integrated Watershed Analysis	3 s.h.
EES:4630 (012:166) Hydrogeology	3 s.h.
EES:4700 (012:170)/ENVS:4700 (159:170) Evolution of Ecosystems	3 s.h.
GEOG:1020 (044:003) The Global Environment	3 s.h.
GEOG:2950 (044:088) Environmental Conservation	3 s.h.
GEOG:3070 (044:107) Hungry Planet: Global Geographies of Food	3 s.h.
GEOG:3310 (044:123) Landscape Ecology	3 s.h.
GEOG:3320 (044:126)/EES:3260 (012:126) Wetlands: Function, Geography, and Management	3 s.h.
GEOG:4150 (044:137) Health and Environment: GIS Applications	3 s.h.
HIST:4160 (16W:137) History of Public Health	3 s.h.

HIST:4162 (16W:138) History of Global Health	3 s.h.	OEH:3210 (175:101)/GEOG:3210 (044:174) Health, Work, and the Environment	3 s.h.
HIST:4605 (16W:140) Disease, Politics, and Health in South Asia	3 s.h.	OEH:4240 (175:197) Global Environmental Health	3 s.h.
IALL:3131 (00L:131) Ecology	4 s.h.	URP:3001 (102:101) Planning Livable Cities	3 s.h.
IALL:3163 (00L:163) Conservation Biology	4 s.h.	URP:6253 (102:243) Healthy Cities and the Environment	3 s.h.
OEH:3210 (175:101)/GEOG:3210 (044:174) Health, Work, and the Environment	3 s.h.		
OEH:4210 (175:111)/GHS:4210 (152:111)/EPID:4210 (173:111) International Health	3 s.h.	Ethics, Economics, and Public Policy	
OEH:4240 (175:197) Global Environmental Health	3 s.h.	AFAM:1000 (129:029) First-Year Seminar (when topic is Black New Orleans before and after Hurricane Katrina)	1 s.h.
Energy, Climate, and Built Environments		ANTH:4130 (113:139)/RELS:4730 (032:130) Religion and Environmental Ethics	3 s.h.
ABRD:6560 (165:841) International Perspectives: Engineering (when topic is international perspectives in water science and management)	3 s.h.	COMM:2043 (036:043) Rhetoric, Science, and Technology	3 s.h.
ARTH:3090 (01H:186) Contemporary Architecture	3 s.h.	ECON:3625 (06E:133)/URP:3135 (102:135) Environmental and Natural Resource Economics	3 s.h.
CBE:2030 (052:030) Energy and Society	3 s.h.	ECON:4090 (06E:183) Natural Resource Economics	3 s.h.
CEE:3155 (053:055) Principles of Environmental Engineering	4 s.h.	ENGL:3152 (008:179)/CL:3379 (218:179) Literature and Society (when topic is locally grown)	3 s.h.
CEE:4102 (053:102) Groundwater	3 s.h.	ENTR:3500 (06T:147) Social Entrepreneurship	3 s.h.
CEE:4103 (053:103) Water Quality	3 s.h.	GEOG:2910 (044:030) The Global Economy	3 s.h.
CEE:4157 (053:157) Environmental Engineering Design	3 s.h.	GEOG:2930 (044:111) Water Resources	3 s.h.
CEE:4158 (053:158)/OEH:4920 (175:198) Solid and Hazardous Wastes	3 s.h.	GEOG:3001 (044:197) Special Topics (when topic is international environmental policy or globalization in the developing world)	3 s.h.
CEE:4159 (053:159)/CBE:4459 (052:235) Air Pollution Control Technology	3 s.h.	GEOG:3530 (044:112) Mapping American Cities and Regions	3 s.h.
CEE:4788 (053:126)/PHAR:8788 (046:126) International Perspectives: Xicotepec	2 s.h.	GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy	3 s.h.
CEE:4995 (053:195) Contemporary Topics in Civil and Environmental Engineering (when topic is public transit operations and planning)	3 s.h.	GEOG:3760 (044:175) Hazards and Society	3 s.h.
CEE:5092 (053:192) Graduate Seminar: Environmental Engineering Seminar	0 s.h.	GEOG:3780 (044:120)/GHS:3780 (152:178) U.S. Energy Policy in Global Context	3 s.h.
ECE:5630 (055:163) Sustainable Energy Conversion	3 s.h.	GEOG:3910 (044:194) Geographic Perspectives on Development	3 s.h.
ECE:5995 (055:195) Contemporary Topics in Electrical and Computer Engineering (when topic is energy harvesting: solar, wind and ocean energy conversion systems)	3 s.h.	GEOG:4750 (044:125)/URP:4750 (102:125) Environmental Impact Analysis	4 s.h.
EES:3140 (012:114) Energy and the Environment	3 s.h.	GEOG:4770 (044:177) Environmental Justice	3 s.h.
EES:3360 (012:136)/GEOG:3360 (044:186) Soil Genesis and Geomorphology	3 s.h.	LAW:8622 (091:291) International Environmental Law	3 s.h.
EES:4720 (012:172) Glacial and Pleistocene Geology	3 s.h.	OEH:4220 (175:252)/CEE:4220 (053:204)/GHS:4220 (152:252) U.S. and Global Environmental Health Policy	3 s.h.
EES:4790 (012:179) Engineering Geology	3 s.h.	POLI:1400 (030:045) Introduction to Comparative Politics	3 s.h.
EES:5120 (012:189) Global Change Seminar	1-2 s.h.	POLI:1500 (030:060) Introduction to International Relations	3 s.h.
GEOG:2310 (044:101)/EES:2310 (012:104) Climatology	3 s.h.	URP:6257 (102:247) Environmental Management	3 s.h.
GEOG:2930 (044:111) Water Resources	3 s.h.		
GEOG:3750 (044:127) Environmental Quality: Science, Technology, and Policy	3 s.h.	Power of Culture and Society	
GEOG:4750 (044:125)/URP:4750 (102:125) Environmental Impact Analysis	4 s.h.	AMST:1154 (045:050) Food in America	3 s.h.
GEOG:4930 (044:135) Urban Geography	3 s.h.	AMST:3047 (045:147) American Disasters	3 s.h.
IE:4550 (056:155) Wind Power Management	3 s.h.	AMST:3050 (045:150) Topics in American Cultural Studies (when topic is nature and the American mind: environment and sustainability in U.S. history)	3 s.h.
ME:4048 (058:048) Energy Systems Design	4 s.h.	AMST:3063 (045:163) American Ruins	3 s.h.

AMST:3090 (045:090) Seminar in American Cultural Studies (when topic is eco-criticism: the culture of nature in the U.S.)	3 s.h.
ANTH:2100 (113:010) Anthropology and Contemporary World Problems	3 s.h.
ANTH:2261 (113:113) Human Impacts on the Environment	3 s.h.
ANTH:3103 (113:143) Environment and Culture	3 s.h.
ANTH:3112 (113:114) Environmentalisms	3 s.h.
ANTH:3260 (113:179) Pleistocene Peopling of the Americas	3 s.h.
ANTH:3282 (113:126) Animals, Culture, and Food	3 s.h.
ANTH:4130 (113:139)/RELS:4730 (032:130) Religion and Environmental Ethics	3 s.h.
ARTH:1090 (01H:009) Earthly Paradises: A Global History of Gardens	3 s.h.
ARTH:3090 (01H:186) Contemporary Architecture	3 s.h.
BIOL:1260 (002:095) Plants and Human Affairs	2-3 s.h.
CBE:2030 (052:030) Energy and Society	3 s.h.
CHEM:1050 (004:005) Technology and Society	3 s.h.
CW:3210 (08C:110)/INTD:3210 (145:110) Creative Writing and the Natural World	3 s.h.
ENGL:2193 (008:052)/GWSS:2193 (131:052) Literature, Culture, and Women (when topic is women's nature)	3 s.h.
ENGL:3105 (008:136) Topics in Popular Culture (when topic is food studies and popular culture)	3 s.h.
ENGL:3120 (008:188) Prose by Women Writers (when topic is Rachel Carson, Jane Jacobs, and their legacy)	3 s.h.
ENGL:3130 (008:175) Topics in Film and Literature (when topic is U.S. environmental literature)	3 s.h.
ENGL:3152 (008:179) Literature and Society (when topic is capturing animals)	3 s.h.
ENGL:3510 (008:164) Topics in Transnational Literature (when topic is story of water)	3 s.h.
FREN:1007 (009:007) Nature/Ecology French Philosophy and Fiction	3 s.h.
GEOG:1010 (044:001) Introduction to Human Geography	3 s.h.
GEOG:1090 (044:010) Globalization and Geographic Diversity	3 s.h.
GEOG:2110 (044:011) Population Geography	3 s.h.
GEOG:2410 (044:104) Environment and Development	3 s.h.
LEIS:1040 (169:040) The Good Society	3 s.h.
LLS:1068 (410:068) Wilderness Appreciation	1 s.h.
RELS:3976 (032:076)/AINS:3276 (149:076) American Indian Environmentalism	3 s.h.
RHET:3700 (010:170) Rhetoric of Sustainability	3 s.h.
TDSN:2220 (01T:022) Problems in 3-D Design II: Form and Function	4 s.h.
TDSN:3210 (01T:137)/THTR:3206 (049:158) Environmental Design I	4 s.h.

PROJECT COURSES

Students complete 3 s.h. from these.

AMST:3050 (045:150) Topics in American Cultural Studies (when topic is environmental history; food studies; nature in collections and museums)	3 s.h.
CBE:5405 (052:237) Green Chemical and Energy Technologies	3 s.h.
CEE:4107 (053:107)/CBE:4410 (052:107) Sustainable Systems	3 s.h.
CEE:4141 (053:141) Design for the Developing World	3 s.h.
CL:3222 (218:122) City as Text/Text as City	3 s.h.
CNW:3660 (08N:145) Multimedia Writing (when topic is the green economy: environmental writing and filmmaking)	3 s.h.
CNW:4642 (08N:133) Team Writing for Business (when topic is sustainability)	3 s.h.
EES:3150 (012:193) Sustainability Project	arr.
ENGL:4000 (008:098) English Honors Seminar (when topic is the story of water)	3 s.h.
GEOG:3001 (044:197) Special Topics (when topic is international development)	3 s.h.
GEOG:3340 (044:179) Ecosystem Services: Human Dependence on Natural Systems	3 s.h.
GHS:4100 (152:125) Topics in Global Health	3 s.h.
INTM:3750 (01J:108) Art and Ecology	4 s.h.
MKTG:4250 (06M:140) Marketing and Sustainability	3 s.h.
TDSN:6295 (01T:249) Advanced Problems in Design (when topic is special issues and topics in design)	4 s.h.

Undergraduate Research Experiences

Director:

- Lon D. Moeller

Undergraduate Program of Study

EPSCoR Research Internship

Web site: <http://iowaepscor.org>

Iowa NSF EPSCoR (Experimental Program to Stimulate Competitive Research) supports summer research internships funded by the National Science Foundation for University of Iowa undergraduates. The EPSCoR program involves partnerships between The University of Iowa, Iowa State University, and the University of Northern Iowa for research on renewable energy (wind energy and biofuels), energy efficiency, and energy policy. The program's goals are to increase the number of students who choose careers in the STEM fields—science, technology, engineering, and mathematics—and to help the State of Iowa advance its capacity and competitiveness in research and technology.

Each intern is a member of a research group working on a specific project. Interns are mentored by the research group's faculty leader and graduate students and are expected to do research and to participate in weekly lab meetings and other scheduled activities of the group. At the end of the program, they have the opportunity to present their research findings in a poster session. Interns also interact with other student interns and participate in seminars, research lab tours, field trips, and social events.

Internships generally last eight to ten weeks, starting in late May or early June and ending in August. Most interns receive a stipend; in addition, room and board may be provided for students who live on campus during their internships. Application deadline is March 30 for the following summer.

Contact the Department of Chemical and Biochemical Engineering for more information.

Additional Undergraduate Programs

Research Experience for Undergraduates in Microbiology

Web site: <http://www.medicine.uiowa.edu/microbiology/summer/>

The Department of Microbiology offers URES:4130 (422:130) Research Experience for Undergraduates in Microbiology, a 10-week summer program for qualified undergraduate students who are studying microbiology or other biological sciences and are interested in pursuing careers in science. Participants conduct research on a project they select, under the direct supervision of a faculty member.

Each participant receives a stipend and an allowance for food. The program reimburses participants for travel expenses and provides housing.

Applicants must be U.S. citizens or permanent residents who have completed their sophomore or junior year in a bachelor's degree program in the biological sciences. Application materials should include a completed online application, transcript, and two letters of recommendation. Deadline to apply is mid-February for the following summer.

Visit the program's web site or contact the Department of Microbiology, Carver College of Medicine, for more information.

Summer Undergraduate MSTP Research Program

Web site: <http://www.healthcare.uiowa.edu/mstp/>

The Summer Undergraduate MSTP Research Program is an intensive 10-week experience for undergraduates interested in becoming physician scientists. Participants gain experience in research laboratories and exposure to clinical medicine and medically relevant research in preparation for careers as physician scientists.

Students conduct research in the laboratories of biomedical sciences faculty members, shadow physician scientists in clinical settings, participate in career development seminars, and attend a weekly seminar series focusing on the intersection of science and medicine.

Participants receive a stipend for the program and live on campus in University housing.

Applicants must be U.S. citizens or permanent residents who have completed their junior year in a bachelor's degree program in the biological or physical sciences. Applicants should submit an application form (available on the program's web site); an official college transcript; and two letters of recommendation. Application deadline is early February for the following summer.

Contact the Medical Scientist Training Program, Carver College of Medicine, for more information.

Courses

Lower-Level Undergraduate

URES:2500 (422:050) EPSCoR Undergraduate Research 0 s.h.

Participation in Experimental Program to Stimulate Competitive Research (EPSCoR) undergraduate research internship.

Upper-Level Undergraduate and Graduate

URES:3992 (422:197) Undergraduate Research and Creative Projects 0 s.h.

Independent research or pursuit of a creative project under mentorship of a faculty supervisor.

URES:3993 (422:198) Undergraduate Research and Creative Projects 1-4 s.h.

Independent research or pursuit of a creative project under mentorship of a faculty supervisor.

URES:3994 (422:199) Undergraduate Research and Creative Projects 1-4 s.h.

Independent research or pursuit of a creative project under mentorship of a faculty supervisor.

URES:3995 (422:195) ICRU Research Fellow 0 s.h.

Recognition of undergraduates involved in scholarly efforts of faculty and research staff at The University of Iowa; work on specific research and/or creative projects under selected mentors; funded annually by the Iowa Center for Research by Undergraduates (ICRU) through a competitive application process. Requirements: selection as ICRU Fellow.

URES:4130 (422:130) Research Experience for Undergraduates in Microbiology 0 s.h.

URES:4150 (422:150) Undergraduate MSTP Research 0 s.h.

University Libraries

Director

- John P. Culshaw

Web site: <http://www.lib.uiowa.edu/instruction/>

University Libraries offers three courses intended for undergraduates: ULIB:1001 (417:001) Library Research in Context, ULIB:3011 (417:096) Library Strategies for International Research, and ULIB:2001 (417:101) Being Responsible Online: From Facebook to Academic Research.

Library Research in Context is an activity-based course that helps students integrate information skills and concepts into their academic tool kit, enabling them to develop habits of critical inquiry and to accomplish course goals. Designed primarily for sophomores and juniors, the course introduces students to the basic research process and helps them formulate research questions and evaluate information. It also touches on the social and ethical contexts of information. Subject-specialist librarians present the course, using in-class activities and assignments and class discussion. Most sections of the course are offered online.

Library Strategies for International Research helps students prepare to write an academic research paper and succeed in upper-level courses throughout the curriculum. Students work with a research librarian, gaining new skills and experience as they solve information-related problems. The class features small group activities, short student presentations, and an individual research consultation with the instructor. Students develop familiarity with a variety of research and popular materials, become experts in at least one academic research database, and enhance their critical thinking skills. The course last eight weeks.

Being Responsible Online: From Facebook to Academic Research introduces students to ethical issues that surround online information, especially in the context of social media. Discussion topics include issues of privacy, security, free versus fee-based information, censorship, one's digital footprint, and academic integrity.

Courses

Lower-Level Undergraduate

ULIB:1001 (417:001) Library Research in Context 1 s.h.

Academic research, effective use of the library and its resources, basic research methods, process of scholarly communication; content may be keyed to a discipline-specific course; students apply concepts and processes to their research projects; transferable skills.

ULIB:2001 (417:101) Being Responsible Online: From Facebook to Academic Research 1 s.h.

Introduction to ethical issues surrounding online information; using information as researchers or creating information on a social networking site; issues of privacy, reliability, and intellectual property; skills to navigate online information responsibly and knowledgeably.

Upper-Level Undergraduate and Graduate

ULIB:3011 (417:096) Library Strategies for International Research 1 s.h.

Skill development in international research; academic projects; work with research librarian; activity-based introduction to article, statistical, and governmental databases; research and popular materials; information discovery process (tools and search strategies); enhancement of critical thinking skills. Same as IS:3011 (187:096).

University of Iowa Honors Program

Director

- Art L. Spisak

Web site: <http://honors.uiowa.edu/>

The University of Iowa Honors Program enriches the intellectual and personal lives of outstanding undergraduates across the University. It provides academic opportunities, cocurricular programs, special recognitions, and social events, many of which are held in the award-winning Blank Honors Center. It also sponsors two residential communities for honors students, all located near the Blank Honors Center.

Honors at Iowa challenges students and helps them make connections. For example, honors students learn from some of the top professors on campus when they select from the University's many honors courses.

Honors students engage in a wide variety of academic and cocurricular activities, with support from numerous programs. They enjoy extended library privileges, including longer loan periods. Honors Writing Fellows refine their own writing skills while they mentor other student writers. Some students investigate topics for Iowa communities and the Iowa Legislature through the Iowa Policy Research Organization. Those who need to find mentors and funding for research may request help from the Iowa Center for Research by Undergraduates.

All honors students may take part in programs that offer opportunities in the arts, sciences, politics, international relations, cultural explorations, and a variety of field trips.

The honors staff helps students tailor their honors curricula to enrich their majors. The staff also helps to arrange internships, service learning, study away, teaching, and other experiences for students exploring their interests in and beyond the classroom.

Undergraduate Program of Study

- University of Iowa Honors Program

Honors at Iowa helps students tailor opportunities to different educational needs and goals. Honors students may take honors courses every semester they are enrolled at the University. Honors courses generally are small and interactive. They connect students with distinguished professors and offer new topics each semester. Honors courses also are part of the regular curriculum, not additional requirements for graduation.

Students are encouraged to begin honors work early. In HONR:1100 (143:020) Honors Primetime, entering students earn 1 s.h. of honors credit by taking a short course a few days before fall classes begin. Students who enter the honors program directly from high school take HONR:1300 (143:030) Honors First-Year Seminar, earning 1 s.h. for fall semester work with selected professors on current topics. Honors students may fulfill General Education Program (p. 323) requirements by completing honors sections such as RHET:1030 (010:003) Rhetoric, ENGL:1200 (08G:001) The Interpretation of Literature, and CHEM:1110 (004:011) Principles of Chemistry I.

Upper-level students may take honors courses in their majors or pursue individual instruction with faculty members through honors courses such as HONR:3200 (143:100) Honors Research Practicum. Students may also earn honors credit for a non-honors course by developing an honors contract with the course instructor; the student and instructor negotiate a unique project for the course and develop the honors contract around the project.

Additional academic opportunities include honors advanced seminars, honors major seminars, graduate courses, honors studies, and honors practicums in teaching and service.

Students learn about honors opportunities in weekly e-mails from the honors program. Honors professional staff members and peer advisors offer guidance in personal meetings and group presentations. In addition, the honors staff helps students design individualized curricula for their special interests. To learn more, visit Academics on the honors program web site.

JOINING THE HONORS PROGRAM

Honors at Iowa offers membership to students entering the University directly from high school based on the students' grades and test scores. Entering students who are not offered membership may request an admission invitation by submitting a high school transcript, a teacher's recommendation, and a personal statement explaining why he or she would like to be admitted to the University of Iowa Honors Program.

New transfer students who have a cumulative g.p.a. of at least 3.50 and have earned at least 24 s.h. of college credit are offered membership in the honors program. Transfer students with less than 24 s.h. of college credit are considered for honors on the same basis as are students who enter the University directly from high school.

Continuing University of Iowa students who maintain a UI cumulative g.p.a. of at least 3.33 are eligible to join the honors program.

To remain in the honors program and to graduate with University honors, students must maintain a University of Iowa cumulative g.p.a. of at least 3.33 and complete specific honors program requirements. For more information about joining the University of Iowa Honors Program, see Joining Honors on the program's web site.

COLLEGIATE HONORS AND HONORS IN THE MAJOR

In addition to graduating with University honors through the University of Iowa Honors Program, students may graduate with collegiate honors or honors in their majors. Each college and/or major sets its own requirements for graduation with honors. Graduation with collegiate honors and with honors in the major are recognized at commencement and are noted on the student's transcript. Visit the individual Catalog sections to learn about requirements for collegiate honors or honors in the major.

Graduation with University Honors

Students must accept a formal invitation from the University of Iowa Honors Program in order to become members; see "Joining the Honors Program" above.

All students who enter the honors program must attend an honors orientation.

Graduation with University honors through the University of Iowa Honors Program is recognized at commencement and is noted on the student's diploma and transcript. Honors program students completing degree programs in the Colleges of Education, Engineering, Liberal Arts and Sciences, and Nursing and the Tippie College of Business may graduate with University honors. Honors requirements for engineering students are different from those for students in the other colleges.

Graduation with University honors requires the following work.

Business, Education, Liberal Arts and Sciences, and Nursing Students

Students earning bachelor's degrees in the Colleges of Education, Liberal Arts and Sciences, and Nursing and in the Tippie College of Business complete a two-level program of approved course work (level one) and experiential learning (level two) in order to graduate with University honors. Students are not required to complete all level-one requirements before they begin work on level two.

LEVEL ONE: BUILDING KNOWLEDGE

Level one requires students to earn 12 s.h. of credit in honors course work during their first four semesters in the honors program. Students may count a maximum of one honors contract course toward the level-one requirement; under certain circumstances, they may count up to 6 s.h. of honors contract course credit. Level one requires the following course work.

Complete an honors First-Year Seminar during the first semester at The University of Iowa (for students who enter the honors program directly from high school).

Complete an honors course or an honors contract course during the first semester in the honors program.

Complete additional honors course work to total 12 s.h. (the level-one requirement).

LEVEL TWO: LEARNING BY DOING

Level two requires students to complete 12 s.h. in approved experiential learning activities. Students may satisfy the requirement with one of the options below, or they may combine two or more of these options in order to earn the 12 s.h. of credit required for level two.

Earn honors in the major; this option fulfills the entire level-two requirement.

Earn up to 12 s.h. in mentored research; earning the maximum 12 s.h. fulfills the entire level-two requirement; students who earn less credit for mentored research may combine it with another option to fulfill the level-two requirement.

Study abroad for a minimum of two semesters (fall and/or spring) or the equivalent; carry out a preapproved independent project while abroad and present a poster on the project or write a report about it; this option fulfills the entire level-two requirement.

Earn up to 6 s.h. for a single semester of study abroad with an independent project, including a summer or between-semester experience.

Complete an internship and carry out a preapproved independent project during the internship; present a poster on the project or write a report about it; internships normally count for up to 6 s.h. of the level-two requirement, but in some cases they count for the entire 12 s.h. required for level two.

Earn up to 6 s.h. in honors course work approved for the level-two requirement.

Engineering Students

Students earning a Bachelor of Science in Engineering complete 24 s.h. in a program of approved course work and experiential learning in order to graduate with University honors. They must complete one honors course during their first semester in the honors program, earn 6 s.h. of the required 24 s.h. in honors course work, and complete 12 s.h. of the required 24 s.h. during their first six semesters in the honors program. Requirements may be different for honors students who complete the Grand Challenges for Engineering program.

Students may complete one of the options below, or they may combine two or more of the options in order to earn the required 24 s.h. of honors credit.

Complete the Grand Challenges for Engineering program; this option fulfills the entire 24 s.h. honors requirement.

Earn up to 12 s.h. in honors course work, which may include graduate courses.

Earn up to 12 s.h. in mentored research (earn 3 s.h. by completing 10 hours of mentored research work per week for a fall or spring semester; earn 6 s.h. by completing 20 hours of mentored research work per week for a summer session).

Earn up to 12 s.h. in study abroad (earn 6 s.h. for one fall or spring semester or an equivalent amount of time during summer and between semesters); carry out a preapproved independent project while abroad and present a poster on the project or write a report about it.

Earn up to 12 s.h. by completing one or more internship or co-op experience (earn 6 s.h. for a 15-week experience requiring 40 hours of work per week; earn 3 s.h. for a 15-week experience requiring 20 hours of work per week; earn 4 s.h. for a 10-week experience requiring 40 hours of work per week; earn 2 s.h. for a 10-week experience requiring 20 hours of work per week); students must register their internships and co-op experiences with the College of Engineering and meet the college's reporting and evaluation requirements.

Earn up to 10 s.h. (no more than 4 s.h. from one single area) by completing a preapproved engineering community engagement experience (each experience listed earns 2 s.h. per semester) in the following activities: fill a leadership position in an approved engineering student organization; be a Hanson Center for Technical Communication peer consultant; or serve as an engineering tutor, engineering teaching assistant, engineering student ambassador, or engineering peer advisor. Students must complete the Engineering Community Engagement Experience Verification form in order to earn honors credit for the experiences.

Earn honors in the student's engineering major; this option counts for 12 s.h. of University honors credit.

Academic Activities

Honors Peer Advisors earn academic credit for acquiring and then sharing knowledge of honors opportunities by organizing events around campus and meeting with prospective students and their parents.

Honors Writing Fellows are trained and paid to assist in undergraduate courses by mentoring a dozen students each semester on two major writing assignments.

The **ICRU Research Ambassadors** earn academic credit for showing how and why research with faculty mentors is an important aspect of education at The University of Iowa.

The **Iowa Policy Research Organization** selects a dozen honors students each year to earn academic credit by learning to do policy analysis and then writing policy papers for Iowa communities and the Iowa Legislature.

Study away in foreign countries enables students to earn academic credit for course work, research, or service.

Learn more about honors activities and Experience-Based Learning on the honors program web site.

Cocurricular Programs

Honors at Iowa offers students a rich variety of activities outside the classroom. Many honors students find cocurricular programming a good way to meet people, get involved, and learn more about the world around them. Some of the programs are volunteer, some offer pay, and some award honors credit. These opportunities provide peak educational experiences, especially extensive and intensive interactions with faculty mentors and other talented students.

The **Honors Student Advisory Committee** enables volunteers to work with the honors director on awards, initiatives, and priorities for honors education at The University of Iowa.

Honors interns receive academic credit for service learning that is mentored by faculty members and provided in professional or other practical settings.

Honors newsletters inform readers on and beyond the campus about honors at Iowa.

The **honors student staff** earn pay to make the Blank Honors Center useful to students. They also produce most honors cocurricular programs.

Honors summer ambassadors earn pay to orient entering students to the honors program by informing them of academic opportunities and activities.

ICRU fellows receive scholarships from the Iowa Center for Research by Undergraduates to do research and creative projects with faculty mentors in professional fields of study.

Honors Arts sends groups of honors students to music, dance, and theater events at the University and in the community. Students have opportunities to interact with artists, faculty members, and other honors students through related discussions, lectures, and visits.

Honors Gallery takes advantage of the Blank Honors Center's design to display art. It exhibits student works throughout the year and complements the exhibits with receptions and other events.

The **Iowa City Foreign Relations Council** hosts luncheon dialogues on relevant international issues. Past speakers include award-winning journalists, Nobel Peace Prize laureates, seasoned diplomats, prominent politicians, and policy analysts. Honors students become better informed about world affairs by listening to and talking with these expert speakers.

The **Presidential Scholars Community** involves recipients of Iowa's top merit scholarships in shared classes, opportunities for funded research in the first year, and service. Scholars participate in legacy projects, dinners with faculty and key administrators, scholarship and fellowship mentoring programs, and volunteer projects.

The University of Iowa Honors Program advises four major national and international honor societies: Phi Eta Sigma, National Society of Collegiate Scholars, Mortar Board, and Omicron Delta Kappa. It also works closely with Phi Beta Kappa in the College of Liberal Arts and Sciences. These societies provide select students with opportunities to lead, serve their communities, and cultivate academic excellence.

To learn more, visit Student Activities on the honors program web site.

Financial Support

Honors at Iowa helps students apply for scholarships, fellowships, awards, and prizes. The program offers its own scholarships to continuing honors students selected from academic programs throughout the University. Honors scholarships are not available to incoming first-year or transfer students.

Iowa students win major national and international scholarships each year. Honors provides advising and nominations for Rhodes, Marshall, Gates Cambridge, Churchill, Truman, Udall, Goldwater, Humanity in Action, National Science Foundation, and other prominent scholarships and fellowships. The Iowa Center for Research by Undergraduates provides research scholarships for students who pursue research or creative projects under the mentorship of Iowa faculty members. Announcements about scholarships and other awards appear in honors program e-mails and on the program's web site. Learn more at UIHP Scholarships & Fellowships on the honors program web site.

Facilities

Blank Honors Center

Honors at Iowa makes its home in the Blank Honors Center, a modern facility that fosters community among honors students. The Blank Honors Center is located at the center of the University's main campus, next to residence halls and classroom buildings. It offers social areas, a kitchenette, quiet study areas, wireless Internet access, a computer lab, and classrooms for students. The center also houses the honors staff and has rooms for meetings, events, presentations, and conversation.

Honors Residential Communities

The honors program sponsors two living-learning communities located in University of Iowa residence halls within a block of the Blank Honors Center. Each community hosts its own social events, and all community members

have access to the full range of honors academic and co-curricular opportunities.

Honors House is for first-year honors students. It is located in Daum Hall and is connected to the Blank Honors Center by a skywalk. Honors House provides a convenient place for residents to socialize and study together. It also sponsors academic and social events for honors students living in Daum Hall.

Honors Centerstone is open to continuing and transfer honors students. It offers networking and other support for students who are highly engaged in learning and service activities on or beyond the campus. Some of its social events are held in the Blank Honors Center.

Students must apply to live in the honors residential communities. See Living-Learning Communities on the University Housing & Dining web site for information about how to apply. Visit Housing on the honors web site to learn more about the honors living-learning communities.

Courses

Honors courses are specifically for honors students.

Lower-Level Undergraduate

HONR:1100 (143:020) Honors Primetime 1 s.h.
Preparation for honors opportunities, especially activities and courses; team work on projects that develop skills of invention and communication; presentation of products and performances; connect honors students, honors teachers, and staff members.

HONR:1300 (143:030) Honors First-Year Seminar 1-2 s.h.
Small discussion classes taught by faculty members on special topics; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Requirements: first- or second-semester standing.

HONR:1610 (143:051) Honors Seminar in Historical Perspectives 3 s.h.
Small-class learning with a faculty member to explore and explain historical developments. GE: Historical Perspectives.

HONR:1620 (143:052) Honors Seminar in International and Global Issues 3 s.h.
Small-class learning with a faculty member to introduce perspectives of other nations and cultures through international or global issues. GE: International and Global Issues.

HONR:1630 (143:053) Honors Seminar in Literary, Visual, and Performing Arts 3 s.h.
Small-class learning with a faculty member to appreciate, analyze, create, or perform art. GE: Literary, Visual, and Performing Arts.

HONR:1640 (143:070) Honors Seminar in Natural Sciences 3 s.h.
Small-class learning with a faculty member on natural science topics. GE: Natural Sciences without Lab.

HONR:1650 (143:080) Honors Seminar in Quantitative and Formal Reasoning 3 s.h.

Patterns of reasoning useful for understanding and evaluating scientific evidence, theory, controversy; historical and contemporary examples from physical, biological, behavioral, and biomedical sciences. GE: Quantitative or Formal Reasoning.

HONR:1660 (143:060) Honors Seminar in Social Sciences 3 s.h.

Small-class learning with a faculty member on social science topics. GE: Social Sciences.

HONR:1670 (143:054) Honors Seminar in Values, Society, and Diversity 3 s.h.

Small-class learning with a faculty member to explore fundamental questions on human experience from cultural, social, performative, philosophical, or spiritual perspectives. GE: Values, Society, and Diversity.

HONR:1850 (143:039) Honors Seminar in Communication and Literacy 3 s.h.

Small-class learning with a faculty member; focus on writing, speaking, and critical reading skills or analysis of fiction, poetry, drama, essays.

HONR:1883 (143:083) War 3 s.h.

Emotions soldiers have as they fight, what makes them continue voluntarily to face death, and how modern society memorializes these experiences; how literature and art transform the experience of war; human responses to war in Homer's *Iliad* and select Greek tragedies. GE: Values, Society, and Diversity. Same as CLSA:1883 (20E:083).

HONR:1885 (143:085) Reading the Ancient City 3 s.h.

How ancient Mediterranean and Near Eastern peoples from third millennium B.C.E. to fourth century C.E. described, celebrated, and deplored life in their great cities (Babylon, Jerusalem, Athens, Alexandria, Rome); readings selected from ancient literary prose, poetry, drama, and religious writings; study of popular writing (e.g., ancient inscriptions, graffiti, letters, prayers, account books, and magic spells). GE: Interpretation of Literature.

HONR:2600 (143:075) Honors Special Topics 1-3 s.h.

Small-class learning with a faculty member on special topics.

Upper-Level Undergraduate and Graduate

HONR:3050 (143:040) Honors Studies arr.

Independent studies arranged with faculty members who certify satisfactory completion of study plans and performance for topics not covered by other UI courses.

HONR:3100 (143:101) Honors Teaching Practicum 1-3 s.h.

Teaching internship in first- and second-year courses; may include providing tutorial assistance, conducting review sessions, aiding course organization.

HONR:3150 (143:042) Honors Service Learning arr.

Service learning projects arranged with faculty members who certify satisfactory completion of study plans and service.

HONR:3160 (143:041) Honors Internship 0-3 s.h.

Independent service internship arranged with faculty members, who certify satisfactory performance and completion of project.

HONR:3170 (143:190) Honors Peer Advising 1-2 s.h.

Experience sharing knowledge and experiences of the Honors Program with other students in meetings during office hours, online chats, other venues; peer advisors answer questions, provide information, help students find honors opportunities in and out of class.

HONR:3180 (143:185) ICRU Research Ambassadors 1-2 s.h.

ICRU Research Ambassadors share knowledge and experiences in research; weekly meeting and interaction with students through presentations, online chat, or other venues to answer questions, provide information, and inform students about undergraduate research opportunities; student perspective on how to navigate research opportunities at The University of Iowa.

HONR:3200 (143:100) Honors Research Practicum 1-3 s.h.

Individual research performed in conjunction with a faculty member's research.

HONR:3210 (143:140) Honors Policy Research Practicum 1 s.h.

Theory and practice of public policy research; development of policy-research skills; production of policy-research papers. Requirements: sophomore or junior standing.

HONR:3220 (143:102) Honors Writing Fellows: Writing Theory and Practice 3 s.h.

Preparation of honors students selected as writing fellows to serve as peer tutors in writing-intensive courses; theories of writing, evaluation of drafts, peer tutoring with students. Requirements: sophomore or junior honors standing, admission to Writing Fellows Program, and availability to work as a writing fellow in subsequent semesters.

HONR:3400 (143:044) Honors Writing Workshop 1-3 s.h.

Learn writing through the Iowa workshop tradition of sharing new work with colleagues who provide detailed, constructive suggestions in response; emphasis on invention, structure, style; each edition targets a distinct kind of writing; an experienced writer leads the workshop with meeting formats; credit suited to exercises for the type of featured writing. Requirements: completion of Rhetoric requirement.

HONR:4990 (143:199) Honors Thesis or Project 1-3 s.h.

Culminating project of research or artistic creation; preparation and completion of the final product associated with graduation with honors in the student's major. Requirements: member of the University of Iowa Honors Program and junior or senior standing.

University of Iowa Upward Bound

Interim director

- Georgina Dodge

Web site: <http://diversity.uiowa.edu/unit/trio-upward-bound>

Precollege Program of Study

University of Iowa Upward Bound is an academic program for eligible high school students from three southeastern Iowa communities. Students participate during the academic year at their local high school and attend a six-week residential program on the University of Iowa campus from mid-June through July. Participants take mathematics, science, language arts, and foreign language courses to prepare them for classes they will take at their local high school in the fall. They also participate in extracurricular activities, field trips, and college visits.

Bridge students (those who will enter college in the fall) enroll in a University of Iowa course during the six-week summer session. Bridge students participate in an on-campus job shadow and take a college transition seminar.

Participants receive all services at no cost.

To be admitted to University of Iowa Upward Bound, students must:

- reside in the target area and attend a target school;
- be in grade 9, 10, or 11;
- have a family income that meets U.S. Department of Education low-income guidelines; and
- be a potential first-generation college student.

Upward Bound provides services to students until they graduate from high school and enroll in postsecondary education.

University of Iowa Upward Bound serves students who attend the following Iowa high schools: Columbus Community High School, Muscatine High School, and West Liberty High School. Other postsecondary institutions in Iowa and across the nation sponsor Upward Bound programs. High school students who do not attend schools served by the University of Iowa program should ask their counselors whether an Upward Bound program serves their area.

For more information, contact University of Iowa Upward Bound.

Courses

Pre-Lower Level

UIUB:0018 (401:018) Upward Bound Project

0 s.h.

Division of Continuing Education

Dean

- Chet Rzonca

Web site: <http://www.continuetolearn.uiowa.edu>

The Division of Continuing Education increases access to the services and resources of The University of Iowa. In partnership with the University's colleges and departments, the division provides high-quality credit and noncredit courses, workshops, and programs to traditional and nontraditional learners. Using a variety of locations, schedules, and technologies, the division helps provide a University of Iowa learning environment beyond the physical borders of campus.

The division administers the following programs.

Summer and Winter Sessions

Director: Marlys Boote

Web site, summer session: <http://www.continuetolearn.uiowa.edu/summer/index.html>

Web site, winter session: <http://www.continuetolearn.uiowa.edu/dceunits/wintersession>

The University of Iowa conducts summer sessions of four, six, eight, and 12 weeks. Classes also are offered outside these normal summer session terms. In addition, a short winter session is offered during the break between the fall and spring semesters.

Students may take undergraduate and graduate course work during the summer and winter sessions. Classes during these sessions are taught mainly by University of Iowa faculty members, so students receive the same first-rate instruction provided during the spring and fall semesters. Courses are offered in a variety of formats both on and off campus. They are open to University of Iowa students and to persons not formally admitted to a degree program.

Distance Programs and Courses

Associate dean: Anne Zalenski

Web site: <http://www.continuetolearn.uiowa.edu/>

The University of Iowa offers a number of degree and certificate programs available entirely by distance education. These programs of study are supported by hundreds of courses that are offered in a variety of ways, including online, independent study, virtual classroom technologies, and a combination of formats. The division also offers on-site programming in the Quad Cities, Sioux City, Des Moines, and at Iowa Lakeside Laboratory.

The University has established partnerships with all of Iowa's community colleges so that Iowans who earn an associate's degree at their community college can continue to live and work in their communities while earning a degree from The University of Iowa.

For information about programs, procedures, and enrollment, contact the Division of Continuing Education.

Bachelor of Applied Studies

Web site: <http://www.continuetolearn.uiowa.edu/programs/undergraduate/bas/index.html>

The Bachelor of Applied Studies (B.A.S.) is a bachelor's degree that may be completed entirely by distance education. The degree requires a minimum of 120 s.h. and is offered without an academic major, but students may include certificate programs in their degree or develop an area of emphasis by selecting from seven B.A.S. tracks. Students may earn credit toward the degree by taking courses offered in varied distance education formats; they also may use courses offered in on-campus formats. Applicants must hold an Associate of Applied Science (A.A.S.), an Associate of Arts (A.A.), or an Associate of Science (A.S.) degree. The B.A.S. is awarded by University College and is administered by the Division of Continuing Education. For a detailed program description, see Bachelor of Applied Studies (p. 1245) (University College) in the Catalog.

Bachelor of Business Administration

Web site: <http://www.continuetolearn.uiowa.edu/programs/undergraduate/bba/index.html>

The Bachelor of Business Administration (B.B.A.) with a major in management, entrepreneurial management track, may be completed entirely by distance education. The degree requires a minimum of 120 s.h. of credit. To be admitted to the program, individuals must have earned a minimum of 60 s.h. of college-level credit with a g.p.a. of at least 2.75, and they must have completed four prerequisite courses (business calculus, statistics, microeconomics, and financial accounting) with a g.p.a. of at least 2.75 and no grade below C. The degree is awarded by the Tippie College of Business and is administered by the Division of Continuing Education. For a description of the program, see Management and Organizations (p. 702) in the Catalog.

Bachelor of Liberal Studies

Web site: <http://www.continuetolearn.uiowa.edu/programs/undergraduate/bls/index.html>

The Bachelor of Liberal Studies (B.L.S.) is a bachelor's degree that may be completed entirely by distance education. The degree requires a minimum of 120 s.h. and is offered without an academic major, but students may include certificate programs or emphasis areas within the degree. Students may earn credit toward the degree by taking courses offered in varied distance education formats; they also may use courses offered in on-campus formats. Applicants must have either an Associate of Arts (A.A.) degree or have earned at least 60 s.h. of credit. The B.L.S. is awarded by University College and is administered by the Division of Continuing Education. For a detailed program description, see Bachelor of Liberal Studies (p. 1248) (University College) in the Catalog.

Center for Conferences

Director: Jo Dickens

Web site: <http://www.continuetolearn.uiowa.edu/conferences/>

The University of Iowa Center for Conferences (UICC) is the University's principal agency for initiating, coordinating, conducting, and supporting noncredit continuing education programs. It also serves as the University of Iowa's Continuing Education Unit (CEU) database.

UICC coordinates national and international conferences for University faculty, departments, colleges, administrative units, student groups and related academic societies, professional associations, and other groups sponsored by the University. Services include initial planning, site location, budget development, income and expense management, payment processing, and online conference registration.

The Center for Conferences uses facilities on the University of Iowa campus as well as those located in Iowa City and Coralville, throughout Iowa, and nationwide. For more information, visit the Center for Conferences web site.

Iowa Lakeside Laboratory

Executive director: Chet Rzonca

Web site: <http://www.continuetolearn.uiowa.edu/lakesidelab/>

Iowa Lakeside Laboratory is a field station run cooperatively by The University of Iowa, Iowa State University, and the University of Northern Iowa and administered by The University of Iowa. The laboratory offers summer courses and research opportunities for undergraduate and graduate students. Courses focus on the ecology, taxonomy, and conservation of northern plains animals, plants, microorganisms, and ecosystems. Students take one course at a time, 40 hours per week, for one to four weeks. Class sizes are small, and most students spend at least part of every day outdoors.

The Board of Regents, State of Iowa, has designated Lakeside Laboratory a Regents Resource Center, dedicated to providing lifelong learning opportunities for Iowans.

For information about academic programs and courses at the laboratory, see Iowa Lakeside Laboratory (p. 1267) (University College) in the Catalog or visit the Iowa Lakeside Laboratory web site.

Iowa Summer Writing Festival

Director: Amy Margolis

Web site: <http://www.continuetolearn.uiowa.edu/iswfest/>

The Iowa Summer Writing Festival is a noncredit creative writing program for adults. It brings some 1,300 writers to the University of Iowa campus each summer to participate in weeklong and weekend workshops across the genres. Writers at all levels are welcome.

Participants choose from more than 135 workshops, including novels, short fiction, poetry, memoirs, essays, screenwriting, playwriting, travel, humor, science fiction, writing for children, and more. Festival classes are conducted as workshops, where the primary texts are participants' own creative work.

Weeklong sessions feature group meetings three hours each day, Monday through Friday, plus individual student/instructor conferences. The daily meetings include a lecture series on craft. Participants also attend evening readings and other events. Weekend sessions meet for eight hours over two days. Visit the Iowa Summer Writing Festival web site for information about workshops,

schedules, and registration. Program information for the coming summer is posted in mid- to late February.

Iowa Young Writers' Studio

Director: Stephen Lovely

Web site: <http://iowayoungwritersstudio.org>

The Iowa Young Writers' Studio is a two-week summer residential creative writing program for high school students who love to write. Students build a community of peers while working with experienced writing teachers, primarily students and graduates of the University's M.F.A. program in creative writing.

The studio offers three courses of study: poetry, fiction, and creative writing (a mix of poetry, fiction, and creative nonfiction). Each course consists of a seminar and a workshop. In seminars, students read literature by established writers. In workshops they share their own writing, get feedback from their classmates and teacher, and discuss issues of narrative and form.

The studio offers two two-week sessions: one in June and one in July. Young writers who have completed grade 10, 11, or 12 are eligible to attend the studio. Application materials include an application form, a creative writing sample, a statement of purpose, a high school transcript, and a letter of recommendation from an English teacher or another instructor familiar with the applicant's writing. Applications are submitted online. For complete application information, contact the Iowa Young Writers' Studio or visit its web site.

John and Mary Pappajohn Education Center

Director: Chet Rzonca

Manager: Richard Gardner

Web site: <http://www.continuetolearn.uiowa.edu/jmpec/>

The John and Mary Pappajohn Education Center (JMPEC) serves a wide range of adult learning needs. It also provides central Iowa students with access to a variety of University of Iowa undergraduate and graduate degree programs and courses. The center is located in downtown Des Moines, Iowa, close to many corporate businesses and government offices. With classrooms that can accommodate groups of up to 60 people, JMPEC is ideal for small conferences, educational workshops, and meetings. It is equipped to handle on-site instructional technology and to deliver distance education to students anywhere. JMPEC also makes noncredit learning opportunities for professional and workforce development available to corporations and individuals. Learn more at the John and Mary Pappajohn Education Center web site.

Labor Center

Director: Jennifer Sherer

Web site: <http://www.continuetolearn.uiowa.edu/laborctr/>

The University of Iowa Labor Center provides educational programs to Iowa's working people and their organizations. The center offers a wide range of noncredit courses on workplace rights, labor issues, and skills necessary for effective union leadership. Typical course topics include steward education and contract administration, collective bargaining, labor and employment law, public policy issues, leadership development, organizing and mobilizing,

economics, labor history, workplace health and safety, and other content relevant to workers and union members. Courses are offered both on and off campus at times and locations convenient to working adults.

The Labor Center also conducts applied research, publishes educational materials on workplace issues, and conducts public programming on labor issues on the University of Iowa campus and in Iowa communities.

Administrative Officers

Board of Regents, State of Iowa

The Board of Regents, State of Iowa, governs The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa Braille and Sight-Saving School, and the Iowa School for the Deaf. The board has nine members and an executive director.

President: Bruce L. Rastetter, Alden
President pro tem: Katie S. Mulholland, Marion
 Nicole C. Carroll, Carroll
 Milt J. Dakovich, Waterloo
 Robert N. Downer, Iowa City
 Ruth R. Harkin, Cumming
 Larry E. McKibben, Marshalltown
 Subhash C. Sahai, Webster City
 Hannah M. Walsh, Iowa City
Executive director: Robert Donley, Urbandale

Central Administration

President: Sally Mason
Executive vice president and provost: P. Barry Butler
Senior vice president and university treasurer: Douglas K. True
Vice president for medical affairs: Jean E. Robillard
Vice president for research and economic development: Daniel A. Reed
Vice president for student life: Thomas R. Rocklin
Vice president for human resources: Susan C. Buckley
Vice president for legal affairs and general counsel: Carroll J. Reasoner
Vice president for strategic communication: Joseph Brennan
Vice president for external relations: Mark J. Braun
Chief diversity officer and associate vice president: Georginia Dodge
Director, Office of Equal Opportunity and Diversity: Jennifer Modestou
University spokesperson: Tom Moore
University ombudspersons: Susan Johnson, Cynthia Joyce

Office of the Provost

Provost and executive vice president: P. Barry Butler
Associate vice president and director of administration and planning: Don J. Szeszycki
Associate provost for undergraduate education and dean of University College: Lon D. Moeller
Associate provost for faculty: Kevin C. Kregel
Associate provost for graduate education and dean of the Graduate College: John C. Keller
Associate provost and dean of international programs: Downing Thomas
Associate provost and dean of continuing education: Chet S. Rzonca

Interim associate provost for outreach and education: Linda Snetselaar

Assistant provost for enrollment management and director of admissions: Michael Barron
Assistant provost for enrollment management and director of academic advising: Lisa Ingram
Assistant provost for enrollment management and university registrar: Lawrence J. Lockwood
Assistant provost for enrollment management and director of student financial aid: Mark S. Warner

Henry B. Tippie College of Business
Dean: Sarah Fisher Gardial

College of Dentistry
Dean: David C. Johnsen

College of Education
Dean: Nicholas Colangelo

College of Engineering
Dean: Alec B. Scranton

Graduate College
Dean: John C. Keller

College of Law
Dean: Gail B. Agrawal

College of Liberal Arts and Sciences
Dean: Chaden Djalali

Roy J. and Lucille A. Carver College of Medicine
Dean: Debra A. Schwinn

College of Nursing
Dean: Rita A. Frantz

College of Pharmacy
Dean: Donald E. Letendre

College of Public Health
Dean: Susan J. Curry

University College
Dean: Lon D. Moeller

Division of Continuing Education
Dean: Chet S. Rzonca

Academic Advising Center
Director: Lisa Ingram

Admissions
Director: Michael Barron

Information Technology Services
Chief information officer and director: Steven R. Fleagle

International Programs
Associate provost and dean: Downing Thomas

International Writing Program
Director: Christopher Merrill

Libraries
University librarian: John P. Culshaw

Museum of Art
Executive director: Sean O'Harrow

Registrar
University registrar: Lawrence J. Lockwood

Student Financial Aid
Director: Mark S. Warner

Teaching, Learning, and Technology

Director: Maggie Jesse

University of Iowa Press
Director: Jim McCoy

Research

Vice president for research and economic development:
Daniel A. Reed

Senior associate vice president, research development and centers and institutes: Richard Hichwa

Associate vice president, compliance and regulatory affairs: James C. Walker

Interim associate vice president for economic development: David Hensley

Assistant vice president, interdisciplinary research and outreach: Ann Ricketts

Assistant vice president, operations, human resources, and budget: Cheryl Reardon

Human Subjects Office
Director: John A. Bertolatus

Obermann Center for Advanced Studies
Director: Teresa Mangum

Office of the State Archaeologist
Director: John Doershuk

Pentacrest Museums (Museum of Natural History, Old Capitol Museum)
Interim director: John Logsdon

Public Policy Center
Executive director: Peter C. Damiano

Sponsored Programs
Director: Jennifer Lassner

State Hygienic Laboratory at The University of Iowa
Director: Christopher G. Atchison

University of Iowa Research Foundation
Executive director: Zev Sunleaf

University of Iowa Research Park
Director: Stephanie Dengler

Student Life

Vice president for student life: Thomas R. Rocklin

Associate vice president for student life and dean of students: David L. Grady

Assistant vice president for assessment and strategic initiatives: Sarah Hansen

Assistant vice president for student life and director of University housing and dining: Von Stange

Assistant vice president: Belinda Lantz Marnier

Associate dean of students: Thomas R. Baker

Recreational Services
Director: J.T. Timmons

Student Disability Services
Director: Mark M. Harris

Student Health & Wellness
Director: James P. Kellogg Jr.

University Counseling Service

Director: Sam V. Cochran

University Life Centers/Iowa Memorial Union
Director: David L. Grady

Women's Resource and Action Center
Director: Linda Kroon

Finance and Operations

Senior vice president and university treasurer: Douglas K. True

Vice president for human resources: Susan C. Buckley

Associate vice president and director, facilities management: Donald Guckert

Associate vice president and university controller: Terry L. Johnson

Assistant vice president and director, business services: Mary Jane Beach

Assistant vice president and director, public safety: Charles Green

Tax manager: Thomas C. Peifer III

University business manager: David Kieft

Director, treasury operations: Cynthia Bartels

Director, financial management and budget, and university secretary: Susan Klatt

Health Care

Vice president for medical affairs: Jean E. Robillard

Associate vice president of UI Health Care and chief executive officer of University of Iowa Hospitals and Clinics: Kenneth P. Kates

Dean, Carver College of Medicine: Debra A. Schwinn

Center for Disabilities and Development
Director: Elayne O. Sexsmith

Child Health Specialty Clinics
Director: Brian Wilkes

Student Health & Wellness
Director: James P. Kellogg Jr.

Strategic Communication

Vice president for strategic communication: Joseph Brennan

Hancher Auditorium
Executive director: Charles Swanson

UITV
Manager: Benjamin Hill

University of Iowa Alumni Association

President: Jeffrey D. Kueter

University of Iowa Foundation

President: Lynette L. Marshall

Faculty

A'Hearn, Amy K., Adjunct Lecturer, University College Courses, 2006 (2007); BA 2001 Iowa; MS 2004 Western Illinois

Abbas, Haruhi, Adjunct Lecturer, University College Courses, 2006 (2006); MA 1985 Indiana PA; MA 1988 Iowa; MA 2002 Iowa

Abbas, Paul J., Professor, Communication Sciences and Disorders/Otolaryngology-Head Neck Surgery, 1974 (1984); BS 1969 Massachusetts Inst of Technolo; PHD 1974 Johns Hopkins

Abbott, Charles Wilson, Adjunct Lecturer, International Programs, 2009 (2009); BA 1989 SUNY at Buffalo; PHD 2006 Iowa

Abbott, Linda I., Clinical Adjunct Instructor, Nursing, 2000 (2000); BSN 1980 Iowa; MSN 1996 Iowa

Abboud, Francois, Professor, Physiology/Internal Medicine, 1961 (1968); BS 1948 Christian Brothers' Schl-Egypt; PNS 1949 Cairo; MBBCH 1955 Ain Chams-Egypt; MBCHB 1955 Ain Chams-Egypt

Abdel-Malek, Karim, Professor, Biomedical Engineering/Mechanical Engineering, 1994 (2005); BS 1988 Jordan; MS 1990 Pennsylvania; PHD 1993 Pennsylvania

Abel, Evan Dale, Professor, Internal Medicine/Biochemistry, 2013 (2013);

Abernathy, M. Glenn, Clinical Assistant Professor, Family Medicine, 2008 (2011); BS 1972 South Carolina; MD 1978 South Carolina

Abou Alaiwa, Mahmoud, Assistant Professor, Internal Medicine, 2013 (2014);

Abrahamson, Timothy Garth, Clinical Adjunct Assistant Professor, Dermatology, 2002 (2002); BA 1993 Wartburg; MD 1997 Iowa

Abram, Nancy J., Lecturer, Marketing, 2007 (2007); BA 1980 St. Ambrose

Abram, Steven Webb, Adjunct Lecturer, Management Organizations, 2013 (2013);

Abramoff, Michael David, Professor, Ophthalmology Visual Science/Electrical-Computer Engineering/Biomedical Engineering, 2004 (2012); MS 1989 Amsterdam; MD 1994 Amsterdam; PHD 2001 Utecht

Abramowitz, Paul W., Emeritus Professor, Pharmacy, 1998 (1998); BA 1972 Indiana; BSPH 1977 Toledo; PHARM 1979 Michigan

Abrams, Catherine Helen, Lecturer, Nursing, 2012 (2012);

Abrams, Thad Eugene, Assistant Professor, Psychiatry/Internal Medicine, 2008 (2011); BA 1996 Luther College; MD 2000 Iowa

Abrons, Jeanine Porter, Clinical Assistant Professor, Pharmacy Practice and Science/Oral Path,RadiologyMedicine, 2011 (2011); PHAR 2004 Drake

Abrons, Ron Owen, Clinical Assistant Professor, Anesthesia, 2011 (2011); MD 2004 Iowa

Abu Hejleh, Taher, Clinical Assistant Professor, Internal Medicine, 2012 (2012); MD 2004 Jordan University of Science

Abu-Yousef, Monzer M., Professor, Radiology, 1976 (1991); MBCHB 1970 Cairo-Egypt

Aburizik, Arwa, Clinical Assistant Professor, Internal Medicine, 2013 (2013);

Abushahin, Laith, Clinical Assistant Professor, Internal Medicine, 2013 (2013);

Abusin, Ghada Ahmed Yousif, Clinical Assistant Professor, Pediatrics, 2011 (2011); MBBS 2001 Khartoum, Sudan

Accola, Christopher Lee, Adjunct Assistant Professor, Pharmacy Practice and Science, 2014 (2014);

Acerbo, Martin, Adjunct Assistant Professor, Psychology, 2007 (2007); PHD 2001 Konstanz, Germany

Achenbach, Andrea Elizabeth, Lecturer, Nursing, 2014 (2014);

Achepohl, Keith A., Emeritus Professor, Art Art History, 1973 (1981); BA 1956 Knox; MFA 1960 Iowa

Achrazoglou, George John, Adjunct Professor, Teaching and Learning, 1987 (2012); BA 1981 Iowa; MA 1993 Iowa; PHD 2003 Iowa

Achter, Charles T., Lecturer, Teaching and Learning, 2011 (2011); BA 1969 St Cloud State; MA 1975 St. Cloud State; EDS 1978 Mankato State

Acion, Laura, Adjunct Assistant Professor, Biostatistics, 2013 (2013); PHD 2011 UI

Acton, Patricia Jo Nassif, Emeritus Professor, Law-Faculty, 1981 (1985); BA 1971 Iowa; JD 1974 Iowa

Adam, Matthew, Adjunct Lecturer, Management Organizations, 2006 (2006); MBA 2002 Iowa

Adamek, Mary, Clinical Professor, Music, 1996 (2007); BM 1977 Virginia Commonwealth; MM 1981 Miami; PHD 1993 Minnesota

Adams, Charlotte, Associate Professor, Dance, 1998 (2003); BA 1976 Appalachian State; MA 1984 Arizona; MFA 1995 Arizona

Adams, Christopher Maxin, Associate Professor, Physiology/Internal Medicine, 2006 (2011); BS 1992 Kansas, Lawrence; MD 1999 Iowa; PHD 1999 Iowa

Adams, Harold P., Professor, Neurology, 1976 (1985); BA 1966 Drake; BS 1968 South Dakota-Vermillion; MD 1970 Northwestern

Adams, Jess, Adjunct Instructor, Preventive Community Dentistry, 2011 (2011); BA 1999 Colorado; DDS 2007 Colorado

Adams, Lafayette Bluford, Associate Professor, American Studies/English, 1994 (2001); BA 1985 Duke; MA 1987 Virginia; PHD 1993 Virginia

Adams, Lori, Lecturer, Biology, 2010 (2010); BS 1998 Illinois; PHD 2003 Texas AM

Adams, Russell, Clinical Adjunct Associate Professor, Internal Medicine, 2000 (2004); MD 1979 Iowa

Adcock, Craig, Professor, Art Art History, 1994 (1994); BFA 1971 Colorado; MA 1974 University of Colorado; PHD 1981 Cornell University

Addis Jr., Laird C., Emeritus Professor, Philosophy, 1963 (1974); BA 1959 Iowa; MA 1960 Brown; PHD 1964 Iowa

Adolphs, Ralph, Adjunct Professor, Neurology, 1997 (2005); MSC 1986 Stanford; BSC 1986 Stanford; PHD 1992 California Technology of Tech

Adrain, Jonathan M., Professor, Earth and Environmental Sciences, 1999 (2011); BS 1989 Alberta; PHD 1993 Alberta

Adrain, Tiffany Sara, Adjunct Instructor, Earth and Environmental Sciences/Anthropology, 2004 (2004); BA 1988 Exeter; BS 1995 London; MS 2003 Iowa

Affifi, Adel Kasim, Emeritus Professor, Anatomy Cell Biology/Neurology/Pediatrics, 1973 (1980); BA 1951 American University of Beirut; MD 1957 American University of Beirut; MS 1965 Iowa

Affifi, Tamara, Professor, Communication Studies, 2013 (2013);

Affifi, Walid A., Professor, Nursing/Communication Studies, 2013 (2013);

Agrawal, Gail B., Professor, Law-Faculty, 2010 (2010); BA 1978 New Orleans; MPH 1983 Tulane; JD 1983 Tulane

Agrawal, Naurang, Clinical Professor, Internal Medicine, 2010 (2010); MBBS 1968 Grant Medical, India

Agrell, Jeffrey, Associate Professor, Music, 2000 (2008); BA 1970 St Olaf; MM 1974 Wisconsin

Aguilar Jr., Agustin, Clinical Assistant Professor, Emergency Medicine, 1988 (1995); BS 1978 Emory; MD 1982 Univ Autonoma de Guadalajara

Ahad, Sajida, Clinical Associate Professor, Surgery, 2014 (2014);

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Ahern, Christopher A., Associate Professor, Physiology, 2012 (2012);

Ahlers, Timothy John, Adjunct Assistant Professor, Health Management Policy, 2008 (2014); BBA 2003 Iowa; MHA 2005 Iowa; MBA 2005 Iowa

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Ahrens, Richard C., Professor, Pediatrics, 1980 (2002); BS 1969 Wisconsin-Madison; MD 1973 Medical College of Wisconsin; MS 1980 Iowa

Aikin, Judith P., Emeritus Professor, German, 1975 (1988); BA 1968 Oregon; MA 1969 Oregon; PHD 1974 California-Berkeley

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Akgun, Ugur, Adjunct Assistant Professor, Physics Astronomy, 2006 (2006); PHD 2003 Iowa

Akyea, Modei Kwasi, Adjunct Instructor, Dance, 2008 (2011); BA 1997 Iowa

Al-Zubeidi, Dina Naser Saleh, Clinical Assistant Professor, Pediatrics, 2012 (2012);

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Alambert, Renata Pereira, Assistant Professor, Internal Medicine, 2013 (2013);

Albers, Gary Ronald, Adjunct Instructor, Pharmacy, 1997 (1997); BS 1975 Iowa

Albert, James Laurence, Lecturer, Theatre Arts/Dance, 1996 (1999); MFA 1986 Iowa

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Albrecht, Joseph Haws, Professor, Military Science, 2013 (2013);

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Allareddy, Veerasathpurush, Associate Professor, Orthodontics, 2013 (2013);

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Allen, Jonathan Sayre, Lecturer, Music, 2011 (2011); BM 2005 Northern Colorado; MM 2007 Utah; DMA 2011 University of Iowa

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Amir, Rabah, Professor, Economics, 2013 (2013);

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Arndt, Matthew, Assistant Professor, Music, 2009 (2009); MM 2001 Colorado-Boulder; PHD 2008 Wisconsin-Madison

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Aschenbrenner, Eric Wade, Clinical Assistant Professor, Orthopaedics and Rehabilitation, 2012 (2012);

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Ascroft, Joseph R., Emeritus Professor, Journalism Mass Communication, 1970 (1982); BA 1956 Cape Town-South Africa; MA 1966 Michigan State; PHD 1969 Michigan State

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Ashlock, Jessica Ann, Lecturer, Nursing, 2014 (2014); BSN 2007 Coe College; MSN 2011 Walden University

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Ashworth, Shalla Wilson, Adjunct Instructor, Anthropology, 2008 (2010); BA 1995 Iowa; MA 2010 Oklahoma

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Atkins, Dianne Lee, Professor, Pediatrics, 1983 (2002); BA 1974 Johns Hopkins; MD 1977 Johns Hopkins

Atkinson, Alice M., Emeritus Associate Professor, Teaching and Learning, 1973 (1995); BS 1961 Iowa State; MS 1963 Wisconsin; PHD 1982 Iowa

Atkinson, Kendall E., Emeritus Professor, Mathematics/Computer Science, 1972 (1975); BS 1961 Iowa State; MS 1963 Wisconsin; PHD 1966 Wisconsin

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Aunan, Carol Diane, Adjunct Assistant Professor, Nursing, 1997 (2004); BSN 1993 Iowa; MSN 2001 Iowa

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Aykin-Burns, Nukhet, Adjunct Assistant Professor, Radiation Oncology, 2008 (2008); BS 1995 Middle East Technical Univ; PHD 2002 Missouri-Rolla,

Ayres, Lioness, Associate Professor, Nursing, 2005 (2011); MSN 1992 Illinois @ Chicago; PHD 1998 Illinois @ Chicago

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Baalrud, Scott David, Assistant Professor, Physics Astronomy, 2012 (2012);

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Bailey, Shawn, Adjunct Assistant Professor, Oral Maxillofacial Surgery, 2003 (2003); BS 1987 Eastern Illinois; DDS 1991 Iowa; MD 1995 New York

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Baker, James E., Adjunct Lecturer, Law-Faculty, 2005 (2005); BA 1982 Yale; JD 1990 Yale

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Barron, Patrick Ingles, Adjunct Lecturer, Economics, 2008 (2008); BA 1969 Bradley; MA 1974 Arkansas

Barron, Sheila, Adjunct Assistant Professor, Psych Quant Foundations, 2001 (2001); BA 1989 Iowa; MA 1991 Iowa; PHD 1993 Iowa

Barta, Gary Allen, Adjunct Instructor, University College, 2011 (2014); BS 1987 North Dakota State

Bartachek, Amy Lynn, Adjunct Lecturer, University College, 2005 (2005); MA 2001 Iowa

Barth Leick, Marcia Ann, Adjunct Instructor, Communication Sciences and Disorders, 1999 (1999); MA 1996 Northern Iowa

Bartholomay, Lyric C., Adjunct Associate Professor, Epidemiology, 2014 (2014);

Bartlett, Heather L., Clinical Adjunct Associate Professor, Pediatrics, 2004 (2013); BS 1991 Arizona College of Med; MD 1995 Arizona College of Med

Bartlett, Larry D., Emeritus Professor, Educ Policy Leadership Studies, 1985 (1994); BA 1964 Northern Iowa; JD 1974 Nebraska; PHD 1983 Iowa State

Bartlett, Luke Joseph, Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARM 2000 Iowa

Bartolome, Jasper Zitte Ea, Adjunct Instructor, Preventive Community Dentistry, 2014 (2014);

Barton, Lori A., Adjunct Instructor, Pharmacy, 2005 (2005); BS 1995 Iowa

Barwacz, Christopher Andrew, Assistant Professor, Prosthodontics/Dows Institute-Research, 2008 (2010); DDS 2007 Iowa

Bashir, Amani, Clinical Assistant Professor, Pathology, 2011 (2011); MBBS 1998 Jordan

Bashir, Mohammad, Clinical Assistant Professor, Cardiothoracic Surgery, 2013 (2013); MBBS 2003 University of Jordan

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Bauder, Stephanie Rene, Adjunct Lecturer, Marketing, 2012 (2012);

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Baumert, Paul Willard, Adjunct Instructor, Family Medicine, 2004 (2013); BS 1983 Iowa; MD 1987 Iowa

Baumgart, Barret Donatus, Adjunct Assistant Professor, English, 2014 (2014);

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Baxter, Sarah Emily, Adjunct Instructor, Health and Human Physiology, 2011 (2011); BS 2006 Samford; MA 2010 Iowa

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Bayless, John D., Emeritus Professor, Psychiatry, 1999 (2008); BS 1974 Wisconsin-Oshkosh; MS 1977 Wisconsin-Oshkosh; PHD 1986 Iowa

Bayman, Emine Ozgur, Assistant Professor, Anesthesia/Biostatistics, 2008 (2011); BA 1999 Hacettepe, Turkey; MS 2002 Bursa, Turkey; MS 2004 Iowa; PHD 2008 Iowa

Baynton, Douglas Cameron, Associate Professor, Communication Sciences and Disorders/History, 1993 (2002); BS 1986 Western Oregon State; MA 1988 Iowa; PHD 1993 Iowa

Bayon, Rodrigo, Clinical Assistant Professor, Otolaryngology-Head Neck Surgery, 2010 (2010); MD 2004 South Florida Med

Bayouth, John E., Adjunct Associate Professor, Biomedical Engineering/Radiation Oncology, 2004 (2004); BS 1988 Kansas State; MS 1991 Kansas State; PHD 1993 Texas

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Beck, Mary Gwen, Clinical Professor, Internal Medicine, 1997 (2010); MD 1994 Iowa

Becker, Nicole M., Assistant Professor, Chemistry, 2014 (2014);

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Becker, Thomas Edward, Clinical Adjunct Assistant Professor, Pediatrics, 1999 (1999); MD 1987 Iowa

Beckermann, Christoph, Professor, Mechanical Engineering, 1987 (1996); MS 1984 Purdue; PHD 1987 Purdue

Beckett, Andrew, Adjunct Assistant Professor, Educ Policy Leadership Studies, 2011 (2011); BS 1994 Truman State; MA 1996 Arizona; PHD 2006 Missouri-Columbia

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Beckley, Nicole Marie, Lecturer, Teaching and Learning, 2014 (2014);

Beckman, Jill N., Associate Professor, Linguistics, 1996 (2004); BA 1989 Michigan State; MA 1991 Ohio State; PHD 1998 Massachusetts

Beckwith, Paula Sue, Clinical Adjunct Assistant Professor, Surgery, 1993 (2003); MD 1984 Iowa

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Bednar, Thomas Michael, Lecturer, Management Sciences, 2009 (2009); BBA 1973 Iowa

Bebout, Susan, Clinical Adjunct Assistant Professor, Internal Medicine, 2005 (2008); BS 1997 Iowa State; MD 2001 Iowa

Beecher, Stephanie Lynn, Adjunct Instructor, University College Courses/Health and Human Physiology, 2010 (2010); BLS 2008 Coe; MA 2010 Iowa

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Beglinger, Leigh J., Associate Professor, Psychiatry, 2003 (2009); BS 1992 Idaho; MS 1995 Idaho; PHD 2000 Washington State

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Behnke, Aimee, Clinical Adjunct Assistant Professor, Pediatrics, 2014 (2014);

Behrendt, Douglas M., Emeritus Professor, Cardiothoracic Surgery, 1986 (1986); AB 1959 Amherst; MD 1963 Harvard

Behrens, Robert J., Clinical Adjunct Assistant Professor, Internal Medicine, 2005 (2005); BS 1992 Iowa State; MD 1997 Iowa

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Bell, Edward F., Professor, Pediatrics, 1979 (1988); BA 1969 Washington and Jefferson; MD 1973 Columbia

Bell, Gregory Russell, Clinical Associate Professor, Emergency Medicine, 2007 (2013); MD 1988 Ohio State

Bell, James Russell, Clinical Adjunct Assistant Professor, Family Medicine, 1999 (2002); BS 1980 Tulsa; MD 1983 Iowa

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Bell, William E., Emeritus Professor, Neurology/Pediatrics, 1962 (1972); BA 1951 West Virginia; MS 1951 West Virginia; MS 1953 West Virginia; MD 1955 Virginia

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Bello, Germaine D., Adjunct Instructor, Preventive Community Dentistry, 2007 (2007); DDS 2005 Iowa

Bellus, Paul, Adjunct Instructor, Communication Studies, 2001 (2001); BS 1993 Nebraska; MA 1995 Nebraska

Beltran-Garcia, Luis, Clinical Adjunct Assistant Professor, Internal Medicine, 2011 (2011); MD 2000 Pontificia

Beltz, Elizabeth A., Clinical Assistant Professor, Pharmacy, 1991 (1991); BSPH 1983 Purdue; PHARMD 1984 Purdue

Belz, Mark, Clinical Adjunct Associate Professor, Internal Medicine, 2003 (2006); BSEE 1991 Pittsburgh; BS 1991 Pittsburgh; MD 1995 Wash St. Louis

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Bender, David Paul, Clinical Associate Professor, Obstetrics Gynecology, 2004 (2011); BA 1991 Maine; MD 1995 Illinois

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Bennett, Andrea Patricia, Adjunct Instructor, Pharmacy Practice and Science, 2013 (2013);

Bennett, Darus Lee, Clinical Professor, Radiology, 2001 (2013); BS 1984 Arkansas; MA 1986 Washington; MD 1990 Arkansas

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Bennett, Jeffrey A., Associate Professor, Communication Studies, 2009 (2012); BA 1996 Wayne State; MA 1998 Northern Illinois; PHD 2004 Indiana

Bennett, John P., Clinical Adjunct Assistant Professor, Internal Medicine, 1991 (1991); MD 1985 George Washington

Bennett, Lisa, Adjunct Instructor, Preventive Community Dentistry, 2011 (2011); BA 2003 St Olaf; DDS 2007 Illinois

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Benson, Christopher J., Associate Professor, Pharmacology/Internal Medicine, 1999 (2006); BS 1986 St. John's; MD 1991 Minnesota

Benson, Rebecca Joy Timmer, Clinical Assistant Professor, Pediatrics, 2011 (2013); BA 1999 Hope College, MI; BS 1999 Hope College, MI; MD 2007 Iowa; PHD 2007 Iowa

Bentler, Ruth Ann Winnike, Professor, Communication Sciences and Disorders, 1977 (2002); BS 1971 Iowa; MA 1973 Iowa; PHD 1987 Iowa

Bentz, Dale M., Emeritus Professor, Library Information Science, 1953 (1964);

Benzon, Amanda Renee, Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARMD 2001 Iowa

Beran, Maureen Ruth, Adjunct Lecturer, Management Organizations, 2009 (2009); BA 2004 Iowa

Beranek, Randi Lea, Adjunct Assistant Professor, Pharmacy Practice and Science, 2010 (2012); PHARMD 2010 Drake

Berbaum, Kevin S., Professor, Radiology, 1977 (1993); BA 1971 Millikin; PHD 1978 State University of New York

Berg, Daniel J., Associate Professor, Internal Medicine, 1995 (2003); BS 1981 Illinois; MD 1986 Illinois

Berg, Joyce E., Professor, Accounting, 1992 (2010); BS 1979 Minnesota; MBA 1985 Minnesota; PHD 1988 Minnesota

Berg, Mark Thomas, Assistant Professor, Sociology, 2013 (2013);

Berg, Mary Susan, Clinical Associate Professor, Nursing, 1992 (2011); BSN 1988 Iowa; MSN 1997 Iowa; DNP 2009 Iowa

Bergen-Jackson, Kimberly Michele, Adjunct Assistant Professor, Nursing, 2014 (2014);

Berger, Herbert, Clinical Professor, Internal Medicine, 1992 (2005); BS 1981 Loyola; MD 1985 Loyola Stritch Schl of Medicin

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Bergman, Elizabeth June, Adjunct Assistant Professor, Dance, 2011 (2011); BA 2005 Desales Univ; MFA 2009 Iowa

Bergman, Marvin L., Adjunct Assistant Professor, History, 2010 (2010); MA 1979 Chicago, Divinity; PHD 1990 Chicago, Divinity

Bergman, Ronald A., Emeritus Professor, Anatomy Cell Biology, 1980 (1980); MS Illinois; BS 1950 Illinois; PHD 1955 Illinois

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Berman, Constance A., Professor, History, 1988 (1994); BA 1970 Carleton; MA 1972 Wisconsin-Madison; PHD 1978 Wisconsin-Madison

Berman, David H., Adjunct Associate Professor, Physics Astronomy, 1996 (2008); BA 1967 Carleton College; PHD 1976 Wisconsin

Bermel, Holley Ann, Clinical Adjunct Assistant Professor, Family Medicine, 2013 (2013);

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Bernstein, Neil P., Adjunct Professor, University College, 2010 (2010); BS 1975 Colorado State; MS 1977 John Carroll; PHD 1982 Minnesota

Berrey, Marquis Shane, Assistant Professor, Classics, 2011 (2011); BA 2003 St Olaf; MA 2006 Texas @ Austin; PHD 2011 Texas @ Austin

Berry, Erin M., Adjunct Assistant Professor, Pharmacy Practice and Science, 2013 (2013);

Berry, Sean R., Adjunct Lecturer, Law-Faculty, 2001 (2003); BBA 1982 Notre Dame; JD 1987 Northwestern

Berry, Stephen Joseph, Associate Professor, Journalism Mass Communication, 2003 (2006); BS 1970 Montevallo; MA 1984 North Carolina-Greensboro

Berry, Venise Torriana, Associate Professor, Journalism Mass Communication/African-American Studies, 1991 (1998); BA 1977 Iowa; MA 1979 Iowa; PHD 1989 Texas-Austin

Bertocci, Angelo P., Emeritus Professor, English, 1966 (1966);

Bertolatus, John Andrew, Associate Professor, Internal Medicine, 1982 (1992); BA 1972 Johns Hopkins; MD 1976 Johns Hopkins

Bessman-Quintero, Margaret Ann, Adjunct Instructor, Social Work, 2005 (2005); MSW 2005 Iowa

Best, Leyla, Clinical Adjunct Assistant Professor, Internal Medicine, 2012 (2012);

Bettendorf, Anthony John, Adjunct Instructor, University College, 2013 (2013); HS 1996 Foley High School; BA 2000 University of Minnesota; MS 2002 Western Illinois University

Bettis, Elmer Arthur Iii, Associate Professor, Earth and Environmental Sciences, 1995 (1995); BS 1975 Iowa State; MS 1979 Iowa State; PHD 1995 Iowa

Betts, Carl E., Emeritus Associate Professor, Communication Sciences and Disorders/Pediatrics, 1970 (1979); BA 1951 Iowa; MA 1957 Iowa; PHD 1963 Iowa

Beyer, John Peter, Adjunct Instructor, Pharmacy Practice and Science, 2014 (2014);

Beyer, Nancy Ellen, Clinical Assistant Professor, Pediatrics/Psychiatry, 2008 (2008); BA 1982 Iowa; MA 1985 Iowa; MD 2003 Iowa

Bhalla, Ramesh C., Emeritus Professor, Anatomy Cell Biology, 1973 (1982); BVSC 1957 Panjab-India; FRVCS 1962 Stockholm; PHD 1970 Wisconsin

Bhama, Jay Kumar, Clinical Associate Professor, Cardiothoracic Surgery, 2014 (2014);

Bhandary, Asha Leena, Assistant Professor, Philosophy, 2012 (2012);

Bhargava, Anuj, Clinical Adjunct Associate Professor, Internal Medicine, 2005 (2010); MBBS 1996 Manlana Azad Medical

Bhatia, Sudershan K., Clinical Associate Professor, Radiation Oncology, 2005 (2013); MD 1977 Allahabad; MPH 1986 John Hopkins; PHD 1992 John Hopkins

Bhatnagar, Ranbir K., Emeritus Professor, Pharmacology, 1971 (1981); BS 1954 Lucknow-India; DVM 1958 Agra-India; MS 1963 Michigan State; PHD 1971 Michigan State; MFA 1999 Iowa

Bhatt, Rajankumar, Adjunct Associate Professor, Mechanical Engineering/Biomedical Engineering, 2007 (2012); BE 2001 MS University; ME 2004 SUNY at Buffalo; DPHIL 2007 SUNY at Buffalo

Bhatti, M. Asghar, Professor, Civil-Environmental Engineering, 1980 (2006); BE 1972 Karachi-Pakistan; MS 1975 Calif-Berkeley; PHD 1980 Calif-Berkeley

Bhave, Prashant, Clinical Assistant Professor, Internal Medicine, 2013 (2013);

Bianchi, Alison J., Associate Professor, Sociology, 2007 (2010); MA 1998 Stanford; MA 2000 San Jose State; PHD 2001 Stanford

Bickenbach, Jackie R., Emeritus Professor, Anatomy Cell Biology/Dermatology, 1999 (2009); BS 1973 Iowa; MS 1979 Iowa; PHD 1982 Iowa; MA 1988 Iowa

Bickett-Weddle, Danelle, Adjunct Assistant Professor, Occupational Environmental Health, 2005 (2005); MPH 2003 Iowa

Bieber, Dale, Clinical Associate Professor, Internal Medicine/Pediatrics, 2007 (2007); BS 1969 Elizabethtown; MS 1972 Penn State; MD 1976 Penn State

Bieri, Linda Olson, Adjunct Instructor, Preventive Community Dentistry, 2002 (2002); DDS 1978 Iowa

Biger, Jacqueline Mayer Hockett, Lecturer, Teaching and Learning, 2013 (2013); BA 2003 University of Iowa; AMLS 2006 Simmons College

Bigolin, Simone, Adjunct Lecturer, Management Organizations/Management Sciences, 2009 (2009); MS 2003 Kansas; MBA 2003 University of Kansas

Bilbeisi, Ayah, Adjunct Instructor, Preventive Community Dentistry, 2012 (2012);

Bilek, Guy Otto, Adjunct Assistant Professor, Periodontics, 1973 (2000); BS 1968 Iowa; DDS 1972 Loyola; MS 1974 Iowa

Billiet, Gabriel Mcquade, Adjunct Assistant Professor, Pharmacy, 2005 (2005); PHARM 2003 Iowa

Bills, David B., Professor, Sociology/Educ Policy Leadership Studies, 1985 (2005); BA 1975 Edinboro State; MS 1977 Wisconsin-Madison; PHD 1981 Wisconsin-Madison

Bingham, Heather Lynne, Clinical Assistant Professor, Orthopaedics and Rehabilitation, 2008 (2008); BS 1997 Brigham Young University; MD 2004 Texas Southwestern, Dall

Biniak, Kelly Jeanne, Adjunct Assistant Professor, Pharmacy Practice and Science, 2010 (2010); PHARM 2009 Drake

Bird, Chad M., Adjunct Instructor, Pharmacy Practice and Science, 2013 (2013);

Bird, Robert Christopher, Adjunct Associate Professor, Management Organizations, 2014 (2014);

Birdsell, Michele M., Adjunct Instructor, Pharmacy, 1997 (1997); BS 1993 Iowa

Birrell, Susan J., Professor, Gender, Women's and Sexuality Studies/American Studies, 1980 (1992); BA 1968 St Lawrence; MS 1976 Massachusetts; PHD 1978 Massachusetts

Bishop, Gail A., Professor, Microbiology, 1989 (1998); BA 1977 St. Olaf; MS 1979 Wisconsin-Madison; PHD 1983 Michigan-Ann Arbor

Bishop, Warren P., Professor, Pediatrics, 1989 (2007); BA 1975 St. Olaf; MD 1979 Wisconsin-Madison

Bixenman, Susan Lynn, Adjunct Instructor, Social Work, 2006 (2006); MSW 2002 Iowa

Black, Benjamin Keith, Adjunct Lecturer, University College Courses, 2009 (2009); BS 2005 Central Arkansas; MS 2007 Central Arkansas

Black, Donald W., Professor, Psychiatry, 1986 (1996); BA 1978 Stanford; MD 1982 Utah

Black, Harold J., Emeritus Assistant Professor, Pharmacy, 1955 (1965); BS 1953 Iowa; MS 1955 Iowa

Blackhurst, Jennifer Jane Vincent, Adjunct Professor, Management Sciences, 2014 (2014);

Blair, Rebecca S., Lecturer, Rhetoric, 2012 (2012); PHD 1988 Univ Of Indiana- Bllomington

Blaise, Clark L., Emeritus Professor, English, 1981 (1990); BA 1961 Denison; MFA 1964 Iowa

Blanchard, Peter Floodstrand, Lecturer, Mathematics, 2001 (2006); BA 1986 Wisconsin @ Madison; MS

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Blanchard, Suzette Bea, Adjunct Lecturer, University College Courses/University College, 2012 (2012);

Blau, John L., Clinical Assistant Professor, Pathology, 2014 (2014);

Blau, Linsey Ann, Adjunct Assistant Professor, Pharmacy, 2005 (2005); PHARM 2003 Iowa

Blauevelt, Catherine Renee, Adjunct Assistant Professor, Division of Interdisciplinary Program, 2012 (2012);

Bleher, Frauke M., Professor, Mathematics, 2000 (2009); BS 1989 Stuttgart-Germany; MS 1993 Stuttgart-Germany; PHD 1995 Stuttgart-Germany

Blevins, Amy Emily Lynn, Adjunct Assistant Professor, Internal Medicine, 2014 (2014); HS 2000 Northwest High School; BA 2004 Saint Louis University; MA 2006 Univ. of Missouri-Columbia

Blew, Robert E., Adjunct Associate Professor, Family Dentistry, 1986 (2000); DDS 1974 Loyola

Block, Angela M., Adjunct Instructor, Preventive Community Dentistry, 2011 (2011); AASC 2006 Kirkwood

Block, Robert I., Associate Professor, Anesthesia, 1988 (1994); BA 1969 Shimer; MS 1972 Harvard; MS 1977 Rutgers; PHD 1981 Rutgers

Bloesch, Richard J., Emeritus Associate Professor, Music, 1967 (1974); BA 1952 Elmhurst; MDIV 1955 Union Theological Seminary; SMM 1959 Union Theological Seminary; DMA 1971 Illinois

Blondin, Martha Mckay, Clinical Adjunct Instructor, Nursing, 2000 (2000); MSN 1999 Iowa

Bloom, Stephen G., Professor, Journalism Mass Communication, 1993 (2004); BA 1973 California-Berkeley

Blum, Cinzia, Professor, Cinema Comparative Literature/French Italian/International Programs, 1989 (2009); MA 1985 Iowa; PHD 1989 Cornell

Blum, Nancee Sue Rose, Adjunct Instructor, Psychiatry, 1994 (1994); BA 1958 Iowa; MSW 1989 Iowa

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Blumberg, Mark S., Professor, Biology/Psychology, 1992 (2001); BA 1983 Brandeis; MA 1987 Chicago; PHD 1988 Chicago

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Boblenz, David Karl, Adjunct Assistant Professor, Pharmacy Practice and Science, 2005 (2005); PHARM 1997 Iowa

Bobst, Ryan Daniel, Adjunct Instructor, Social Work, 2011 (2011); BSW 2009 Iowa; MSW 2011 Iowa

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- Bodin, Eric**, Lecturer, English as Second Language, 2010 (2010); BA 1998 Iowa State; MA 2002 Iowa State
- Bodnar, Richard Lee**, Adjunct Assistant Professor, Mechanical Engineering, 2010 (2010); MS 1977 Pennsylvania
- Boe, Warren J.**, Emeritus Professor, Management Sciences, 1970 (1991); BA 1960 Luther; MS 1964 Iowa State; PHD 1970 Purdue
- Boehmke, Frederick J.**, Professor, Political Science/Public Policy Center, 2000 (2013); BA 1995 Washington; MA 1998 Calif Inst of Technology; PHD 2000 Calif Inst of Technology
- Boggess Jr., Thomas F.**, Professor, Electrical-Computer Engineering/Physics Astronomy, 1989 (1996); BS 1978 Lamar; MS 1980 North Texas State; PHD 1982 North Texas State
- Bognar, Matthew Allyn**, Lecturer, Statistics Actuarial Science, 2002 (2006); BS 1992 Wisconsin-LaCrosse; MS 1994 Wisconsin; PHD 2002 Iowa
- Bogue, Richard J.**, Clinical Associate Professor, Nursing, 2012 (2012);
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- Bohde, Rebecca Sue**, Adjunct Assistant Professor, German, 1995 (2002); BA 1972 Cornell College; MA 1979 Christian-Albrechts-Universita; PHD 1991 Iowa
- Bohnenkamp, David Mark**, Clinical Associate Professor, Prosthodontics, 2013 (2013);
- Bohr, Lindsey June**, Adjunct Assistant Professor, Pharmacy Practice and Science, 2009 (2011); PHARMD 2009 Iowa
- Boldt, H. Culver**, Professor, Ophthalmology Visual Science, 1992 (2006); BS 1982 Northwestern; MD 1984 Northwestern
- Boles, Blaise Ronald**, Assistant Professor, Microbiology, 2014 (2014); BS 1998 UI; MS 2002 UI
- Boles, Terry L.**, Emeritus Associate Professor, Management Organizations, 1993 (2001); BA 1986 California-Santa Barbara; PHD 1991 California-Santa Barbara
- Bolger, Holly-Marie**, Clinical Assistant Professor, Obstetrics Gynecology, 2011 (2011); BA 2003 Drake; DO 2007 Des Moines
- Bollier, Matthew John**, Clinical Assistant Professor, Orthopaedics and Rehabilitation, 2010 (2010); BA 2000 Wheaton; MD 2004 Loyola Stritch
- Bolton, Linda**, Associate Professor, English, 1994 (2002); BA 1977 Smith; MA 1983 Brandeis; PHD 1994 Arizona
- Bond, Sarah Emily**, Assistant Professor, Classics, 2014 (2014);
- Bonfield, Arthur E.**, Professor, Law-Faculty, 1962 (1966); BA 1956 Brooklyn; JD 1960 Yale; LLM 1961 Yale
- Bonfig, Christine Marie**, Adjunct Assistant Professor, Pharmacy Practice and Science, 2010 (2010); PHARMD 2008 Iowa
- Bonney, William W.**, Emeritus Associate Professor, Urology, 1969 (1973); AB 1953 Whittier; MD 1961 UCLA
- Bonthius, Daniel Joseph**, Professor, Neurology/Pediatrics, 1991 (2008); BS 1982 Iowa; PHD 1990 Iowa; MD 1990 Iowa
- Bonthius, Nancy E.**, Clinical Assistant Professor, Pediatrics, 1994 (1994); BS 1986 Iowa; PHARMD 1990 Iowa
- Book, Larry**, Adjunct Instructor, Preventive Community Dentistry, 2009 (2009); DDS 1965 Iowa
- Boos, Florence**, Professor, International Programs/English, 1973 (1982); BA 1964 Michigan; MA 1965 Harvard; PHD 1972 Wisconsin
- Boothroy, Bonnie Mitchell**, Adjunct Lecturer, Educ Policy Leadership Studies, 2014 (2014);
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- Borgwardt, Derek S.**, Adjunct Assistant Professor, Periodontics, 2011 (2011); DDS 2008 Iowa
- Borgwardt, Michelle Renay**, Adjunct Assistant Professor, Physical Therapy, 2010 (2012); DPT 2008 Iowa
- Bork, Byron E.**, Lecturer, Physical Therapy, 1976 (1984); MA 1967 Iowa
- Bork, Robert**, Professor, Art Art History, 1998 (2012); BA 1989 Harvard; MS 1990 California-Santa Cruz; MA 1993 Princeton; PHD 1996 Princeton
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- Bosch, Joni Jacobsen**, Adjunct Assistant Professor, Nursing, 1986 (1998); MA 1986 Iowa; PHD 1993 Iowa
- Boss, Douglas**, Clinical Adjunct Assistant Professor, Family Medicine, 2009 (2009); BA 1979 Hastings, NE; MD 1986 Chicago
- Bossler, Aaron Douglas**, Clinical Associate Professor, Pathology, 2005 (2011); PHD 2001 Iowa; MD 2001 Iowa
- Boster, Frank J.**, Adjunct Professor, Community Behavioral Health, 2004 (2004); BA 1972 Southern Illinois; MS 1975 Southern Illinois; PHD 1978 Michigan State
- Bottei, Edward M.**, Clinical Adjunct Assistant Professor, Internal Medicine/Pharmacy/Pediatrics/Occupational Environmental Health, 2002 (2002); BS 1988 Notre Dame; MD 1992 Chicago
- Boucher, Eric**, Adjunct Lecturer, Economics, 2011 (2011); BS 2009 Iowa; MS 2011 Iowa
- Bourgeacq, Jacques A.**, Emeritus Professor, French Italian, 1969 (1982); MA 1965 St. Louis; PHD 1972 Iowa
- Bourgeois, Brandon Elliott**, Clinical Adjunct Assistant Professor, Obstetrics Gynecology, 2013 (2013);
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- Bouska, Jason Alan**, Adjunct Assistant Professor, Endodontics, 2012 (2012); BA 2002 University of Iowa; DDS 2006 University of Iowa

- Boutros, Rami**, Clinical Professor, Pediatrics, 2011 (2011); MD 1989 Damascus; MBA 2009 UMASS
- Bovbjerg, Viktor E.**, Adjunct Associate Professor, University College Courses, 2014 (2014);
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- Bowden, Ned B.**, Associate Professor, Chemistry, 2002 (2009); BS 1994 California-Technology; MS 1997 Harvard; PHD 1999 Harvard
- Bowdler, Noelle Clare**, Clinical Professor, Obstetrics Gynecology, 1988 (2009); BA 1978 Michigan State; MD 1982 Michigan
- Bowers, Wayne A.**, Clinical Professor, Psychiatry, 1988 (2001); BA 1974 Wisconsin-Oshkosh; MS 1976 Wisconsin-Oshkosh; PHD 1987 Iowa
- Bowes, Amy Elizabeth**, Adjunct Instructor, University College Courses, 2014 (2014);
- Bowlus, Dawn Marie**, Adjunct Lecturer, Management Organizations, 2010 (2013); BA 1993 Luther College
- Boyd, Gregory Scott**, Instructor, Military Science, 2003 (2003);
- Boyd, Willard L.**, Professor, Law-Faculty, 1954 (1961); BLS 1949 Minnesota; LLB 1951 Minnesota; LLM 1952 Michigan; SJD 1962 Michigan
- Boyer, Daniel B.**, Emeritus Professor, Operative Dentistry, 1974 (1988); BA 1966 Iowa; DDS 1970 Iowa; PHD 1974 Polytechnic Institute
- Boyer, Floyd R.**, Adjunct Instructor, Pharmacy, 1998 (1998); BS 2000 Iowa
- Boyle, Don E.**, Emeritus Assistant Professor, Surgery, 1978 (1978); MD 1963 Iowa
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- Carter, Barry L.**, Professor, Pharmacy, 2000 (2000); BS 1978 Iowa; PHARM 1980 Virginia
- Carter, David Alan**, Adjunct Associate Professor, Finance, 2009 (2009); BS 1985 Brigham Young; MBA 1990 Utah; PHD 1996 Georgia
- Carter, James G.**, Emeritus Associate Professor, Anesthesia, 1977 (1981); BA 1948 Iowa; MD 1952 Iowa
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Chandran, Prem K., Clinical Adjunct Associate Professor, Internal Medicine, 1987 (1999); MBBS 1973 Kerala-India

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Chang, Yu-Hui Huang, Adjunct Assistant Professor, Biostatistics, 2010 (2010); MA 2001 Boston; MS 2006 Iowa; PHD 2010 Iowa

Chanthanakone, Peter, Assistant Professor, Art Art History, 2012 (2012);

Chapleau, Mark W., Professor, Physiology/Internal Medicine, 1989 (2004); BS 1977 Wisconsin-Whitewater; PHD 1985 Louisiana State

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- Cohen, Michael B.**, Emeritus Professor, Pathology/Urology, 1990 (1996); BA 1977 Haveford; MD 1982 Albany Medical
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- Colbert, Michael William**, Lecturer, Management Sciences, 2007 (2007); BS 1994 Culver-Stockton
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- Cole, Renee Susan**, Associate Professor, Chemistry, 2011 (2011); BA 1992 Hendrix, AR; MS 1995 Oklahoma; PHD 1998 Oklahoma
- Coleman, Carla Rae**, Lecturer, Teaching and Learning, 2004 (2014); BA 1986 Luther College; MA 1993 Northern Iowa
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- Colker, Ruth**, Adjunct Professor, Law-Faculty, 2014 (2014);
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- Collins, Daniel W.**, Professor, Accounting, 1977 (1981); BBA 1968 Iowa; PHD 1973 Iowa
- Collins, David E.**, Lecturer, Marketing, 1997 (2000); BS 1974 Iowa
- Collins, Paul J.**, Emeritus Associate Professor, Periodontics, 1969 (1982); DDS 1966 Iowa; MS 1973 Iowa
- Collins, Steve M.**, Emeritus Professor, Electrical-Computer Engineering, 1976 (1987); BS 1971 Illinois-Chicago; MS 1974 Illinois-Chicago; PHD 1977 Illinois-Chicago
- Collins, Thomas**, Clinical Associate Professor, Surgery, 2007 (2012); MD 2000 Texas
- Colvin, Carolyn**, Associate Professor, Teaching and Learning, 1991 (1997); BA 1971 Doane; MED 1981 Nebraska-Lincoln; PHD 1987 Nebraska-Lincoln
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- Conley, Virginia Mary**, Clinical Associate Professor, Nursing, 2010 (2011); BS 1993 Excelsior; MN 1996 Wyoming; PHD 2001 South Florida

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Cook, Brian L., Emeritus Professor, Psychiatry, 1986 (2001); BA 1976 Grinnell; DO 1979 Col of Osteopathic Med Surge; MS 1984 Iowa

Cook, Jennifer, Clinical Adjunct Assistant Professor, Pediatrics, 1999 (1999); MD 1985 Iowa

Cook, Robert T., Emeritus Professor, Pathology, 1977 (1996); AB 1958 Kansas; MD 1962 Kansas; PHD 1967 Kansas

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Cook, Susan Wagner, Assistant Professor, Psychology, 2008 (2008); BS 2000 Chicago; PHD 2006 Chicago

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Cruikshank, Brenda M., Emeritus Associate Professor, Pediatrics, 1972 (1995); BA 1964 DePauw; MD 1967 North Carolina

Cryer, Jonathan D., Emeritus Professor, Statistics Actuarial Science, 1966 (2000); BA 1961 DePauw; PHD 1966 North Carolina

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Cummings, Stephen Paul, Clinical Assistant Professor, Social Work, 2005 (2012); BA 1994 Iowa; MSW 2002 Iowa

Cummins, Phillip D., Emeritus Professor, Philosophy, 1963 (1974); BA 1957 Iowa; MA 1959 Iowa; PHD 1961 Iowa

Cunliffe, Paul William, Adjunct Assistant Professor, Dance, 2002 (2002);

Cunning, David, Associate Professor, Philosophy, 2003 (2007); BA 1993 California, @ Berkeley; MA 1996 California @ Irvine; PHD 2000 California @ Irvine

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Davidson, Ashley Rose, Adjunct Assistant Professor, Creative Writing, 2012 (2012);

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Devane, Benjamin Mitchell, Assistant Professor, Psych Quant Foundations, 2013 (2013);

Devine, Arthur William, Clinical Adjunct Assistant Professor, Urology, 1999 (1999); MD 1977 Iowa

Devocht, James William, Adjunct Associate Professor, Biomedical Engineering, 1997 (2014); PHD 1996 Iowa

Devolder, Russell David, Adjunct Assistant Professor, Pharmacy Practice and Science, 2013 (2013);

Devor, Eric, Assistant Professor, Obstetrics Gynecology, 2010 (2010); BS 1972 New Mexico; MS 1977 New Mexico; PHD 1979 New Mexico

Devries, Steven Nelson, Adjunct Professor, Health and Human Physiology, 2013 (2013);

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Dicharry, Bradley Clark, Associate Professor, Art Art History, 2008 (2013); BFA 2001 Tennessee Chatta; MA 2003 Iowa; MFA 2005 Iowa

Dick, David Wayne, Clinical Assistant Professor, Radiology, 2011 (2011); BS 1999 Western Washington; MS 2003 Madison; PHD 2004 Madison

Dickerson, Nikolas, Lecturer, American Studies, 2012 (2012); BA 2005 Ithica College; MA 2007 University of Maryland

Dickson, Eric W., Adjunct Professor, Emergency Medicine, 2003 (2007); BA 1991 Merrimack; MD 1995 Massachusetts

Dickson, James Sparrow, Adjunct Professor, Epidemiology, 2009 (2009); BA 1977 Clemson; MA 1980 Georgia; PHD 1984 Nebraska-Lincoln

Diehl, Beth Anne, Adjunct Assistant Professor, Pharmacy Practice and Science, 2012 (2012);

Diehl, Paul B., Emeritus Associate Professor, English, 1975 (1981); BA 1966 Texas; MA 1970 Texas; PHD 1976 Texas

Diekema, Daniel James, Clinical Professor, Internal Medicine/Pathology, 1999 (2008); BA 1985 Calvin; MD 1989 Vanderbilt; MS 1995 Iowa

Dietz, Cory Lynn, Clinical Adjunct Assistant Professor, Family Medicine, 1994 (2002); MD 1990 Iowa

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Diffley, Kathleen, Associate Professor, English, 1983 (1991); BA 1972 Bard; MED 1974 Harvard; MA 1977 Columbia; MPHIL 1980 Columbia; PHD 1983 Columbia

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Ding, Hongtao, Assistant Professor, Mechanical Engineering, 2012 (2012);

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Dixon, Bradley S., Associate Professor, Internal Medicine, 1990 (1994); BS 1975 Arizona State; MD 1979 Southern California

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Dobyns, Richard Craig, Clinical Professor, Family Medicine/International Programs, 1988 (2004); BA 1978 St. Olaf; MD 1983 Minnesota

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Dolan Jr., Patrick Anthony, Lecturer, Rhetoric, 1993 (2001); PHD 1994 Iowa

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Doolittle, Jeffrey J., Clinical Adjunct Assistant Professor, Family Medicine, 2012 (2012);

Doorenbos, Roy Allen, Clinical Adjunct Assistant Professor, Family Medicine, 1995 (2002); MD 1983 Iowa

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Doucette, William R., Professor, Pharmacy, 1996 (2007); BS 1983 Wisconsin; MS 1988 Wisconsin; PHD 1993 Wisconsin

Dougherty, Joseph Dennis, Adjunct Instructor, Preventive Community Dentistry, 2014 (2014);

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Fletcher, Steven Lloyd, Clinical Assistant Professor, Oral Maxillofacial Surgery, 2010 (2010); BS 1998 Brigham Young; DDS 2006 Iowa

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Fox, Claire, Professor, Spanish Portuguese/International Programs/English, 2001 (2014); BA 1986 Yale; MA 1988 Iowa; PHD 1995 Iowa

Fox, Matthew G., Clinical Adjunct Assistant Professor, Family Medicine, 1999 (2002); BS 1988 Appalachian State; MD 1994 South Dakota

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Galbraith, William B., Emeritus Professor, Internal Medicine, 1994 (1995); BS 1953 Arizona State; MD 1957 George Washington

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Gales, Christie Anne, Adjunct Instructor, Preventive Community Dentistry, 2009 (2009); AASC 2002 Kirwood Community

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Gallo, John Gregory, Lecturer, Finance, 2008 (2010); BGS 1978 Iowa; MBA 1983 Texas, Arlington; PHD 1992 Texas, Arlington

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- Gazsi, Denes**, Assistant Professor, French Italian, 2009 (2011); MA 2004 Eotvos Lorand Univ; PHD 2010 Eotvos Lorand Univ
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- Gehl, Brian Kenneth**, Adjunct Assistant Professor, Psychology, 2009 (2010); BA 1999 Jamestown; PHD 2010 Iowa
- Gehlbach, Brian**, Clinical Associate Professor, Internal Medicine, 2011 (2011); MD 2005 Washington
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- Gelfand, Miriam J.**, Emeritus Assistant Professor, Russian, 1962 (1986); BA 1946 St Johns-China
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- Geng, Maxwell Lei**, Professor, Chemistry, 1995 (2008); BS 1986 Science and Technology-China; PHD 1994 Duke
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- Gentil-Archer, Anne Christine**, Lecturer, Nursing, 2010 (2010); BSN 2002 Iowa
- Gentry, Brian Alan**, Instructor, Military Science, 2006 (2006);
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- George-Paulsen, Leslie Elise**, Clinical Assistant Professor, Family Medicine, 2013 (2013);
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- Gerhold, Linda Susan**, Lecturer, Biology, 1988 (2003); PHD 1987 Iowa
- Gerke, Alicia**, Assistant Professor, Internal Medicine, 2008 (2012); BS 1998 South Florida, Tampa; MBA 2002 South Florida, Tampa; MD 2002 South Florida, Tampa
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- Gerstmyer, Robert H. M.**, Lecturer, Law-Faculty, 2012 (2012);
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- Gettemy, Robert E.**, Adjunct Lecturer, Management Organizations, 2008 (2008); BA 1987 Northern Iowa; MBA 1989 Drake
- Getz, Christine**, Professor, Music, 1999 (2012); BM 1979 Evansville; MM 1982 Southern Illinois; PHD 1991 Texas
- Geweke, John F.**, Emeritus Professor, Economics/Statistics Actuarial Science, 1999 (1999); BS 1970 Michigan State; PHD 1975 Minnesota
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- Gilbertson-White, Stephanie**, Assistant Professor, Nursing, 2013 (2013);
- Gilchrist, Matthew James**, Lecturer, Rhetoric, 2006 (2011); BA 2001 Tennessee; MFA 2004 Iowa
- Gilg, Joseph**, Adjunct Instructor, Internal Medicine, 2005 (2005); BS 1983 Nebraska; MD 1987 Nebraska Med
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- Gillum, Matthew P.**, Assistant Professor, Neurology, 2011 (2011); PHD 2010 Yale
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- Goeken, Nancy Smith**, Emeritus Professor, Internal Medicine, 1983 (1993); BA 1968 Missouri; PHD 1972 Missouri
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- Goerdt, Christopher John**, Clinical Professor, Internal Medicine, 1994 (2007); BA 1983 Iowa; MD 1988 Iowa; MPH 1994 Minnesota
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Gullickson, Gregory Leo, Adjunct Assistant Professor, Psychology, 2000 (2001); BA 1979 Notre Dame; MA 1983 Iowa; PHD 1993 Iowa

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Guzman, Elizabeth Eunice, Adjunct Instructor, Spanish Portuguese, 2007 (2007); BA 1977 Santiago; MA 1985 West Virginia

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Hageman, Kara Renee, Adjunct Instructor, Psych Quant Foundations, 2013 (2013); BA 1996 Wartburg College; MAT 1999 University of Iowa

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Harvey, John H., Emeritus Professor, Psychology, 1986 (1986); BS 1968 South Carolina; MA 1970 Missouri; PHD 1971 Missouri

Harvey, Roger Lee, Clinical Adjunct Assistant Professor, Internal Medicine, 2006 (2006); BS 1979 Iowa; DO 1983 Osteopathic Medicine

Harvey, Trevor Scott, Lecturer, Music, 2011 (2011); MM 2006 Florida State; PHD 2009 Florida State

Harwani, Sailesh C., Assistant Professor, Internal Medicine, 2013 (2014);

Hasan, Ali Majed, Assistant Professor, Philosophy, 2008 (2008); BA 2001 Washington; MA 2005 Washington; PHD 2008 Washington

Hasan, David, Associate Professor, Neurosurgery/Otolaryngology-Head Neck Surgery, 2008 (2013); BS 1995 Dallas Baptist, Texas; MD 2000 Texas Tech

Haskell, Sarah E., Assistant Professor, Pediatrics, 2011 (2011); BS 2001 Nebraska; DO 2005 Kansas City

Haskins, Motier Fredrick, Clinical Assistant Professor, Social Work, 2008 (2008); MSW 1983 Syracuse

Hassan, Ihab Hassan, Clinical Assistant Professor, Internal Medicine, 2011 (2011); MD 2004 Am, Beirut

Hassan, Imran, Clinical Associate Professor, Surgery, 2014 (2014);

Hatcher, William B., Emeritus Professor, Music, 1987 (1987); BME 1957 Nebraska-Lincoln; MMUS 1960 Nebraska-Lincoln

Haug, Edward J., Emeritus Professor, Mechanical Engineering, 1968 (1976); BS 1962 Missouri; MS 1964 Kansas State; PHD 1966 Kansas State

Haugen, Alice Bordwell Fulton, Emeritus Professor, Biochemistry, 1981 (1993); BS 1973 Brown; PHD 1977 Brown

Haugen, Eric, Clinical Adjunct Assistant Professor, Pediatrics, 2004 (2004); BS 1995 Drake; MD 2000 North Dakota

Haugen, Thomas H., Associate Professor, Pathology, 1990 (1997); BA 1971 California-Berkeley; PHD 1976 California-Davis; MD 1983 Iowa

Haugland, Ann Beret, Lecturer, Journalism Mass Communication, 2002 (2005); BA 1974 Carleton; MA 1986 Minnesota; PHD 1992 Iowa

Haugland, Frank N., Clinical Adjunct Assistant Professor, Internal Medicine, 2001 (2001); BS 1980 Iowa; MD 1987 Iowa; PHD 1987 Iowa

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Hauser, James P., Adjunct Associate Professor, Industrial Engineering, 2007 (2007); PHD 1974 Colorado

Hauser, Scott Richard, Adjunct Lecturer, Management Organizations, 2005 (2005); MBA 1993 Northern Iowa

Hauserman, Nancy Russell, Emeritus Professor, Management Organizations, 1977 (1995); BA 1971 Rhode Island; JD 1976 Iowa

Hausman-Miller, Brenda, Adjunct Instructor, Preventive Community Dentistry, 2006 (2006); DDS 2002 Iowa

Havel, Jessica Kay, Adjunct Assistant Professor, Pharmacy Practice and Science, 2003 (2003); PHARM D 2000 Iowa

Havel, Richard, Adjunct Lecturer, Urban Regional Planning, 2011 (2011); MA 1993 Southwest Missouri

Havens, Timothy John, Professor, African-American Studies/Communication Studies, 2003 (2014); BA 1990 Wisconsin; MA 1994 George Mason; DPHIL 2000 Indiana

Hawkins, Benny F., Emeritus Associate Professor, Periodontics, 1978 (1978); BS 1952 Morehouse; DDS 1958 Meharry; MS 1972 Iowa

Hawley, Clifford B., Adjunct Professor, Economics, 2009 (2009); PHD 1977 Duke

Hawley, Ellis W., Emeritus Professor, History, 1969 (1969);

Hawtrey, Charles E., Emeritus Professor, Urology, 1969 (1977); BA 1957 Grinnell; MD 1961 Iowa

Hayakawa, Minako, Clinical Assistant Professor, Radiology/Neurology, 2003 (2003); MD 1990 ST MARIANNA, JAPAN

Haycraft, Edwin J., Adjunct Instructor, Social Work, 2007 (2007); BSW 2001 Iowa; MSW 2003 Iowa

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Haynes, Kevin, Adjunct Lecturer, Law-Faculty, 2011 (2011); BA 1986 Rice University; JD 1991 Stanford Law

Haynes, Melissa Jean, Adjunct Assistant Professor, Psych Quant Foundations, 2009 (2009); BA 2002 Coe College; PHD 2009 Iowa

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Hazeltine, Richard Eliot, Associate Professor, Psychology, 2003 (2009); BA 1990 Harvard; PHD 1997 California

Hazelton, Lisa M., Clinical Adjunct Assistant Professor, Internal Medicine, 2000 (2000); MD 1987 Louisville Medical

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Heckel, Philip H., Emeritus Professor, Earth and Environmental Sciences, 1971 (1978); BA 1960 Amherst; PHD 1966 RICE

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Hegeman, Robert James, Clinical Associate Professor, Internal Medicine, 2010 (2010); MD 1977 Michigan

Heggen, Judith, Clinical Adjunct Assistant Professor, Pediatrics, 2002 (2002); AA 1981 DES MOINES AREA COMMUNITY; BS 1991 DRAKE; DO 1996 OSTEOPATHIC-DES MOINES

Hegmann, Theresa Elaine, Clinical Professor, Physician Assistant, 2001 (2012); BS 1987 Iowa; BS 1991 Iowa; MPAS 1999 Nebraska

Hehr, Nathan J., Adjunct Instructor, Preventive Community Dentistry, 2002 (2002); DDS 1993 Iowa

Heiar, Kurt Francis, Lecturer, Management Organizations, 2013 (2013);

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Heidger, Paul M., Emeritus Professor, Anatomy Cell Biology, 1974 (1979); BA 1963 Northern Colorado; PHD 1967 Tulane

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Hein, Kalina Renae, Lecturer, English as Second Language, 2014 (2014);

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Heiner, Anneliese D., Adjunct Assistant Professor, Biomedical Engineering, 2001 (2001); BS 1990 Michigan; MS 1992 Case Western Reserve; PHD 1995 Case Western Reserve

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Heintz, James A., Adjunct Professor, Accounting, 2010 (2010); DBA 1972 Washington@ St. Louis

Heintz, Shannon Joy, Clinical Assistant Professor, Pharmacy Practice and Science, 2012 (2012);

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Heitzman, Kendall, Assistant Professor, Asian Slavic Languages Literature, 2012 (2012);

Hellman, Mallory Rae, Adjunct Assistant Professor, Division of Interdisciplinary Program, 2014 (2014);

Hellstein, John W., Professor, Oral Path,RadiologyMedicine, 2002 (2002); BA 1977 Missouri-Kansas City; DDS 1991 Missouri-Kansas City; MS 1991 Iowa

Helmers, Laurilyn Dee, Clinical Associate Professor, Anesthesia, 1996 (2011); BS 1979 South Dakota; MD 1991 Iowa

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Helms, Lelia Biggs, Emeritus Professor, Educ Policy Leadership Studies, 1979 (1993); BA 1964 Sarah Lawrence; MA 1966 Tufts; PHD 1968 Tufts; JD 1984 Iowa

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Hendricks, Janie C., Clinical Adjunct Instructor, Internal Medicine, 2000 (2000); DO 1992 Osteopathic-Des Moines

Hendrickson, Jo M., Professor, Teaching and Learning, 1989 (1996); BA 1969 Wisconsin-Madison; MA 1971 Wisconsin-Madison; PHD 1977 George Peabody

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Henry, Michael Darrin, Associate Professor, Pathology/Physiology, 2003 (2003); BS 1989 Georgia; PHD 1995 M.I.T.

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Henstrom, Douglas, Clinical Assistant Professor, Otolaryngology-Head Neck Surgery, 2011 (2011); MD 2004 Iowa

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High, Mary Kathryn, Lecturer, Communication Studies, 2012 (2012);

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Hill, Judith, Adjunct Instructor, Preventive Community Dentistry, 2005 (2005); DDS 1981 Washington

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Hill, Matthew Larry, Clinical Adjunct Assistant Professor, Internal Medicine, 2008 (2008); BA 1994 Northern Iowa; DO 2000 Des Moines, IA

Hill, Matthew E., Associate Professor, Anthropology, 2007 (2014); BA 1990 Boston; MA 1994 Kansas; PHD 2007 Arizona

Hill, Maureen Mcvaney, Lecturer, Teaching and Learning, 2007 (2007); BA 1993 IOWA; MA 2000 Iowa

Hill, Michael, Associate Professor, English/African-American Studies, 2006 (2013); BA 1993 Howard; MA 1995 Harvard; PHD 2004 Harvard

Hill, Ryan William, Clinical Assistant Professor, Hospital Dentistry, 2012 (2012); HS 2003 Iowa City High

Hill, Tracy Ann, Adjunct Instructor, Preventive Community Dentistry, 2000 (2000); BS 1983 Iowa

Hillis, Stephen Lawrence, Professor, Biostatistics/Radiology, 1995 (2010); BA 1972 Iowa; MFA 1978 Iowa; MS 1982 Iowa; PHD 1987 Iowa

Himadi, Elaine, Clinical Assistant Professor, Emergency Medicine/Psychiatry, 2011 (2011); BS 1974 North Carolina, Chapel Hill; MD 1978 Bowman-Gray NC

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Hindelang, Thomas Joseph, Adjunct Professor, Finance, 2011 (2014); PHD 1973 Indiana

Hindes, Charles A., Emeritus Professor, Art Art History, 1973 (1985); BFA 1966 Illinois; MFA 1968 Rhode Island School of Design

Hindman, Bradley J., Professor, Anesthesia, 1988 (2002); BA 1978 Oregon; MD 1982 Oregon Health Sciences

Hines, John David, Clinical Adjunct Assistant Professor, Internal Medicine, 2006 (2006); BA 1980 Simpson; DO 1989 Des Moines

Hines, N. William, Emeritus Professor, Law-Faculty, 1962 (1967); AB 1958 Baker; LLB 1961 Kansas

Hingstman, David, Associate Professor, Communication Studies, 1995 (2002); BA 1975 Princeton; JD 1978 Harvard; PHD 1990 Northwestern

Hirsch, Raphael, Professor, Pediatrics, 2012 (2012);

Hirsch-Giller, Barbara, Adjunct Instructor, Social Work, 2003 (2003); BA 1998 Simpson; MSW 2001 Iowa

Hitchon, Patrick, Professor, Neurosurgery/Biomedical Engineering, 1980 (1989); BS 1969 American University of Beirut; MD 1974 American University of Beirut

Hitlin, Steven, Associate Professor, Sociology, 2005 (2011); BA 1996 William and Mary; MA 1999 Wisconsin; PHD 2003 Wisconsin

Ho, Beng Choon, Professor, Psychiatry, 1999 (2014); MD 1989 Singapore

Hoballah, Jamal Jawad, Emeritus Professor, Surgery, 1991 (2002); BS 1976 Amer Univ of Beirut-Lebanon; MD 1981 Amer Univ of Beirut-Lebanon

Hobbs, Ryan Alan, Adjunct Associate Professor, Pharmacy, 1997 (2010); BS 1990 Iowa; BSPH 1990 Iowa

Hochstrasser, Julie B., Associate Professor, Art Art History/International Programs, 1998 (2004); BA 1976 Swarthmore; MA 1984 Berkeley; PHD 1995 Berkeley

Hockenberry, Jason, Adjunct Assistant Professor, Health Management Policy, 2008 (2008); BS 2002 Kutztown; PHD 2008 Lehigh

Hodgson-Zingman, Denice, Associate Professor, Internal Medicine/Biomedical Engineering, 2006 (2013); BSE 1989 Johns Hopkins; MSE 1992 Johns Hopkins; MD 1996 Johns Hopkins

Hoehle, Zanetta Jane, Adjunct Instructor, Radiology, 2013 (2013); BS 1982 University of Iowa; MA 1997 University of Iowa

Hoehns, James Dewey, Clinical Associate Professor, Pharmacy, 1995 (2004); BSPH 1992 Iowa; PHARM 1994 Iowa

Hoenicke-Moore, Michaela, Associate Professor, History/International Programs, 2007 (2011); MA 1989 N. Carolina, Chapel Hill; PHD 1998 N. Carolina, Chapel Hill

Hoening, Kelly Christine, Adjunct Associate Professor, Pharmacy, 2005 (2014); PHARM 2003 Iowa

Hoepfner, Todd Roger, Adjunct Assistant Professor, Pediatric Dentistry, 2001 (2001); DDS 1999 Iowa

Hoffman, Eric Alfred, Professor, Biomedical Engineering/Internal Medicine/Radiology, 1992 (1996); BA 1974 Antioch; PHD 1981 Minnesota

Hoffman, Gary D., Adjunct Instructor, Preventive Community Dentistry, 2002 (2002); DDS 1978 Iowa

Hoffman, Henry T., Professor, Radiation Oncology/Otolaryngology-Head Neck Surgery, 1990 (2000); BA 1976 South-Tennessee; MD 1980 California-San Diego

Hoffman, Valerie Forman, Adjunct Assistant Professor, Epidemiology/Internal Medicine, 2004 (2004); BA 1996 Lehigh; MPH 1999 Yale; PHD 2002 John Hopkins

Hoffmann, Darren Samuel, Lecturer, Oral Path,RadiologyMedicine/Anatomy Cell Biology, 2006 (2006); BA 2000 Concordia; PHD 2006 Iowa

Hoffmann, Jeffrey J., Clinical Adjunct Assistant Professor, Family Medicine, 1994 (2002); BS 1976 Loras; DO 1984 Osteopathic Medicine-Des Moine

Hoffmann, Louis G., Emeritus Professor, Microbiology, 1964 (1973); BA 1953 Wesleyan; MS 1958 Johns Hopkins; SCD 1960 Johns Hopkins

Hofmeyer, Brooke Anne Steed, Adjunct Instructor, Pharmacy Practice and Science, 2014 (2014);

Hogan, Michael Joseph, Emeritus Professor, History, 2004 (2004); BA 1965 Northern Iowa; MA 1967 Iowa; PHD 1974 Iowa

Hoganson, Deana D., Clinical Adjunct Assistant Professor, Internal Medicine, 2012 (2012);

Hogg, Robert V., Emeritus Professor, Statistics Actuarial Science, 1948 (1962); BA 1947 Illinois; MS 1948 Iowa; PHD 1950 Iowa

Hohl, Raymond J., Emeritus Professor, Internal Medicine, 1991 (2000); BS 1978 Illinois; MD 1984 Rush

Holanda, Danniele Gomes, Clinical Assistant Professor, Pathology, 2013 (2013);

Holbrook, Mark Andrew, Lecturer, Social Work, 1999 (2002); PHD 1998 Iowa

Holland, Charles Joseph, Adjunct Lecturer, Law-Faculty, 2013 (2013);

Holland, Randy J., Adjunct Lecturer, Law-Faculty, 2006 (2006); BA 1969 Swarthmore; JD 1972 Pennsylvania Law; LLM 1998 Virginia Law

Hollingworth, Andrew R., Professor, Psychology, 2002 (2011); BA 1988 Chicago; MED 1992 Harvard; PHD 2000 Michigan State

Hollingworth, Liz, Associate Professor, Educ Policy Leadership Studies, 2006 (2012); BA 1992 UCLA; MS 1994 Northwestern; PHD 2005 Iowa

Hollins, George, Adjunct Lecturer, Management Sciences, 2010 (2010); BS 1981 Iowa State; BS 1987 Upper Iowa; MA 2007 St Ambrose

Holloway, Julie Ann, Professor, Prosthodontics, 2011 (2011); DDS 1990 Ohio State; MS 1993 Ohio State

Holly Jr., Forrest M., Emeritus Professor, Civil-Environmental Engineering, 1982 (1990); BS 1968 Stanford; MS 1969 Washington; PHD 1975 Colorado State

Holm, Adrian Nathan, Clinical Assistant Professor, Internal Medicine, 2010 (2010); BA 1997 Luther; MD 2004 Des Moines

Holm, Eric J., Clinical Adjunct Assistant Professor, Internal Medicine, 2007 (2007); BA 1999 Central College; MD 2003 Iowa

Holm, Lloyd David, Clinical Adjunct Associate Professor, Obstetrics Gynecology, 2009 (2011); BA 1975 Olivet, MI; DO 1980 Midwestern, Downers Grove

Holman, Carol Joy, Clinical Associate Professor, Pathology, 2011 (2011); BS 1990 Valparaiso; PHD 1999 Illinois; MD 1999 Illinois

Holmes, David Charles, Professor, Family Dentistry, 2004 (2010); BS 1973 Iowa; DDS 1978 Iowa; MS 1991 Iowa

Holmes, Donald C., Adjunct Lecturer, Law-Faculty, 2009 (2009); BA 1965 Maryland; JD 1968 George Washington

Holmes, Jeffrey Scott, Adjunct Instructor, University College Courses, 2014 (2014);

Holstein, Ellen Susanne, Adjunct Instructor, Religion, 2011 (2011); BA 1982 Concordia, MN; MDIV 1987 Wartburg Theological; MA 1998 Iowa

Holstein, Jay A., Professor, Religion, 1970 (1982); BA 1960 Temple; MA 1966 Hebrew Union; PHD 1970 Hebrew Union

Holstein, Sarah Abigail, Adjunct Assistant Professor, Internal Medicine, 2010 (2010); BA 1997 Iowa; MD 2004 Iowa; PHD 2004 Iowa

Holte, Lenore Ann, Clinical Professor, Communication Sciences and Disorders/Pediatrics, 1998 (2007); BS 1977 Minnesota; MA 1979 Minnesota; PHD 1989 Syracuse

Holton, Nathan Eugene, Assistant Professor, Orthodontics, 2010 (2010); MA 2002 Northern Illinois; PHD 2009 Iowa

Holtmark, Erling Bent, Emeritus Professor, Classics, 1963 (1982); BA 1959 California-Berkeley; PHD 1963 California-Berkeley

Hommos, Musab Sultan, Clinical Assistant Professor, Internal Medicine, 2012 (2014);

Honeycutt, Karen, Clinical Adjunct Assistant Professor, Pathology, 2013 (2013);

Hong, Dae S., Assistant Professor, Teaching and Learning, 2013 (2013);

Hong, Hyeri, Lecturer, Teaching and Learning, 2014 (2014); AB 1999 Korea University

Hong, Liu, Associate Professor, Dows Institute-Research, 2009 (2009); MD 1990 Shanghai Second Medical; MS 1993 Shanghai Second Medical; PHD 2000 Koyota

Hong, Sandy D., Clinical Associate Professor, Pediatrics, 2007 (2013); MD 2001 California

Hood, Albert B., Emeritus Professor, Rehabilitation and Counselor Education, 1965 (1965); BA 1951 New Hampshire; EDD 1957 Cornell

Hood, Margie, Lecturer, Teaching and Learning, 2005 (2005); BS 1972 IOWA

Hooker, Jacob, Adjunct Assistant Professor, Creative Writing, 2014 (2014);

Hooker, Nick Alan, Adjunct Instructor, Preventive Community Dentistry, 2010 (2010); DDS 2001 Iowa

Hooks, Adam G., Assistant Professor, English, 2009 (2009); MA 2003 Georgetown; MPHIL 2006 Columbia, New York City; PHD 2009 Columbia, New York City

Hooper, Catalina J., Adjunct Assistant Professor, Psychology, 2010 (2010); PHD 2008 Minnesota

Hoopes, Thomas A., Adjunct Assistant Professor, Pharmacy Practice and Science, 2014 (2014);

Hoover, Hiram D., Emeritus Professor, Iowa Testing Programs, 1967 (1980); BS 1962 Missouri; MA 1964 Iowa; PHD 1969 Iowa

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Horner, Kathleen Elizabeth, Clinical Assistant Professor, Pharmacy, 2005 (2007); BS 1999 Saint Louis; PHARM D 2004 Iowa

Horner Brackett, Rachel Anne, Adjunct Assistant Professor, Anthropology, 2012 (2012); BA 2001 Knox College-Galesburg, IL; MA 2003 University of Iowa; MPH 2005 University of Iowa

Hornick, Douglas B., Clinical Professor, Internal Medicine, 1988 (2002); BS 1978 St. Lawrence; MD 1982 Maryland

Horowitz, Steven Paul, Adjunct Assistant Professor, American Studies, 1995 (1995); PHD 1986 Iowa

Horswill, Alexander R., Associate Professor, Microbiology, 2005 (2010); BS 1995 Wisconsin-Madison; PHD 2001 Wisconsin-Madison

Horswill, Michelle Costello, Adjunct Instructor, Health and Human Physiology, 2013 (2013);

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Horton, Douglas James, Adjunct Associate Professor, Family Dentistry, 1997 (2012); DDS 1976 Iowa

Horton, Matthew Randy, Adjunct Assistant Professor, Pharmacy Practice and Science, 2011 (2011); PHARMD 2002 Iowa

Horwitz, Henry G., Emeritus Professor, History, 1963 (1970); BA 1959 Haverford; PHD 1963 Oxford

Horwitz, Phillip Andrew, Clinical Professor, Internal Medicine, 2003 (2014); BA 1989 Colorado; MD 1995 Washington

Horwitz, Richard P., Emeritus Professor, American Studies, 1977 (1988); BA 1971 Pennsylvania; MA 1972 Pennsylvania; PHD 1975 Pennsylvania

Hoshi, Hisakazu, Clinical Associate Professor, Surgery, 2007 (2011); MD 1991 Shiga Univ. of Med Science

Hoskins, Brenda Lee Carter, Clinical Associate Professor, Nursing, 2005 (2010); BSN 1994 Coe College; MSN 1998 Iowa; DNP 2006 Rush University

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Hostetter, Jesse Michael, Adjunct Associate Professor, Epidemiology, 2007 (2010); DVM 1991 Iowa State; PHD 2000 Iowa State

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Hoth, Peter L., Clinical Assistant Professor, Family Medicine, 2013 (2013);

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Hourcade, Juan Pablo, Associate Professor, Nursing/Computer Science, 2006 (2012); BS 1996 American University; MS 2000 Maryland; PHD 2003 Maryland

House, Hans Robert, Clinical Professor, Emergency Medicine, 2002 (2012); MD 1997 Southern California

Houser, Kara Marie, Adjunct Instructor, Social Work, 2012 (2012);

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Houtman, Jon C., Associate Professor, Internal Medicine/Microbiology, 2005 (2011); BA 1994 Minnesota; PHD 1999 Wisconsin

Hove, Harlo Dennis, Emeritus Assistant Professor, Emergency Medicine, 1990 (1995); BS 1970 Iowa State; BS 1972 South Dakota; MD 1974 Nebraska

Hovenkamp, Herbert, Professor, Law-Faculty, 1986 (1986); MA 1971 Texas; PHD 1976 Texas; JD 1978 Texas

Howard, Matthew A., Professor, Otolaryngology-Head Neck Surgery/Neurosurgery/Neurology, 1993 (2002); BS 1981 Tufts; MD 1985 Virginia

Howarth, Allison Marie, Adjunct Instructor, University College Courses, 2013 (2013);

Howe, Brian James, Adjunct Assistant Professor, Family Dentistry, 2014 (2014); DMD 2006 Tufts University

Howe, James Robinson V., Professor, Surgery, 1996 (2005); AB 1982 Dartmouth; MD 1987 Vermont

Howell, James Perry, Lecturer, Rhetoric, 2004 (2013); BA 1979 Swarthmore College; PSYD 1987 VA Consortium for Prof. Psych.

Howell, Nicholas Mark, Adjunct Assistant Professor, Pharmacy, 2007 (2007); PHARMD 2006 Iowa

Howes, Gregory Gershon, Associate Professor, Physics Astronomy, 2008 (2013); BS 1994 CalTech; MS 1998 UCLA; PHD 2004 UCLA

Howren, Matthew Bryant, Adjunct Assistant Professor, Psychology, 2009 (2009); BA 2003 South Alabama; MA 2007 Iowa; PHD 2009 Iowa

Hoxie, Logan Davies, Clinical Adjunct Assistant Professor, Urology, 1999 (1999); MD 1992 Iowa

Hoy, Ariel Kathryn, Adjunct Assistant Professor, Pharmacy Practice and Science, 2014 (2014);

Hoyt, Robert Hughes, Clinical Adjunct Assistant Professor, Internal Medicine, 2008 (2008); MD 1983 Iowa

Hribar, Steven Paul, Professor, Accounting, 2006 (2012); PHD 2000 Iowa

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Huntrods, Clint Simpson, Lecturer, Health and Human Physiology, 2014 (2014); BA 2007 Univ. of Iowa; MA 2009 Univ of Iowa

Hurtig, Richard R., Emeritus Professor, International Programs/Communication Sciences and Disorders, 1976 (1995); BA 1965 New York; MA 1973 New York; PHD 1974 Columbia; MPHIL 1974 Columbia

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Kazwell, John Bryan, Adjunct Assistant Professor, Oral Maxillofacial Surgery, 2006 (2011); BS 1988 Wisconsin; BA 1988 Wisconsin; DDS 1996 Illinois

Ke, Chuanren, Professor, Asian Slavic Languages Literature/International Programs, 1993 (2007); BA 1982 Beijing Normal University; MA 1985 Indiana; PHD 1992 Indiana

Kealey, Gerald P., Professor, Surgery, 1985 (1993); BA 1966 Iowa; MD 1969 Iowa; MS 1975 Iowa

Kearney, Joseph K., Professor, Clas Administration/Nursing/Computer Science, 1983 (2001); BA 1975 Minnesota; MA 1979 Texas-Austin; MS 1981 Minnesota; PHD 1983 Minnesota

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Keetch, John Charles, Clinical Assistant Professor, Cardiothoracic Surgery, 2013 (2013);

Keetch, Katherine Govier Cashman, Clinical Assistant Professor, Anesthesia, 2013 (2013);

Keefe, Patrick Emmett, Adjunct Associate Professor, Pharmacy Practice and Science, 2012 (2012);

Keegan, Kathryn Anne, Adjunct Instructor, Communication Sciences and Disorders, (2013);

Keegan, Kelly A., Lecturer, English as Second Language, 2013 (2013);

Keegan, Thomas, Lecturer, Rhetoric, 2010 (2011); BA 2002 Virginia; PHD 2010 Iowa

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Kelly, Mitchell Jay, Clinical Associate Professor, Psych Quant Foundations, 1990 (2006); PHD 1995 Iowa

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Knight, Anthony Wayne, Adjunct Instructor, Radiology, 2010 (2010); BS 1978 Iowa; MBA 1987 Iowa

Knight, Megan Linnet, Lecturer, Rhetoric, 1998 (2001); MFA 1998 Iowa

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Knowing, Jeffrey David, Lecturer, English as Second Language, 2013 (2013);

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Knudson, Mary Kay, Adjunct Assistant Professor, Economics, 2006 (2006); BS 1981 Minnesota; MS 1983 Wisconsin; PHD 1988 Minnesota

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Koch, Brenton Berl, Clinical Adjunct Assistant Professor, Otolaryngology-Head Neck Surgery, 2003 (2003); BA 1989 Drake; MD 1995 Iowa

Koch, Yvonne Deslover, Adjunct Assistant Professor, Pharmacy, 2002 (2002); PHARM 2000 Iowa

Kochanska, Grazyna, Professor, Psychology, 1991 (1995); MA 1974 Warsaw-Poland; PHD 1979 Warsaw-Poland

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Koepfel, Thomas David, Adjunct Lecturer, University College, 2007 (2013); BBA 2005 Amer International Univ on-lin; MOL 2007 St Ambrose University

Koerner, Theodore Alfred William, Emeritus Associate Professor, Pathology, 1986 (1988); BS 1970 Louisiana State; PHD 1975 Louisiana State; MD 1978 Tulane

Kohatsu, Neal, Adjunct Associate Professor, Epidemiology, 2003 (2003); BA 1978 Stanford; MD 1982 Pittsburgh; MPH 1985 Minnesota

Kohen, Amnon, Professor, Chemistry, 1999 (2010); BSC 1989 Hebrew; DSC 1994 Technion-Israel

Kohout, Frank J., Emeritus Professor, Periodontics, 1969 (1988);

Koland, John G., Associate Professor, Internal Medicine/Pharmacology, 1990 (1996); BS 1977 Minnesota; PHD 1983 Illinois-Urbana

Kolar, Anne F., Adjunct Assistant Professor, Psychiatry, 2003 (2003); BS 1979 Iowa; MD 1983 Iowa

Kolder, Veronika E., Clinical Assistant Professor, Obstetrics Gynecology, 1995 (2008); MD 1983 IOWA

Kolen, Michael J., Professor, Psych Quant Foundations, 1984 (1997); BS 1973 Iowa; MA 1975 Arizona; PHD 1979 Iowa

Kolesnikova, Anna, Adjunct Assistant Professor, Asian Slavic Languages Literature, 2011 (2011); BA 2003 Moscow State; MA 2005 UNI

Koleva, Hristina K., Clinical Assistant Professor, Psychiatry, 2010 (2010); MD 2003 Sofia, Bulgaria

Kolker, Justine Lane, Associate Professor, Operative Dentistry, 2005 (2010); DDS 1996 Iowa; MS 2000 Iowa; PHD 2003 Iowa

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Komisaruk, Catherine, Associate Professor, History, 2006 (2012); AB 1988 Harvard; MA 1994 California @ Los Angeles; PHD 2000 California @ Los Angeles

Koontz, Richard F., Adjunct Lecturer, Law-Faculty, 1998 (1998); BA 1981 HAMPSHIRE; MA 1985 NORTHEASTERN; JD 1989 NEW ENGLAND SCHOOL OF LAW

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Kopelman, Todd G., Clinical Assistant Professor, Psychiatry/Psych Quant Foundations/Pediatrics, 2010 (2010); BA 1996 Grinnell; MSW 1998 Iowa; PHD 2005 Iowa

Kopelson, Kevin R., Professor, English, 1992 (2004); BA 1979 Yale; JD 1982 Columbia; MA 1988 Brown; PHD 1991 Brown

Kopp, Ulla C., Emeritus Professor, Internal Medicine/Pharmacology, 1988 (2006); BSC 1970 Uppsala-Sweden; PHD 1980 Gothenburg-Sweden

Korpel, Adrianus, Emeritus Professor, Electrical-Computer Engineering, 1977 (1977); BS 1953 DELFT-Netherlands; MS 1955 DELFT-Netherlands; PHD 1969 DELFT-Netherlands

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Lyanda-Geller, Olga, Adjunct Assistant Professor, Asian Slavic Languages Literature, 2014 (2014);

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Lynch, Charles Francis, Professor, Pathology/Epidemiology, 1982 (1998); BS 1974 Loras; MS 1979 Iowa; MD 1979 Iowa; PHD 1984 Iowa

Lynch, Gerald Joseph, Adjunct Professor, Economics, 2009 (2009); PHD 1975 Kentucky

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Mason, Edward E., Emeritus Professor, Surgery, 1953 (1961); BA 1943 Iowa; MD 1945 Iowa; PHD 1953 Minnesota

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Mason, Paul Thomas, Adjunct Lecturer, Accounting, 2009 (2009); BA 1975 Connecticut; MBA 1977 Connecticut

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Mattes, Timothy Edward, Associate Professor, Civil-Environmental Engineering, 2004 (2010); BSE 1994 John Hopkins; MSE 1995 John Hopkins; PHD 2004 Cornell University

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Matthews, David Carl, Adjunct Instructor, Electrical-Computer Engineering, 2008 (2008); BA 1984 Doane College; BS 1985 Washington; MS 1994 Iowa State

Matthews, Grace, Clinical Adjunct Instructor, Nursing, 2006 (2006); BSN 1995 Iowa; MSN 2000 Iowa

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Maxted, James C., Lecturer, Electrical-Computer Engineering, 2001 (2011); BSEE 1974 Iowa; MSEE 1984 Iowa

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Mcdougall, Dana Jeffrey, Adjunct Instructor, Pharmacy Practice and Science, 2011 (2011); PHARMD 2011 Iowa

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McNeil, Robin M., Adjunct Instructor, Preventive Community Dentistry, 2005 (2005); AS 2001 Kirkwood; BS 2004 Missouri-KC

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McPherson, James A., Professor, Creative Writing/ English, 1981 (1981); BA 1965 Morris Brown; LLB 1968 Harvard; MFA 1970 Iowa

Mcquistan, Michelle, Associate Professor, Preventive Community Dentistry, 2004 (2013); BA 1997 Notre Dame; DDS 2001 Iowa; MS 2004 Iowa

Meadows, Jill Lynelle, Clinical Adjunct Associate Professor, Obstetrics Gynecology, 1999 (2005); BA 1991 Macalester; MD 1995 Iowa

Means, Steven Baxter, Adjunct Associate Professor, Preventive Community Dentistry, 2013 (2013);

Meeker, Brian Walter, Clinical Adjunct Assistant Professor, Family Medicine, 2010 (2010); BS 1981 Truman Univ; DO 1984 Des Moines

Meeks, Sanford, Adjunct Associate Professor, Radiation Oncology, 1999 (1999); BS 1989 Florida Southern; MS 1991 Florida; PHD 1994 Florida

Meena, Hemlata, Clinical Adjunct Assistant Professor, Family Medicine, 2014 (2014);

Mehdi, Haider, Assistant Professor, Internal Medicine, 2012 (2012);

Meidlinger, Talia Katherine, Adjunct Instructor, University College Courses/University College, 2011 (2014);

Meier, Jeffery Linn, Associate Professor, Internal Medicine, 1993 (2004); BS 1981 Iowa; MD 1986 Iowa

Meisenbach, Rebecca, Adjunct Associate Professor, Communication Studies, 2012 (2012);

Meisterheim, Melissa, Lecturer, English as Second Language, 2009 (2010); BA 1998 Truman State; MA 2001 Iowa

Mekies, Saul, Adjunct Lecturer, Management Organizations, 2009 (2009); MA 1984 Connecticut

Melcher, Jon Christian, Adjunct Assistant Professor, Pharmacy Practice and Science, 2013 (2013);

Melchert, Thomas E., Emeritus Associate Professor, Biology, 1963 (1968); BA 1958 Lawrence; MS 1960 Wisconsin; PHD 1963 Texas

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Mellen, Katherine Rose, Lecturer, Health and Human Physiology, 2000 (2000); MA 1997 Iowa; PHD 2007 Iowa

Melloy, James Chad, Adjunct Instructor, University College Courses, 2011 (2014); MBA 2010 St. Ambrose

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Mentzer, Raymond A., Professor, Religion/History, 2001 (2001); AB 1967 Fordham; MA 1970 Wisconsin; PHD 1973 Wisconsin

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Meyer, Nathaniel Amiel, Clinical Adjunct Assistant Professor, Family Medicine, 2014 (2014);

Meyerholz, David Kyle, Associate Professor, Pathology, 2006 (2011); DVM 1994 Iowa State; MS 2001 Iowa State; PHD 2004 Iowa State

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Miakotina, Olga L., Adjunct Assistant Professor, Biology, 2011 (2011); PHD 1988 Moscow State, Russia

Michaelson, Jacob J., Assistant Professor, Psychiatry, 2013 (2013);

Michaelson, Susan Dominy, Adjunct Assistant Professor, Rehabilitation and Counselor Education, 2003 (2005); BA 1983 Texas Lutheran; MA 2001 Iowa; PHD 2005 Iowa

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Miller, Anthony Clark, Clinical Associate Professor, Psychiatry, 2008 (2010); BA 1990 Goshen College; MD 1994 University of Iowa

Miller, Benjamin James, Clinical Assistant Professor, Orthopaedics and Rehabilitation, 2010 (2010); BS 1999 Cornell; MD 2003 Iowa

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Miller, Charles Anthony, Adjunct Associate Professor, Communication Sciences and Disorders, 1997 (2004); BSEE 1983 Iowa; PHD 1992 Iowa

Miller, Dana K., Adjunct Instructor, Pharmacy, 1997 (1997); BSPH 1981 Creighton

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Miller, Delwyn Deon, Professor, Psychiatry, 1992 (2004); BS 1977 Iowa; PHARMD 1980 Kentucky; MD 1987 Case Western Reserve

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Miller, James Arthur, Adjunct Instructor, Pharmacy Practice and Science, 1997 (1997); BS 1971 Iowa

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Miller, Michelle, Adjunct Instructor, Pharmacy Practice and Science, 2010 (2010); PHARMD 2010 Nebraska Medical

Miller, Nathan, Lecturer, Law-Faculty, 2011 (2011); BA 1998 Daytona; JD 2002 New York Law

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Miller, Robert T., Professor, Law-Faculty, 2012 (2012);

Miller, Sarah Louise, Clinical Assistant Professor, Emergency Medicine, 2012 (2012);

Miller, Shannon Lynn Binkelman, Clinical Adjunct Assistant Professor, Pharmacy, 2004 (2004); MPH 2004 University of Iowa

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Mitchell, Teresa Marie, Adjunct Assistant Professor, Pharmacy, 2009 (2009); PHARM 2008 Iowa

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Molis, Whitney Elizabeth, Clinical Adjunct Assistant Professor, Pediatrics, 2008 (2008); MD 2001 Northwestern

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Moonjely, Joe, Clinical Adjunct Assistant Professor, Internal Medicine, 2003 (2003); BA 1984 Unif of Calicut, India; MD 1991 Trichur Medical College

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Moore, Cathleen M., Professor, Psychology, 2007 (2007); BA 1988 Hamilton; PHD 1994 California-San Diego

Moore, Daniel, Professor, Music, 1996 (2006); BME 1981 East Texas State; MM 1985 Wichita State; DMA 2000 Kentucky

Moore, Dennis M., Emeritus Associate Professor, Rhetoric, 1980 (1988); BA 1974 Chicago; MA 1976 Princeton; PHD 1978 Princeton

Moore, Duncan, Adjunct Instructor, Health Management Policy, 2003 (2014); BA 1963 Florida State; MA 1965 Iowa

Moore, Jeffrey, Adjunct Instructor, University College Courses, 2011 (2014); BA 1990 Missouri

Moore, Joseph P., Adjunct Assistant Professor, Pharmacy, 2002 (2002); PHARMD 1994 Creighton

Moore, Joyce L., Associate Professor, Psych Quant Foundations, 1994 (2000); BS 1985 Pittsburgh; PHD 1993 Stanford

Moore, Michael Edward, Associate Professor, International Programs/History, 2008 (2011); AB 1984 Michigan; AM 1987 Michigan; PHD 1993 Michigan

Moore, Pamela Sue, Adjunct Instructor, Social Work, 2000 (2000); BA 1982 Iowa; BBA 1983 Iowa; MSW 1987 Iowa

Moore, Rosemary, Lecturer, History/Classics, 2003 (2009); AB 1990 Harvard; PHD 2002 Michigan

Moore, Steven A., Professor, Pathology, 1986 (1995); BS 1977 Purdue; PHD 1980 Indiana; MD 1982 Indiana

Moore, Kevin Gene, Clinical Associate Professor, Pharmacy, 1987 (2005); PHARMD 1979 Nebraska

Moorhead, Sue Ann Parmeter, Associate Professor, Nursing, 1984 (1999); BSN 1972 Maryland; MA 1982 Iowa; PHD 1993 Iowa

Mora, Francisco, Adjunct Professor, Physiology, 1995 (1995); BS 1970 Granada; MD 1974 Granada; PHD 1978 Oxford

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Moran, Patrick, Lecturer, Health and Human Physiology, 2014 (2014);

Morarend, Quinn, Adjunct Assistant Professor, Periodontics, 2003 (2010); DDS 2001 Iowa; MS 2009 Iowa

Morcuende, Jose A., Professor, Pediatrics/Orthopaedics and Rehabilitation, 2001 (2013); MD 1981 Autonoma Madrid

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Mordkoff, Jonathan Toby, Associate Professor, Psychology, 2007 (2007); MA 1988 Johns Hopkins; PHD 1992 Johns Hopkins

Morelli, Brian A., Adjunct Instructor, University College Courses, 2009 (2011); AA 2002 Des Moines; BA 2005 Iowa

Moreno Uribe, Lina Maria, Assistant Professor, Dows Institute-Research, 2008 (2008); DDS 1991 Medellin Colombia; PHD 2005 Iowa

Moreton, Melissa N., Adjunct Assistant Professor, Interdisciplinary Programs, 2013 (2013); BA 1990 University of Illinois; MA 2003 Syracuse University

Morf, Paul, Adjunct Lecturer, Law-Faculty, 2003 (2003); AB 1994 Dartmouth; SJD 1997 Yale

Morgan, Dale D., Clinical Adjunct Professor, Anesthesia, 2002 (2002); BA 1947 Coe; MD 1951 Iowa

Morgan, Donald P., Emeritus Professor, Occupational Environmental Health, 1973 (1983); BS 1944 Franklin Marshall; MD 1947 Indiana; MS 1949 Northwestern; PHD 1953 Northwestern

Morgan, Douglas Eugene, Adjunct Assistant Professor, Pharmacy, 1991 (1991); BSPH 1978 Iowa; MS 1980 Iowa

Morgan, John D., Adjunct Associate Professor, Family Dentistry/Preventive Community Dentistry, 2000 (2012); BS 1970 Iowa; DDS 1975 Iowa

Morgan, Melanie, Adjunct Associate Professor, Journalism Mass Communication/Communication Studies, 2012 (2012);

Morgan, Teresa Anne, Clinical Associate Professor, Hospital Dentistry, 2001 (2007); BA 1990 Iowa; DDS 1993 Iowa; MS 1997 Iowa

Morgan, Thomas Gerald, Clinical Adjunct Assistant Professor, Family Medicine, 2014 (2014);

Moriguchi, Takako, Assistant Professor, Physiology, 2010 (2012); MA 1997 Tokyo; PHD 2002 Tokyo

Morio, Dominic Gerard, Adjunct Assistant Professor, Oral Maxillofacial Surgery/Hospital Dentistry, 2007 (2010); BS 1998 Iowa; DDS 2002 Iowa

Morio, Kimberly Ann, Adjunct Instructor, Family Dentistry, 2011 (2011); DDS Iowa

Morita, Craig T., Associate Professor, Internal Medicine, 1998 (1998); PHD 1990 Calif-San Francisco; MD 1990 Calif-San Francisco

Moritani, Toshio, Clinical Professor, Radiology, 2004 (2013); MD 1987 Showa UNIV Tokyo; PHD 1991 Showa UNIV Tokyo

Mormann, Megan M., Adjunct Assistant Professor, Pharmacy Practice and Science, 2012 (2014);

Morphew, Christopher C., Professor, Educ Policy Leadership Studies, 2009 (2009); MED 1991 Harvard; MA 1994 Stanford; PHD 1996 Stanford

Morris, Adalaide, Emeritus Professor, English, 1974 (1985); BA 1964 Wells; MA 1966 Minnesota; PHD 1972 Minnesota

Morris, Hughlett, Emeritus Professor, Communication Sciences and Disorders/Otolaryngology-Head Neck Surgery, 1957 (1969); BA 1952 Iowa; MA 1957 Iowa; PHD 1960 Iowa

Morrison, Dianne R., Adjunct Instructor, Pharmacy, 1997 (1997); BS 1972 Purdue

Morriss, Mary J., Emeritus Professor, Pediatrics, 1987 (2003); BS 1965 Bucknell; MD 1969 Duke

Morriss Jr., Frank H., Emeritus Professor, Pediatrics, 1987 (1987); BA 1962 Virginia; MD 1966 Duke

Morton, Roscoe F., Clinical Adjunct Assistant Professor, Internal Medicine, 2001 (2001); MD 1976 Kansas

Moser, David John, Professor, Psychiatry, 1999 (2011); BA 1989 Colby; MS 1995 Florida; PHD 1997 Florida

Moser, Mark G., Adjunct Associate Professor, Surgery, 1994 (2014); BS 1986 University of Iowa; MA 1988 Iowa

Mosher, Hilary Jean, Clinical Assistant Professor, Internal Medicine, 2011 (2011); BA 1994 Dartmouth; MFA 1998 Warren Wilson; MD 2008 Iowa

Mosher, Mary A., Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARM 2007 Iowa

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Mount, Michael K., Professor, Management Organizations, 1981 (1993); BS 1973 Iowa; MS 1975 Iowa State; PHD 1977 Iowa State

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Moy, Alan B., Adjunct Associate Professor, Biomedical Engineering, 1993 (2000); BS 1981 Calif-Davis; MD 1985 Creighton

Moye-Rowley, William, Professor, Internal Medicine/Physiology, 1989 (2002); BS 1981 Illinois-Urbana; PHD 1986 Purdue

Moyers, John R., Emeritus Professor, Anesthesia, 1979 (1990); BS 1969 Iowa; MD 1973 Iowa

Mozena, Emily Nicole Ratzel, Lecturer, Health and Human Physiology, 2003 (2009); BFA 2001 Iowa; MA 2003 Iowa

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Mueller, Kathryn Lyndsay, Adjunct Assistant Professor, Communication Sciences and Disorders, 2012 (2012); BA 2003 University of Nottingham; MS 2006 Reading University

Mueller, Keith, Professor, Health Management Policy/Public Policy Center, 2010 (2010); BA 1973 Wisconsin-Milwaukee; MA 1975 Wisconsin-Milwaukee; PHD 1979 Arizona

Mueller, Martin, Clinical Assistant Professor, Anesthesia, 2008 (2008); MD 1998 Rostock, Germany

Mueller, Rashmi, Clinical Associate Professor, Anesthesia, 2008 (2008); MD 1990 Bombay

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Muilenburg, Ann Charlotte, Clinical Adjunct Instructor, Nursing, 1988 (1988); BSN 1976 Iowa; MA 1986 Iowa

Mulder, Pamela J., Assistant Professor, Nursing, 2010 (2010); BSN 1998 Milwaukee; PHD 2009 Milwaukee

Mulhausen, Paul L., Adjunct Professor, Internal Medicine, 1994 (2008); BA 1982 St. Olaf; MD 1987 Minnesota

Mulholland, Timothy Lloyd, Adjunct Assistant Professor, Urology, 2007 (2007); BS 1993 Iowa; MD 1997 Iowa

Mullan, Brian Francis, Clinical Professor, Radiology, 1996 (2009); BA 1985 Johns Hopkins; MS 1986 Northwestern; MD 1991 Chicago-Pritzker

Muller, Barbara Ann, Clinical Adjunct Professor, Internal Medicine, 1991 (2003); BS 1978 St Peters College; MD 1982 Autonomous Univ of Guadalajara

Mullin, Karen R., Adjunct Assistant Professor, Social Work, 2005 (2005); DR 1994 Cincinnati

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Mulrooney, Thomas P., Adjunct Lecturer, Health Management Policy, 2012 (2012);

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Murhammer, Joan Marie, Adjunct Assistant Professor, Pharmacy, 1997 (2003); BSPH 1990 Iowa; BS 1990 Iowa

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Murph, Jody Reed, Associate Professor, Pediatrics/Law-Faculty/Epidemiology, 1985 (1992); BS 1975 Francis Marion; MD 1979 Medical Univ of South Carolina; MS 1985 Iowa

Murphy, Mary M., Lecturer, Accounting, 2001 (2001); JD 1988 Iowa

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Murray, Jeffrey Clark, Professor, Nursing/Pediatrics/Public Policy Center/Inst for Clinical and Translational Science/Pediatric Dentistry/Epidemiology/International Programs/Biology/Anatomy Cell Biology, 1984 (1993); BS 1972 Massachusetts Inst of Technolo; MD 1978 Tufts

Murray, Kirk Stephen, Adjunct Instructor, Journalism Mass Communication, 2006 (2006); BA 1994 Iowa; MA 2001 Iowa

Murray, Margaret, Adjunct Professor, Mathematics, 2005 (2005); SCB 1979 Chicago; MS 1981 Yale; PHD 1983 Yale; MFA 2005 Iowa

Murray, Michael F., Adjunct Instructor, Pharmacy, 1997 (1997); BS 1982 Iowa; BSPH 1982 Iowa

Murray, William M., Emeritus Professor, English, 1958 (1974); BS 1956 New Haven Teachers; MA 1958 Iowa; PHD 1964 Iowa

Murrell, Michael David, Clinical Assistant Professor, Family Dentistry, 2012 (2012);

Murry, Daryl J., Associate Professor, Pharmacy, 2003 (2003); BS 1987 Iowa; PHARM 1991 Iowa

Murry, John P. Jr., Associate Professor, Marketing, 1999 (1999); BS 1979 Kansas State; MBA 1987 Kansas; PHD 1988 Kansas

Murty, Susan, Emeritus Associate Professor, Social Work, 1994 (2000); BA 1968 Harvard; MSW 1973 California-Berkeley; PHD 1993 Washington

Musick, Jennifer, Adjunct Assistant Professor, Pharmacy, 2003 (2003); PHARM 2001 Iowa

Musselman, Catherine Anne, Assistant Professor, Biochemistry, 2013 (2013);

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Muston, Ray A., Emeritus Associate Professor, Educ Policy Leadership Studies, 1970 (1975); BS 1961 Indiana; MBA 1963 Indiana; EDD 1970 Indiana

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Myers, Laura M., Adjunct Assistant Professor, Dermatology, 2003 (2003); BA 1995 Drake; MD 1999 Dartmouth Medical

Myers, Tony Arthur, Clinical Adjunct Assistant Professor, Family Medicine, 1999 (2000); MD 1990 Iowa

Myers, Virginia A., Emeritus Professor, Art Art History, 1962 (1981); BA 1949 George Washington; MFA 1951 California College of Arts

Mykleby, Brian A., Adjunct Assistant Professor, Endodontics, 1989 (1989); BS 1978 Iowa State; DDS 1981 Iowa; MS 1985 Iowa

Mysnyk, Mark Charles, Clinical Adjunct Assistant Professor, Orthopaedics and Rehabilitation, 1991 (1991); MD 1983 Iowa

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Nadkarni, Prakash, Professor, Internal Medicine, 2012 (2012);

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Nelson, George C., Emeritus Professor, Mathematics, 1968 (1982); BA 1964 Oberlin; MS 1965 Case Institute of Technology; PHD 1968 Case Institute of Technology

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Nelson, Lori Jean, Adjunct Professor, Psychology, 2002 (2002); BS 1986 Iowa; MA 1988 Princeton; PHD 1990 Princeton

Nelson, Patricia A., Lecturer, Nursing, 1980 (1992); BSN 1980 Iowa; MA 1984 Iowa

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- Oray, Patrick B.**, Adjunct Lecturer, Management Organizations, 2012 (2012);
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- O'Rourke, Barbara Lynn**, Adjunct Assistant Professor, Rehabilitation and Counselor Education, 2013 (2013);
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Perlman, Stanley, Professor, Pediatrics/Microbiology, 1983 (1993); AB 1968 Rochester; PHD 1972 MIT; MD 1979 Miami

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Peters, Bobby Xavier, Clinical Assistant Professor, Emergency Medicine, 2001 (2001); BS 1990 Houston Baptist; MD 1996 Texas Medical

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Peterson, Andrew Robert, Clinical Assistant Professor, Pediatrics, 2010 (2010); BA 2000 Lawrence; MD 2004 Wisconsin

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- Phillips, Bryan T.**, Assistant Professor, Biology, 2009 (2009); BS 1998 Illinois; DPHIL 2004 Texas AM
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- Pringle, Lynn**, Adjunct Professor, Accounting, 1998 (2013); BBA 1969 Iowa; MA 1975 Arizona; PHD 1987 Colorado
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- Proud, Sherri Lyn Curtis**, Adjunct Instructor, Health and Human Physiology, 2012 (2012);
- Proudfit, Herbert K.**, Emeritus Professor, Pharmacology, 2000 (2000); BA 1964 Kansas; PHD 1971 Kansas-Kansas City
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- Prunty, April Bachinski**, Lecturer, Nursing, 2014 (2014);
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- Prybil, Lawrence**, Emeritus Professor, Health Management Policy, 1999 (1999); BA 1962 Iowa; MA 1964 Iowa; PHD 1970 Iowa
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- Pusey, Robert Drake**, Adjunct Associate Professor, Family Dentistry, 1994 (2012); DDS 1982 Iowa
- Putnam, Shannon Dennis**, Adjunct Assistant Professor, Epidemiology, 2005 (2005); BS 1987 Wayne State; MS 1989 Northern Arizona; PHD 1999 Iowa
- Pyeovich, Elana Nadine**, Adjunct Assistant Professor, Pharmacy, 2006 (2006); PHARM 1999 Iowa
- Pyeovich, Vickie Diamandakis**, Clinical Professor, Pediatrics, 1997 (2012); BS 1987 Iowa; MD 1991 Iowa

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Reno, Mary Hall, Professor, Physics Astronomy, 1990 (2002); BA 1980 Reed; PHD 1985 Stanford

Renteria, Jesus Josue, Adjunct Instructor, Division of Performing Arts, 2011 (2011); BA 2009 Iowa

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Rethwisch, David Gerard, Professor, Chemical Biochemical Engineering, 1985 (1995); BS 1979 Iowa; PHD 1985 Madison, WI

Retish, Paul M., Professor, Teaching and Learning, 1967 (1976); BS 1960 New York State-Geneseo; MS 1965 Indiana; EDD 1967 Indiana

Rettenmaier, Lawrence Joseph, Clinical Adjunct Instructor, Internal Medicine, 2005 (2005); MD 1984 UIHC

Rexroth, Jason Allen, Clinical Adjunct Assistant Professor, Obstetrics Gynecology, 2013 (2013);

Reyes, Ramon, Clinical Adjunct Assistant Professor, Internal Medicine, 2008 (2008); MD 1991 Santo Thomas

Reyna Fuller, Maria Del Rosario, Adjunct Instructor, Preventive Community Dentistry, 2011 (2011); DDS 2006 Iowa

Reynolds, David R., Emeritus Professor, Geographical and Sustainability Sciences, 1968 (1974); BS 1962 Pennsylvania State; MS 1963 Northwestern; PHD 1966 Northwestern

Reynolds, Hilary Ann, Adjunct Assistant Professor, Pediatric Dentistry, 2012 (2012); BLS 1998 Iowa State Univ; DDS 2002 Univ of Iowa College of Dent

Rezai, Karim, Emeritus Associate Professor, Radiology, 1984 (1988); MD 1971 Shiraz Medical School-Iran

Rhodes, Ann Marie, Clinical Associate Professor, Law-Faculty/Nursing, 1983 (1993); BSN 1975 St Teresa; MA 1976 Iowa; JD 1982 Iowa

Rice, James G., Emeritus Associate Professor, Library Information Science, 2004 (1984);

Rice, John Oscar, Clinical Associate Professor, Oral Maxillofacial Surgery, 2004 (2008); DDS 1971 Iowa

Rice, Kevin G., Professor, Pharmacy, 2001 (2001); BS 1983 Marycrest; PHD 1987 Iowa

Rice, Tom W., Professor, Provost Office Administration/Political Science, 1999 (1999); BA 1979 Iowa State; PHD 1983 Iowa

Rich, Michael Jeffrey, Assistant Professor, Art Art History, 2013 (2013);

Rich-Chappell, Meredith Lee, Adjunct Lecturer, Law-Faculty, 2010 (2010); JD

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Richardson, Larry L., Adjunct Instructor, Pharmacy Practice and Science, 2014 (2014);

Richardson, Thomas, Clinical Adjunct Assistant Professor, Urology, 2002 (2002); BS 1988 Notre Dame; MD 1992 Indiana

Richenbacher, Wayne E., Emeritus Professor, Cardiothoracic Surgery, 1993 (1999); BS 1976 Case Western Reserve; MD 1980 Cincinnati

Richerson, George B., Professor, Physiology/Neurology, 2010 (2010); MD 1987 Iowa

Richerson, Hal B., Emeritus Professor, Internal Medicine, 1964 (1974); BS 1950 University of Arizona; MD 1954 Northwestern Univ Med School

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Richman, Lynn Charles, Emeritus Professor, Pediatrics, 1973 (1984); BA 1967 Grinnell; MA 1970 Iowa; PHD 1973 Iowa

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Rickertsen, Sharon, Adjunct Assistant Professor, Pharmacy, 2000 (2000); PHARM 1997 Iowa

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Rietz, Thomas A., Professor, Finance, 1993 (2011); BA 1983 Northern Iowa; PHD 1988 Iowa

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Rijhsinghani, Asha, Emeritus Professor, Obstetrics Gynecology, 1992 (2012); ISC 1973 Jaihind College; MD 1979 ECFMG; MBBS 1979 Grand Medical College

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Rinehart, Kathy J., Adjunct Assistant Professor, Pharmacy, 1986 (1986); PHARM 1985 Iowa

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Ringen, Jon, Professor, Health and Human Physiology, 1993 (1993); BA 1965 North Dakota; MA 1969 Indiana; PHD 1971 Indiana

Rippentrop, Jonathan Mark, Clinical Adjunct Assistant Professor, Urology, 2006 (2006); MD 1999 Iowa

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Rix, Samantha, Lecturer, English as Second Language, 2013 (2013);

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Roberts, Trina Ellis, Adjunct Assistant Professor, Anthropology, 2012 (2012); MS 2001 University of Chicago; PHD 2005 University of Chicago

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Robinson, Robert G., Professor, Psychiatry, 1990 (1990); BS 1967 Cornell-Ithaca; MD 1971 Cornell-Ithaca

Robinson, Robert A., Professor, Oral Path, Radiology/Medicine/Pathology, 1982 (1993); BA 1976 Missouri; MD 1976 Missouri; PHD 1982 Minnesota

Robinson, Stephen Spencer, Adjunct Instructor, Asian Slavic Languages Literature, 2013 (2013);

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Rooney, Kristen, Adjunct Instructor, Health and Human Physiology, 2013 (2013); BA 2010 University of Iowa

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Rosburg, Thomas R., Adjunct Professor, University College Courses, 2010 (2010); BS 1977 Iowa State; MS 1990 Iowa State; PHD 1994 Iowa State

Rose, Gerald L., Emeritus Professor, Management Organizations, 1967 (1982); BA 1960 Minnesota; MBA 1962 Cornell; PHD 1969 California-Berkeley

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- Rosenberger, Jay A.**, Clinical Adjunct Associate Professor, Internal Medicine, 1995 (2011); DO 1986 Osteopathic Med Hlth
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- Rosenhamer, Jessica Ann**, Adjunct Assistant Professor, Pharmacy, 2010 (2010); PHARM D 2008 Drake
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- Rosenthal, Gary E.**, Professor, Epidemiology/Health Management Policy/Internal Medicine/Nursing, 1998 (2000); BA 1978 John Hopkins; MD 1983 Pennsylvania
- Rosenthal, Nancy**, Clinical Professor, Medicine Administration/Pathology, 1998 (2003); BA 1979 Emory; MD 1983 Pennsylvania
- Rosmann, Michael Ray**, Adjunct Professor, Occupational Environmental Health, 2000 (2013); PHD 1976 Utah
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- Rossen, James D.**, Professor, Neurosurgery/Internal Medicine, 1986 (2005); BS 1975 Michigan; MD 1980 Chicago
- Rossi, Chris**, Adjunct Lecturer, Law-Faculty, 1999 (1999); JD 1982 Iowa; PHD 1992 John Hopkins
- Rossi, Nicholas P.**, Emeritus Professor, Cardiothoracic Surgery, 1960 (1972); BA 1951 Pennsylvania; MD 1955 Hahnemann Medical
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- Roth, James A.**, Adjunct Professor, Epidemiology, 2006 (2006); DVM 1975 Iowa State; MS 1979 Iowa State; PHD 1981 Iowa State
- Round, Phillip**, Professor, Division of Interdisciplinary Program/English, 1993 (2009); BA 1980 Humboldt State; MA 1982 Calif-Los Angeles; PHD 1990 Calif-Los Angeles
- Roussel, Bernard**, Adjunct Professor, Religion, 2008 (2008); BA 1959 Marseille; PHB 1959 Marseille; DR 1970 Strasbourg; PHD 1970 Strasbourg
- Rouwenhorst, Robert Mark**, Adjunct Lecturer, Marketing, 2009 (2009); MBA 2004 Iowa; PHD 2009 Iowa
- Rowe, Jennifer Lynn**, Lecturer, English as Second Language, 2012 (2012);
- Roy, Christopher**, Professor, Art Art History, 1978 (1992); BA 1970 St. Lawrence; MA 1975 Indiana; PHD 1979 Indiana
- Roy, Rupali**, Clinical Assistant Professor, Internal Medicine, 2014 (2014);
- Royer, Nora A.**, Clinical Assistant Professor, Surgery, 2012 (2012);
- Rozencohn, Ronald Michael**, Associate Professor, Art Art History, 1991 (1991); BFA 1969 Philadelphia; MFA 1973 Queens
- Rubach, Jerzy**, Professor, Linguistics, 1990 (1990); MA 1971 Warsaw; PHD 1975 Warsaw
- Rubenstein, Peter A.**, Professor, Biochemistry/Internal Medicine/Pediatrics, 1977 (1987); AB 1968 California; MA 1971 Harvard; PHD 1973 Harvard
- Rubright, William Campbell**, Emeritus Professor, Periodontics, 1967 (1979); BA 1957 Westminster-Missouri; DDS 1962 Missouri; MS 1964 Missouri; MS 1965 Chicago
- Rudman, Robert Alan**, Adjunct Assistant Professor, Oral Maxillofacial Surgery, 2011 (2011); DDS 1988 Loyola; MS 1992 Iowa
- Rudolph, Paul H.**, Adjunct Lecturer, Biology, 1989 (1997); PHD 1976 Michigan
- Rueber, Ashlie A.**, Assistant Professor, Military Science, 2014 (2014);
- Rummelhart, Jo Anne Marie**, Adjunct Assistant Professor, Periodontics, 2009 (2009); DDS 1981 Iowa
- Runde, Daniel Patrick**, Clinical Assistant Professor, Emergency Medicine, 2014 (2014);
- Runde, Mark P.**, Clinical Adjunct Instructor, Internal Medicine, 1995 (1995); MD 1983 Illinois
- Runge, Michael Wayne**, Adjunct Instructor, Pharmacy Practice and Science, 2011 (2011); BSPH 1986 Iowa
- Runge, Richard M.**, Emeritus Associate Professor, German, 1964 (1974); BA 1961 Iowa; MA 1963 Iowa; PHD 1967 Iowa
- Rupe, Kerri Lynn Arter**, Clinical Associate Professor, Nursing, 2000 (2000); BSN 1984 Northeast Missouri; MSN 1994 Clarkson; DNP 2008 Iowa
- Ruprecht, Axel**, Professor, Anatomy Cell Biology/Radiology/Oral Path,RadiologyMedicine, 1987 (1987); DDS 1968 Toronto; MSCD 1972 Toronto
- Rus, Teodor**, Emeritus Professor, Computer Science, 1982 (1993); DMATH 1965 Romanian Academy
- Rushton, Gerard**, Emeritus Professor, Geographical and Sustainability Sciences/Health Management Policy, 1969 (1974); BA 1959 Wales-United Kingdom; MA 1962 Wales-United Kingdom; PHD 1964 Iowa
- Russell, Bobby**, Adjunct Assistant Professor, Preventive Community Dentistry, 2005 (2005); DDS 1988 Loyola - Chicago
- Russell, Gary J.**, Professor, Marketing, 1996 (1999); BA 1976 Virginia; PHD 1985 Chicago
- Russell, Stephen R.**, Professor, Ophthalmology Visual Science, 1996 (2005); BS 1978 Stanford; MD 1982 Calif-Los Angeles
- Russo, Andrew F.**, Professor, Physiology/Neurology, 1988 (2000); BA 1979 California-San Diego; PHD 1984 California-Berkeley

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Russo, Ralph P., Professor, Statistics Actuarial Science, 1983 (1995); BA 1974 State Univ of NY-Binghamton; PHD 1980 State Univ-NY-Binghamton

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Rutkowski, David Thomas, Associate Professor, Anatomy Cell Biology/Internal Medicine, 2008 (2008); BS 1997 Delaware; PHD 2002 California @ San Francisco

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Ruyle, Kathleen Ann, Adjunct Instructor, Social Work, 1997 (1997); MSW 1993 Iowa

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Ryang, Soon, Professor, Anthropology/International Programs, 2006 (2010); PHD 1995 Cambridge, UK

Ryckman, Kelli, Assistant Professor, Pediatrics/ Epidemiology, 2012 (2012); BS 2003 Iowa State University; MS 2008 Vanderbilt University; PHD 2009 Vanderbilt University

Rydzewski, Francis Chester, Adjunct Lecturer, Management Organizations, 2006 (2009); BA 1973 Rutgers; MBA 1974 Drexel

Ryfe, David, Professor, Journalism Mass Communication, 2014 (2014);

Ryken, Timothy Charles, Adjunct Associate Professor, Radiation Oncology/Neurosurgery, 1998 (2002); MD 1988 Iowa

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Sadler, Anne, Associate Professor, Psychiatry, 2003 (2013); BN 1978 Old Dominion; MS 1980 Virginia Commonwealth; DPHIL 1990 Iowa

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Sanders, Sara, Associate Professor, Social Work, 2003 (2011); BS 1994 St. Olaf; MSW 1995 Washington; PHD 2002 Maryland

Sanderson, Wayne T., Adjunct Professor, Epidemiology, 2002 (2005); BA 1977 Missouri; MS 1978 Central Missouri State; PHD 1997 North Carolina

Sandler, Leonard, Clinical Professor, Law-Faculty, 1990 (1997); BS 1978 Northeastern Univ; JD 1981 Maryland

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Sartini-Rideout, Claudia, Lecturer, French Italian, 2009 (2012); MS 1998 Iowa; PHD 2006 Iowa

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Schlueter, Renee Jeane, Adjunct Lecturer, Management Organizations, 2009 (2009); MA 1989 St. Louis, English; PHD 1996 St. Louis, English

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Schmidt, Dan L., Adjunct Instructor, Pharmacy, 2002 (2002); BSPH 1979 University of Iowa; BS 1979 Iowa

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Schmidt, Gregory Alan, Professor, Internal Medicine, 2006 (2006); BA 1977 St. Louis; MD 1981 Chicago

Schmidt, Julius, Emeritus Professor, Art Art History, 1970 (1972); BFA 1953 Cranbrook Academy of Art; MFA 1955 Cranbrook Academy of Art

Schmidt, Renita, Associate Professor, Teaching and Learning, 2011 (2011); PHD 2005 Iowa

Schmidt, Thomas J., Professor, Physiology/Obstetrics Gynecology, 1983 (1999); BA 1969 Delaware; MS 1973 Cornell; PHD 1976 Cornell

Schmidt, Warren, Professor, Internal Medicine, 1992 (2007); BA 1973 Augustana; MS 1974 Illinois; PHD 1978 Illinois; MD 1989 Tennessee

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Sexton, Nicole Elizabeth, Adjunct Lecturer, University College, 2008 (2008); BA 2006 Coe College; MA 2008 Iowa

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Sharp, Victoria Jean Allen, Clinical Professor, Family Medicine/Urology, 2002 (2010); BS 1983 George Mason; MD 1993 Arizona; MBA 2003 Iowa

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Shaw, Ian Kelloren, Adjunct Instructor, Family Dentistry, 2010 (2010); BA 2001 Iowa; DDS 2005 Iowa

Shaw, Kelly B., Adjunct Lecturer, Political Science, 2012 (2012);

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Shaw, Robert F., Adjunct Assistant Professor, Pharmacy Practice and Science, 2005 (2005); PHARM 1994 Illinois; MPH 2004 South Florida

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Shchelochkov, Oleg Anatolyevich, Assistant Professor, Pediatrics, 2009 (2009); MD 1997 Tashkent, USSR

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Sheeley, Neal, Clinical Adjunct Assistant Professor, Family Medicine, 2007 (2007); MA 1984 Loras College

Sheerin, Caroline, Lecturer, Law-Faculty, 2006 (2006); BA 1993 Barnard, Columbia; MA 1996 Washington; JD 1999 Michigan

Sheets, Frank Ryan, Adjunct Lecturer, Management Organizations, 2014 (2014);

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Sheetz, Carolita Theresa, Adjunct Lecturer, Nursing, 2003 (2007); BSN 1989 Mt. Pleasant, IA; MSN 1999 Iowa

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Sheldon, Daniel S., Emeritus Associate Professor, Teaching and Learning, 1973 (1980); BS 1960 Northern State; MS 1961 Northern State; PHD 1973 Iowa

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Shen, Bern, Adjunct Associate Professor, Emergency Medicine, 2008 (2008); MD 1981 Yale; MPHIL 1981 Yale

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Shepherd, Rhoda, Adjunct Instructor, Nursing, 1995 (1995); MA 1976 Iowa

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Shields, Richard Kemp, Professor, Orthopaedics and Rehabilitation/Physical Therapy, 1986 (2004); BA 1976 Cabawba; MA 1985 Iowa; PHD 1992 Iowa

Shields, Susan Margaret, Adjunct Instructor, Pharmacy Practice and Science, 2012 (2012);

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Shires, Robert S., Clinical Adjunct Assistant Professor, Family Medicine, 1999 (2002); BS 1972 Nebraska Wesleyan; MD 1975 Nebraska

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Shriver, Amy E., Clinical Adjunct Assistant Professor, Pediatrics, 2012 (2012);

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Shutters, Christina Marie, Clinical Assistant Professor, Obstetrics Gynecology, 2013 (2013);

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Smelser, Jamie Michelle, Adjunct Associate Professor, Pharmacy/Physical Therapy, 2008 (2008); BSPH 1994 Iowa; PHARMD 1996 Iowa

Smidt, Gary L., Emeritus Professor, Physical Therapy, 1969 (1977);

Smirl, Arthur L., Professor, Electrical-Computer Engineering/Physics Astronomy, 1988 (1988); BS 1968

Lamar; MSE 1969 Michigan; MS 1974 Arizona; PHD 1975 Arizona

Smith, Amanda Marie, Adjunct Assistant Professor, Pharmacy, 2007 (2007); PHARMD 2005 Iowa

Smith, Ann E., Adjunct Assistant Professor, Nursing, 2004 (2004); BSN 1989 Mount Mercy; MSN 2000 MN School of Anesthesia

Smith, Brian Joseph, Associate Professor, Biostatistics, 2001 (2008); BA 1993 St. Louis; MS 1995 Texas @ Austin; PHD 2001 Iowa

Smith, Carol Marie, Clinical Associate Professor, Rehabilitation and Counselor Education, 2008 (2014); BS 1986 North Dakota State; MS 1992 Western Illinois; PHD 2007 Iowa

Smith, Daryl Dee, Adjunct Professor, University College, 2009 (2009); AA 1958 Keokuk Community; BA 1960 Iowa; PHD 1967 South Dakota

Smith, Donald D., Emeritus Professor, Journalism Mass Communication, 1980 (1980); BA 1955 Syracuse; MA 1957 Nebraska; PHD 1964 North Carolina

Smith, Dorothy L., Adjunct Associate Professor, Pharmacy, 2005 (2005); PHARMD 1972 Cincinnati

Smith, Edgar, Adjunct Instructor, Preventive Community Dentistry, 2007 (2007); DDS 1965 Iowa

Smith, Elaine M., Professor, Obstetrics Gynecology/Preventive Community Dentistry/Epidemiology, 1979 (1998); BA 1968 Ohio State; MPH 1971 Michigan; PHD 1977 State Univ of New York-Buffalo

Smith, Frederick M., Professor, International Programs/Asian Slavic Languages Literature/Religion, 1989 (2008); BA 1969 Coe; MA 1976 Poona-India; PHD 1984 Pennsylvania

Smith, Hayden Lee, Clinical Adjunct Assistant Professor, Internal Medicine, 2012 (2012);

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Smith, Jeffrey J., Emeritus Associate Professor, Pediatrics, 1988 (1995); BA 1972 Minnesota; MD 1976 Mayo Medical

Smith, Jessica Purcell, Adjunct Assistant Professor, Pharmacy, 2008 (2008); MPH 2006 Iowa

Smith, Jessica, Clinical Assistant Professor, Surgery, 2009 (2009); MD 2003 California-Davis

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Smith, Jordan Andrew, Lecturer, Religion, 2008 (2008); BA 2000 Memphis; MA 2002 Florida State; PHD 2008 Florida State

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Smith, Leighton A., Adjunct Lecturer, Finance, 2012 (2012); AB 2004 University of Chicago

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Smith, Mark Charles, Clinical Associate Professor, Radiation Oncology, 2004 (2012); BS 1993 Iowa State; MD 1999 Iowa

Smith, Paul Russell, Adjunct Assistant Professor, Oral Maxillofacial Surgery, 2005 (2005); DDS 1984 Maryland

Smith, Richard J., Professor, Anatomy Cell Biology/Physiology/Pediatrics/Otolaryngology-Head Neck Surgery/Internal Medicine, 1990 (1990); BA 1974 Rice; MD 1977 Baylor

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Snyder, Peter M., Professor, Physiology/Internal Medicine, 1996 (2004); BA 1984 Luther; MD 1989 Iowa

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Soboroff, Shane Drew, Adjunct Assistant Professor, Sociology, 2012 (2013); BA 2002 IOWA

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Solomons, Hope, Emeritus Professor, Nursing, 1967 (1982); BA 1952 Clark; AM 1954 Wellesley; EDD 1957 Boston

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Spangler, Heather Jean, Adjunct Instructor, Journalism Mass Communication, 2008 (2008); BA 2003 Iowa; MA 2005 Iowa

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Spies, Maria, Associate Professor, Biochemistry, 2011 (2011);

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Spisak, Arthur Louis, Professor, Honors Program/Classics, 2011 (2011); BA 1966 Youngstown State; BA 1979 Youngstown State; MA 1985 John Carroll; PHD 1992 Loyla

Spitz, Douglas R., Professor, Radiation Oncology, 2000 (2006); BA 1978 Grinnell; PHD 1984 Iowa

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Spitzer, John Herbert, Emeritus Professor, Finance, 1995 (1997); BS 1966 Stanford; MS 1967 Iowa; PHD 1975 Duke

Spofford, Christina Marie, Clinical Assistant Professor, Anesthesia, 2008 (2011); BA 1994 Arizona; PHD 2001 Milwaukee, Wisconsin; MD 2003 Milwaukee, Wisconsin

Sponsler, Claire, Professor, English, 1993 (2004); BS 1982 Duke; MA 1984 Syracuse; PHD 1992 Pennsylvania

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Stachowiak, James Robert, Adjunct Lecturer, Rehabilitation and Counselor Education, 2010 (2010); BSE 2003 Michigan; MSE 2004 Michigan

Staffey, Kimberly, Clinical Assistant Professor, Internal Medicine/Radiology, 2007 (2010); MD 2001 Illinois, Rockford

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Stahlin, Robert, Adjunct Lecturer, Marketing, 2000 (2000); MBA 1999 Iowa

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Standish, Dominic, Adjunct Lecturer, Journalism Mass Communication/Communication Studies, 2008 (2009); MA 2002 Kent, UK; PHD 2007 Kent, UK

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Stanford, Douglas Leon, Clinical Adjunct Assistant Professor, Pediatrics, 2014 (2014);

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Stangl, Elizabeth Ann, Adjunct Instructor, Communication Sciences and Disorders, 2012 (2012); BS 2006 U of OK; MA 2009 University of Iowa; DAUD 2010 University of Iowa

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Stapleton, Anne Mckee, Lecturer, English, 2001 (2005); BS 1979 Kansas; BA 1991 Iowa; MA 1997 Iowa; PHD 2001 Iowa

Stapleton, Jack T., Professor, Microbiology/Internal Medicine, 1986 (1996); BA 1977 Iowa; MD 1980 Kansas

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Stark, Craig A., Clinical Adjunct Assistant Professor, Internal Medicine, 1987 (1991); MD 1982 Wayne State

Stark, David Wayne, Adjunct Instructor, Pharmacy, 2008 (2008); BSPH 1977 Iowa

Stark, Thomas Michael, Adjunct Assistant Professor, Orthodontics, 2006 (2006); BS 1980 Iowa State; DDS 1983 Iowa; MS 1985 Baylor College of Dentistry

Starlin, Crystal S., Adjunct Assistant Professor, Pharmacy, 2006 (2006); PHARMD 1999 Creighton

Starman, Elizabeth Eklund Kuepper, Lecturer, Teaching and Learning, 2014 (2014);

Starner, Timothy Duane, Associate Professor, Pediatrics, 2001 (2010); BS 1987 Colorado State; BS 1991 Colorado State; MD 1995 Colorado-Denver

Starry, Mary J., Clinical Assistant Professor, Pharmacy, 1991 (2010); BSPH 1980 Iowa

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Staub, David, Clinical Adjunct Assistant Professor, Internal Medicine, 2014 (2014);

Stauffer, George V., Emeritus Professor, Microbiology, 1978 (1989); BS 1969 Pennsylvania State; MS 1974 Pennsylvania State; PHD 1976 Pennsylvania State

Stauss, Harald Martin, Associate Professor, Health and Human Physiology, 2002 (2008); MD 1991 Heidelberg; PHD 1999 Humboldt

Stay, Barbara A., Emeritus Professor, Biology, 1967 (1977); BA 1947 Vassar; MA 1949 Radcliffe; PHD 1953 Radcliffe

Stecopoulos, Harilaos, Associate Professor, English, 1999 (2008); BA 1986 Oberlin; PHD 1999 Virginia

Steele, Gillian, Adjunct Instructor, Spanish Portuguese, 2010 (2010); BA 2006 Iowa; MA 2009 Iowa

Steele, Oliver, Emeritus Professor, English, 1967 (1974);

Steelman, Victoria Jean, Assistant Professor, Nursing, 1989 (2009); BSN 1979 Iowa; PHD 1997 Iowa

Steenblock, Douglas F., Clinical Adjunct Assistant Professor, Psychiatry, 2001 (2001); MD 1992 Creighton

Steffen, Angela Lynn, Adjunct Assistant Professor, Pharmacy Practice and Science, 2012 (2012);

Steffensmeier, Andrew Clyde, Adjunct Assistant Professor, Ophthalmology Visual Science, 2011 (2011); BA 2000 Luther; MD 2004 Iowa

Stehbens, James A., Emeritus Professor, Pediatrics, 1967 (1984); BS 1962 Iowa State; PHD 1967 Iowa

Stein, Kyle Matthew, Clinical Assistant Professor, Oral Maxillofacial Surgery, 2013 (2013);

Steinberg, Allen, Emeritus Associate Professor, History, 1991 (1993); BA 1972 Northwestern; MA 1974 Columbia; MPHIL 1975 Columbia; PHD 1983 Columbia

Steinbrech, Nora, Lecturer, Teaching and Learning, 2001 (2001); PHD 1991 Iowa

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Stennes, Bryan Alvin, Adjunct Lecturer, Economics, 2012 (2012);

Stensrud, Emily Dee, Adjunct Instructor, Pharmacy Practice and Science, 2013 (2013);

Stensvaag, John-Mark, Professor, Law-Faculty, 1987 (1987); BA 1969 Augsburg; JD 1974 Harvard

Stephan, Jean-Marie, Clinical Assistant Professor, Obstetrics Gynecology, 2014 (2014);

Stephens, Lindsey J., Adjunct Instructor, Pharmacy, 2003 (2003); BSPH 1998 Drake

Stephens, Ralph I., Emeritus Professor, Mechanical Engineering, 1965 (1972); BS 1957 Illinois; MS 1960 Illinois; PHD 1965 Wisconsin

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Stevens, Lewis Lee, Assistant Professor, Pharmacy, 2012 (2012);

Stevenson, Chad Bruce, Adjunct Assistant Professor, Family Dentistry, 2010 (2010); DDS 1988 Iowa

Stevenson, Richard A., Emeritus Professor, Finance, 1967 (1976); BBA 1961 St. Bonaventure; MBA 1962 Syracuse; PHD 1965 Michigan State

Stewart, David E., Professor, Mathematics, 1998 (2006); BSC 1983 Univ of Queensland-Australia; BE 1983 Univ of Queensland-Australia; PHD 1990 Univ of Queensland-Australia

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Stewart, Mary, Emeritus Assistant Professor, Nursing, 1974 (1983);

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Stier, Amy Christine, Clinical Associate Professor, Pediatrics, 2007 (2013); BA 1999 Minnesota; MD 2003 Iowa

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Stilley, Joshua David, Clinical Assistant Professor, Emergency Medicine, 2013 (2013);

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Stinski, Mark F., Emeritus Professor, Microbiology, 1973 (1983); BS 1964 Michigan State; MS 1966 Michigan State; PHD 1969 Michigan State

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Stoen, David J., Instructor, Military Science, 2011 (2011);

Stolpen, Alan Howard, Associate Professor, Radiology, 1999 (1999); PHD 1988 Harvard; MD 1988 Harvard

Stoltz, David, Associate Professor, Physiology/Biomedical Engineering/Internal Medicine, 2007 (2013); BA 1993 Mississippi; PHD 1998 Louisiana State; MD 2000 Louisiana State

Stoltzfus, Conrad M., Emeritus Professor, Microbiology, 1979 (1985); BA 1966 Colorado; PHD 1971 Wisconsin

Stone, Edwin M., Professor, Ophthalmology Visual Science, 1990 (1997); BA 1978 Rice; PHD 1983 Baylor; MD 1985 Baylor

Stone, Elizabeth Anne, Assistant Professor, Chemistry, 2010 (2010); BA 2005 Grinnell; PHD 2009 Wisconsin-Madison

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Stone, R. Eric, Associate Professor, Theatre Arts, 2008 (2011); BA 1989 Lewis Clark; MFA 1994 Ohio

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Streng, David Joseph, Adjunct Instructor, Pharmacy, 1997 (1997); BS 1974 Iowa

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- Struve, Ann Riesselman**, Lecturer, Nursing, 2009 (2009); BSN 2005 Iowa; MSN 2009 Iowa
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- Stuart, Shana L.**, Adjunct Instructor, Library Information Science, 2004 (2004); BA 1982 Kansas; MA 1985 Kansas; PHD 1992 Kansas; AMLS 2001 Iowa
- Stubblefield, Joshua David**, Clinical Adjunct Assistant Professor, Family Medicine, 2010 (2010); BS 2001 Brigham Young; DO 2005 Des Moines Univ - Osteopathic
- Stubbs, David H.**, Clinical Adjunct Associate Professor, Orthopaedics and Rehabilitation, 1987 (2009); MD 1972 Missouri
- Stuefen, Sara Elizabeth**, Adjunct Instructor, Family Dentistry, 2010 (2010); DDS 2010 Iowa
- Stufflebeam, Michael Dean**, Adjunct Assistant Professor, Pediatric Dentistry, 2002 (2002); DDS 2000 Iowa
- Stump, Aaron D.**, Professor, Computer Science, 2008 (2014); BA 1997 Cornell; PHD 2002 Stanford
- Stumpf, Nicholas John**, Adjunct Assistant Professor, Pharmacy Practice and Science, 2013 (2013);
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- Sturges, Terri Lynn**, Adjunct Instructor, Social Work, 2012 (2012);
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Walter, Kathy Brenneman, Lecturer, Health and Human Physiology, 2005 (2006); BS 2002 Iowa; MA 2004 Iowa

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Walters, Katherine Susan, Adjunct Lecturer, Anatomy Cell Biology, 2011 (2011); BS 1988 Northern Iowa

Walton, Richard E., Emeritus Professor, Endodontics/Family Dentistry, 1983 (1983); BA 1961 Washington; DMD 1965 Oregon; MS 1970 Illinois

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Weiler, Kay Boese, Emeritus Associate Professor, Nursing, 1982 (1995); BS 1972 Indiana; JD 1985 Iowa; MA 1986 Iowa

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Weiner, George J., Professor, Internal Medicine, 1989 (2000); BA 1978 Johns Hopkins; MD 1981 Ohio State

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Weingeist, Thomas A., Emeritus Professor, Ophthalmology Visual Science, 1975 (1983); BA 1963 Earlham; PHD 1969 Columbia; MD 1972 Iowa

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Weismann, Douglas N., Emeritus Associate Professor, Pediatrics, 1977 (1984); AB 1968 Occidental; MD 1972 Arizona; MS 1977 Iowa

Weiss, David S., Associate Professor, Microbiology, 1998 (2004); BA 1985 Swarthmore; PHD 1991 Univ of California-Berkeley

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White, Pamela J., Adjunct Assistant Professor, Law-Faculty/Art Art History, 2000 (2000); BA 1973 Graceland; JD 1978 Missouri-Kansas City; MA 1984 Kansas; PHD 1991 Kansas

White, Robert Thomas, Adjunct Instructor, Preventive Community Dentistry, 2005 (2005); BA 1987 Wartburg; DDS 1991 Iowa

White, Susan Chrysler, Professor, Art Art History, 2000 (2014); BA 1977 California-Berkeley; MFA 1980 California-Davis

Whitehill, Dawn Marie Marcellus, Adjunct Associate Professor, Pharmacy, 2008 (2008); PHARM 2001 Iowa

Whiteman, Charles H., Emeritus Professor, Economics, 1980 (1992); BA 1975 Kansas; PHD 1981 Minnesota

Whiteman, D. Bruce, Adjunct Lecturer, Interdisciplinary Programs, 2012 (2012);

Whiteside, Douglas M., Clinical Professor, Psychiatry, 2014 (2014);

Whitt, Elizabeth J., Emeritus Professor, Educ Policy Leadership Studies, 1997 (2003); BA 1973 Drake; MA 1977 Michigan State; PHD 1988 Indiana-Bloomington

Whitter, Tyrone Bruce, Clinical Associate Professor, Anesthesia, 1995 (2000); BS 1982 Rochester; PHD 1988 University of Iowa; MD 1991 University of Iowa

Wibbenmeyer, Lucy A., Clinical Associate Professor, Surgery, 1997 (2008); BA 1987 Missouri-Columbia; MD 1991 Tennessee

Wiblin, Raymond Todd, Clinical Associate Professor, Internal Medicine, 1996 (2004); MD 1990 Case Western Reserve

Wichman, Michael D., Adjunct Assistant Professor, Occupational Environmental Health, 2000 (2000); AS 1976 Iowa Western Community College; BS 1978 Creighton; MS 1980 Creighton; PHD 1984 Kansas State

Wicklund, Gary A., Emeritus Associate Professor, Management Sciences, 1967 (1973);

Wickman, Lynette Kay, Adjunct Assistant Professor, Pharmacy Practice and Science, 2010 (2012); BA 2006 Coe; PHARM 2010 Iowa; PHD 2010 Iowa

Widen, Michael Dean, Adjunct Instructor, Health and Human Physiology, 2007 (2007); BS 1997 Iowa; MA 2000 Iowa

Widmer, Reuben B., Emeritus Professor, Family Medicine, 1971 (1980); BA 1940 Goshen; MD 1943 Iowa

Widness, John A., Professor, Inst for Clinical and Translational Science/Pediatrics, 1988 (1992); BA 1968 Amherst; MD 1972 Duke

Wiebel, Cara Christine Dehekker, Adjunct Instructor, University College Courses/University College, 2013 (2013);

Wiedenfeld, Sara, Clinical Assistant Professor, Pharmacy, 2007 (2014); PHARM 2007 Drake; PHD 2007 Drake

Wieland, Julie A., Adjunct Instructor, Communication Sciences and Disorders, 2012 (2012); BA 1988 University of Iowa; MA 1990 University of Northern Iowa; DR 2004 Arizona School of Health Scie

Wiemer, David F., Professor, Chemistry/Pharmacology, 1978 (1989); BS 1972 Marquette; PHD 1976 Illinois

Wiese, Chad Michael, Adjunct Assistant Professor, Family Dentistry, 2011 (2011); DDS 2003 Iowa

Wieting, Stephen George, Emeritus Associate Professor, Sociology, 1971 (1977); BA 1962 Whitworth; BD 1965 Princeton Theological Seminary; PHD 1971 Minnesota

Wiggins, Tabitha Nicole, Adjunct Lecturer, University College, 2013 (2013); HS 2004 W.M. Young Magnet HS - Chicago; BA 2009 Western Illinois, Macomb, IL; MS 2011 Univ of Central Missouri

Wilbur, Jason K., Clinical Associate Professor, Family Medicine, 2003 (2006); BS 1995 Missouri-Columbia; MD 1999 Saint Louis

Wilcox, Adam, Adjunct Instructor, Pharmacy Practice and Science, 2013 (2013);

Wilcox, Jonathan, Professor, English, 1987 (2002); BA 1981 Manchester - England; PHD 1987 Cambridge - England

Wilde, Jaron Harp, Assistant Professor, Accounting, 2013 (2013);

Wilder, David G., Professor, Biomedical Engineering/Occupational Environmental Health, 1994 (2013); BS 1974 Vermont; MS 1978 Vermont; PHD 1985 Vermont

Wiley, Gina Lynn, Adjunct Instructor, Communication Sciences and Disorders, 2008 (2008); BA 1996 Central College; MA 2007 Northern Iowa

Wilgenbusch, Tammy Lynn Vinzant, Adjunct Assistant Professor, Psych Quant Foundations, 2010 (2010); MA 1997 Mankato State; PHD 2002 IOWA

Wilkinson, Krista Joi, Adjunct Assistant Professor, Pharmacy Practice and Science, 2011 (2011); PHARMD 2010 Purdue

Wilkinson, Mark E., Clinical Professor, Ophthalmology Visual Science, 1997 (2007); OD 1980 Illinois College of Optometry

Willard, Andrew, Adjunct Lecturer, International Programs/University College Courses, 2014 (2010); AB 1975 Stanford

Willard, Derek Hunt, Emeritus Associate Professor, Preventive Community Dentistry, 1974 (1981); BA 1964 Rhode Island; MA 1968 Pennsylvania; PHD 1975 Iowa

Willard, Pamela H., Emeritus Assistant Professor, Occupational Environmental Health/Nursing, 1982 (1998); BSN 1966 Cornell-New York; MS 1979 Iowa

Willenborg, Melissa, Clinical Assistant Professor, Orthopaedics and Rehabilitation, 2012 (2012);

Williams, Chad L., Emeritus Associate Professor, Internal Medicine, 1973 (1983); BA 1964 Wabash; MD 1968 Iowa

Williams, Charles J., Adjunct Lecturer, Law-Faculty, 2001 (2001); BBA 1985 Iowa; JD 1988 Iowa; LLM 1997 Missouri

Williams, Charles Campbell, Adjunct Lecturer, Law-Faculty, 2014 (2014); BA 1993 Middlebury College

Williams, Glenn, Associate Professor, Physical Therapy/Orthopaedics and Rehabilitation, 2003 (2012); BA 1991 Kings College, Briarcliff; MPT 1994 Baylor; PHD 2004 Delaware

Williams, Glenys O., Emeritus Professor, Family Medicine, 1974 (1989); BSC 1950 Wales; MBCH 1953 Welsh Nat School of Med

Williams, Janet Karen Day, Professor, Nursing, 1969 (2002); BSN 1968 Iowa; MA 1972 Iowa; PHD 1989 Iowa

Williams, Kristin Kelly, Adjunct Assistant Professor, Pharmacy Practice and Science, 2011 (2011); PHARMD 2000 Drake

Williams, Kristine Elise, Lecturer, Biology, 2001 (2011); BA 1992 Grinnell College; MS 2001 IOWA

Williams, Kristine Nordlie, Professor, Nursing, 2012 (2012);

Williams, Michael J., Adjunct Instructor, Pharmacy, 2008 (2008); BSPH 1996 Ferris State

Williams, Nancy Ann, Clinical Professor, Psychiatry, 1998 (2011); BS 1989 Iowa State; MD 1990 Iowa

Williams, Norman E., Emeritus Professor, Biology, 1957 (1967); BA 1952 Youngston; MS 1954 Brown

Williams, Rachel Marie-Crane, Associate Professor, Art Art History/Gender, Women's and Sexuality Studies/Teaching and Learning, 1999 (2005); BFA 1993 East Carolina; MFA 1995 Florida State; PHD 1999 Florida State

Williams, Terence H., Emeritus Professor, Anatomy Cell Biology, 1973 (1973); MD 1953 Manchester-England; PHD 1960 Wales

Williams, Vincent D., Emeritus Professor, Family Dentistry, 1972 (1991);

Williamson, Ann Marie, Clinical Adjunct Professor, Nursing, 2008 (2008); BSN 1978 North Carolina-Chapel Hill; MSN 1985 Texas - Austin; PHD 1999 California - San Fran

Williamson, Anne Elizabeth, Associate Professor, Endodontics, 2003 (2007); BS 1984 Nebraska; DDS 1988 Nebraska; CER 2003 University of Iowa; MSD 2004 University of Iowa

Williamson, H. E., Emeritus Professor, Pharmacology, 1960 (1970); BS 1953 Wisconsin; PHD 1959 Wisconsin

Williamson, Richard Alan, Clinical Associate Professor, Family Dentistry, 2001 (2008); BS 1976 Texas A M; DDS 1980 Texas; MS 2001 Nebraska

Williamson, Roger A., Emeritus Professor, Obstetrics Gynecology, 1981 (1990); BS 1966 Colorado State; MS 1971 Baylor; MD 1971 Baylor

Williamson, Thomas Calvin, Adjunct Assistant Professor, Preventive Community Dentistry, 2007 (2007); DDS 1991 Iowa

Willour, Virginia Lea, Associate Professor, Psychiatry, 2011 (2011); BS 1992 Michigan; PHD 1998 Stanford

Wilson, Brent David, Adjunct Professor, Finance, 2009 (2009); BA 1969 Weber State; MBA 1971 Northwestern; DBA 1971 Northwestern

Wilson, Christopher G., Adjunct Assistant Professor, Civil-Environmental Engineering, 2011 (2011); PHD 2004 Case Western Reserve Univ.

Wilson, Elizabeth Marie, Adjunct Instructor, Pharmacy Practice and Science, 2013 (2013);

Wilson, Jeffrey Scott, Clinical Professor, Internal Medicine, 1989 (2003); BS 1978 Iowa; MD 1983 Iowa

Wilson, Jessica Hope, Adjunct Lecturer, Management Organizations, 2012 (2012); BA 2004 Brown University

Wilson, John Thurlow, Emeritus Associate Professor, Teaching and Learning, 1973 (1977); BA 1959 Northern Colorado; MA 1962 Northern Colorado; PHD 1973 Florida

Wilson, Mark Cooper, Clinical Professor, Medicine Administration/Internal Medicine, 2004 (2004); BA 1981 Westminster; MD 1985 Texas Tech; MPH 1991 Johns Hopkins

Wilson, Mary Edythe, Professor, Internal Medicine/Microbiology/International Programs/Epidemiology, 1986 (1997); BA 1975 Carleton; MD 1980 Rochester

Wilson, Saul, Assistant Professor, Neurosurgery, 2011 (2012); MD 2003 Louisiana State

Wilson, Scott Robert, Clinical Professor, Internal Medicine, 2000 (2006); BS 1981 Fairfield; DO 1986 Des Moines Osteopathic

Wilson, Thad Rahn, Clinical Professor, Nursing, 2013 (2013);

Wilson, Thomas, Adjunct Instructor, Preventive Community Dentistry, 1989 (1989); DDS 1987 Iowa

Wilson Kimber, Marian, Associate Professor, Music, 2004 (2004); BA 1983 NC Greensboro; MM 1989 Florida State; PHD 1993 Florida State

Wilson Peters, Virginia Lee, Adjunct Lecturer, Management Organizations, 2002 (2002); MBA 1995 Iowa

Windschitl, Paul D., Professor, Psychology, 1997 (2009); BA 1991 Creighton; MS 1993 Iowa State; PHD 1996 Iowa State

Winet, Jon, Professor, Art Art History/International Programs, 2002 (2014); MA 1979 San Francisco State; BA 1979 California-Berkeley

Wing, Adrien K., Professor, Law-Faculty/International Programs, 1987 (1993); AB 1978 Princeton; MA 1979 California-Los Angeles; JD 1982 Stanford

Winga, Edward R., Clinical Adjunct Assistant Professor, Internal Medicine, 1982 (1991); MD 1962 Iowa

Winkler, Mark Alan, Adjunct Lecturer, Marketing, 2012 (2012); BS 1979 Shippensburg University, PA; MBA 2001 The University of Iowa

Winn, Bryon Stephen, Professor, Theatre Arts, 1995 (2011); BA 1992 Weber State; MFA 1995 Iowa

Winn, Richard, Adjunct Professor, Neurosurgery, 2010 (2010); MD 1968 Pennsylvania

Winokur, Patricia Lee, Professor, Medicine Administration/Internal Medicine, 1993 (2009); BA 1981 Brown; MD 1985 Washington-St. Louis

Winter, Allison Ann, Adjunct Instructor, Preventive Community Dentistry, 2001 (2001); BS 1981 University of Iowa

Witry, Matthew John, Assistant Professor, Pharmacy Practice and Science, 2014 (2014);

Witt, Doris S., Associate Professor, English/Law-Faculty, 1994 (2001); BA 1984 Centre; MA 1987 Virginia; PHD 1995 Virginia

Witte, Suzanne Bakke, Adjunct Instructor, Social Work, 2005 (2005); BA 1985 Iowa; MSW 1990 Iowa

Wittenberg, Craig, Clinical Adjunct Associate Professor, Family Medicine, 2004 (2004); BA 1987 Iowa; MD 1991 Iowa

Wittenberg, David H., Associate Professor, Cinema Comparative Literature/English, 1998 (2004); BA 1987 Yale; MA 1989 Northwestern; PHD 1995 Johns Hopkins; MARCH 1996 Univ of California, Berkeley

Witzke, Brian J., Adjunct Associate Professor, Earth and Environmental Sciences, 1982 (1995); BA 1974 Wisconsin-Milwaukee; MS 1976 Iowa; PHD 1981 Iowa

Wocher, John, Adjunct Instructor, Health Management Policy, 1994 (2014); BA 1991 Maryland

Woerner, Robert F., Emeritus Associate Professor, English, 1957 (1966);

Wohlgenannt, Markus, Associate Professor, Physics Astronomy, 2002 (2008); MS 1997 Graz-Austria; PHD 2000 Utah

Wojciak, Armeda Jean, Assistant Professor, Rehabilitation and Counselor Education, 2014 (2014);

Wold, Marc S., Professor, Biochemistry/Radiation Oncology, 1989 (2000); BS 1979 California Inst of Technology; PHD 1984 Johns Hopkins

Wolf, Anthony David, Assistant Professor, Military Science, 2005 (2005); BGS 1987 Iowa; AA 1995 Kirkwood Community; MA 2002 Iowa

Wolf, Brian Robert, Associate Professor, Physical Therapy/Orthopaedics and Rehabilitation, 2003 (2011); BA 1989 Loyola; MD 1997 Loyola; MS 2006 Iowa

Wolf, Karen Kay Maxfield, Adjunct Assistant Professor, Periodontics, 2005 (2005); DDS 1998 Iowa

Wolf, Margaret Cate, Clinical Adjunct Assistant Professor, Urology, 1996 (1996); MD 1987 Iowa

Wolf, Margery, Emeritus Professor, Gender, Women's and Sexuality Studies/Anthropology, 1985 (1985);

Wolfe, Katherine, Associate Professor, Music, 2004 (2004); BM 1992 Indiana; MM 1994 Manhattan School of Music

Wolfe, Steven L., Emeritus Professor, Family Medicine, 2001 (2008); BA 1968 Cornell; MD 1976 Iowa

Wolfson, Sara C., Emeritus Associate Professor, Educ Policy Leadership Studies, 1971 (1977); BS 1957 Appalachian State; MS 1962 North Carolina; EDD 1971 Houston

Wolfson, Sherwood, Emeritus Associate Professor, Oral Maxillofacial Surgery, 1971 (1976); BS 1953 Westminster; DDS 1957 Pittsburgh

Wolinsky, Fredric D., Professor, Health Management Policy/Nursing/Internal Medicine, 2003 (2003); BA 1972 Friends UNI; MA 1974 Drake; PHD 1977 Southern Illinois

Wolken, Stephen H., Clinical Adjunct Assistant Professor, Ophthalmology Visual Science, 1975 (1996); MD 1968 Iowa

Wolt, Jeffrey D., Adjunct Professor, Epidemiology, 2013 (2013);

Wolterman, Courtney, Adjunct Instructor, Preventive Community Dentistry, 2014 (2014);

Wong, John Kong-Fah, Adjunct Associate Professor, Marketing, 2014 (2014);

Wong, Pamela Florence, Adjunct Assistant Professor, Pharmacy Practice and Science, 2013 (2013); BA 2008 University of Iowa

Wood, Kelly Elizabeth, Clinical Assistant Professor, Pediatrics, 2010 (2010); BS 2000 Iowa; MD 2004 Iowa

Wood, Kevin Michael, Adjunct Assistant Professor, Psych Quant Foundations, 2011 (2011); BA 1973 Binghamton; MSED 1974 James Madison; PHD 1987 Iowa

Wood, Shari M., Adjunct Instructor, Pharmacy, 2000 (2000); BS 1993 Iowa; BSPH 1993 Iowa

Wood, Susannah Margaret, Associate Professor, Rehabilitation and Counselor Education, 2006 (2012); BA 1997 Richmond(VA); MED 2000 William Mary; PHD 2006 William Mary

Woodard, Fredrick, Emeritus Associate Professor, English, 1973 (1979); BA 1961 Iowa Wesleyan; MA 1971 Iowa; PHD 1976 Iowa

Woodhead, Jerold C., Associate Professor, Pediatrics, 1979 (1988); BA 1967 Stanford; MD 1971 Yale

Woodman, Catherine L., Associate Professor, Family Medicine/Psychiatry, 1990 (2000); BA 1981 Brown; MD 1985 Brown

Woods, Anna Marie, Adjunct Instructor, Preventive Community Dentistry, 2013 (2013);

Woods, Kenneth Todd, Adjunct Instructor, Radiology, 2013 (2013); BS 1990 Medical College of Georgia

Woods-Groves, Suzanne, Associate Professor, Teaching and Learning, 2008 (2014); BS 1998 Auburn; MED 1999 Auburn; PHD 2007 Auburn

Woods-Jaeger, Briana A., Adjunct Assistant Professor, Community Behavioral Health, 2012 (2012);

Woods-Swofford, Wendy, Clinical Adjunct Assistant Professor, Pediatrics, 2009 (2009); MD 2002 Missouri - KC; MPH 2008 Vanderbilt

Woodworth, George, Emeritus Professor, Biostatistics/Statistics Actuarial Science, 1971 (1996); BA 1962 Carleton; PHD 1966 Minnesota

Woolson, Robert F., Emeritus Professor, Biostatistics/Statistics Actuarial Science/Epidemiology, 1972 (1981); BA 1967 Delaware; PHD 1972 North Carolina

Workman, Douglas M., Clinical Adjunct Assistant Professor, Family Medicine, 1995 (2001); MD 1989 Iowa

Worrell, James B., Emeritus Associate Professor, Neurology, 2001 (2001); BA 1964 Iowa; MD 1967 Iowa

Wortman, Gloria Deanne, Adjunct Assistant Professor, Art Art History, 2012 (2012);

Wrenn, Douglas Edward, Adjunct Instructor, Pharmacy, 1997 (1997); BS 1981 Iowa

Wretman, Debra, Lecturer, Teaching and Learning, 2014 (2014);

Wright, Arlene, Adjunct Instructor, Pharmacy, 1997 (1997); BSPH 1981 Drake

Wright, Brad, Assistant Professor, Public Policy Center/Health Management Policy, 2012 (2012);

Wright, Diana L., Clinical Adjunct Instructor, Internal Medicine, 2001 (2001); MD 1978 Iowa

Wright, Michael Eugene, Assistant Professor, Physiology, 2008 (2008); BS 1994 Nevada; PHD 2000 Washington

Wu, Chun-Fang, Professor, Biology, 1979 (1989); BS 1969 Tunghai-Taiwan; PHD 1976 Purdue

Wu, Han-Chin, Emeritus Professor, Civil-Environmental Engineering/Mechanical Engineering, 1970 (1981); BS 1960 National Taiwan; MS 1965 Rhode Island; MS 1967 Yale; PHD 1970 Yale

Wu, Meng, Adjunct Assistant Professor, Pharmacy/Biochemistry, 2012 (2012);

Wu, Shih-Yen, Emeritus Professor, Economics, 1964 (1968);

Wu, Xiaodong, Associate Professor, Electrical-Computer Engineering/Radiation Oncology, 2005 (2010); BS 1992 Peking; MCS 1995 Peking; PHE 2002 Notre Dame

Wu, Ying-Qing, Emeritus Professor, Mathematics, 1993 (2001); BS 1982 Hehai-China; MS 1984 Beijing-China; PHD 1987 Beijing-China

Wu, Yu-Hsiang, Assistant Professor, Communication Sciences and Disorders, 2010 (2010); PHD 2007 Iowa

Wulf, Joel, Adjunct Instructor, Social Work, 2003 (2003); BA 1978 Iowa; MSW 1992 Iowa

Wunder, Charles C., Emeritus Professor, Physiology, 1954 (1971); AB 1949 Washington and Jefferson; MS 1952 Pittsburgh; PHD 1954 Pittsburgh

Wurster, Dale Eric, Professor, Graduate College Administration/Pharmacy, 1982 (1996); BS 1974 Wisconsin; PHD 1979 Purdue

Wurth, Michael Gerard, Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARM 1999 Illinois-Chicago

Wyatt, Mark A., Adjunct Instructor, University College Courses, 2008 (2014); AA 1996 Kirkwood Community College

Wyman, Wayne Herrington, Lecturer, Music, 2012 (2014);

Wymer, Justin Brian, Adjunct Assistant Professor, Creative Writing, 2014 (2014);

Xia, Junyi, Assistant Professor, Radiation Oncology, 2011 (2011); BS 1996 Xhe Jian, China; MS 2003 Memphis; PHD 2009 Florida

Xia, Ting, Adjunct Assistant Professor, Biomedical Engineering, 2009 (2014); PHD 2007 Iowa

Xiao, Shaoping, Associate Professor, Mechanical Engineering, 2003 (2008); BS 1995 Univ of Science and Tech China; MS 1998 Univ of Science and Tech China; PHD 2002 Northwestern

Xing, Yi, Adjunct Associate Professor, Internal Medicine, 2006 (2012); BE 2000 Univ of Science and Tech China; BS 2001 Univ of Science and Tech China; PHD 2006 UCLA

Xiong, Jinhu, Associate Professor, Biomedical Engineering/Radiology, 2003 (2003); MEE 1986 Tsinghua Beijing; PHD 1995 Texas

Xu, Weiyu, Assistant Professor, Electrical-Computer Engineering, 2011 (2011); MS 2005 Tsinghua,(Beijing); MS 2006 Cal Tech; PHD 2008 Cal Tech

Xue, Hai-Hui, Associate Professor, Microbiology, 2006 (2012); MD 1991 China Medical; MS 1994 China Medical; PHD 2000 Hamamatsu

Yablon, Nicholas, Associate Professor, American Studies, 2003 (2009); BA 1994 Birmingham, England; PHD 2002 Chicago

Yack, H. John, Associate Professor, Physical Therapy, 1994 (1994); BS 1973 New Hampshire; MS 1981 North Carolina; PHD 1987 Waterloo-Canada

Yager, Robert E., Emeritus Professor, Teaching and Learning, 1956 (1967); BA 1950 Iowa State; MS 1953 Iowa; PHD 1957 Iowa

Yahr, Timothy Lee, Professor, Microbiology, 2001 (2013); BS 1991 Wisconsin-Stevens Point; MS 1995 Medical College of Wisconsin; PHD 1998 Medical College of Wisconsin

Yale, Elizabeth Esther, Adjunct Assistant Professor, Interdisciplinary Programs, 2014 (2014);

Yamada, Thoru, Emeritus Professor, Neurology, 1975 (1984); MD 1966 Nagoya

Yang, Jianming, Adjunct Associate Professor, Mechanical Engineering, 2007 (2011); PHD 2004 Maryland

Yang, Jingzhen, Adjunct Associate Professor, Community Behavioral Health, 2004 (2010); BA 1982 Suzhou, China; MPH 1999 Indiana; PHD 2004 North Carolina

Yang, Limin, Clinical Assistant Professor, Radiology, 2010 (2010); MD 1987 Beijing Medical, China; MS 1990 Peking Union, China; PHD 1996 Peking Union, China

Yang, Ling, Assistant Professor, Anatomy Cell Biology, 2014 (2014);

Yang, Shujie, Assistant Professor, Obstetrics Gynecology, 2013 (2013); PHD 2009 Univ N Mexico

Yang, Tianbao, Assistant Professor, Computer Science, 2014 (2014);

Yankowitz, Jerome, Emeritus Professor, Obstetrics Gynecology, 1993 (2003); BS 1980 Yale; MD 1986 State U of NY-Dwnst Med Cntr

Yannelis, Nicholas C., Professor, Economics, 2011 (2011); MA 1977 London-Economics; MA 1979 Rochester; PHD 1983 Rochester

Yao, Tong, Associate Professor, Finance, 2008 (2013); BA 1991 Fudan; PHD 2001 Boston College

Yarahmadi, Alireza, Clinical Adjunct Assistant Professor, Neurology, 2011 (2011);

Yarbrough, Donald B., Professor, Educ Policy Leadership Studies/Psych Quant Foundations, 1982 (2009); BA 1971 Hendrix; MA 1973 Kentucky; PHD 1982 Georgia

Ye, Guibo, Lecturer, Mathematics, 2012 (2013);

Ye, Yangbo, Professor, Mathematics, 1990 (1999); BS 1981 QingHua-China; MA 1982 Columbia; PHD 1986 Columbia; MPH 1986 Columbia

Yeager, Anson, Clinical Adjunct Associate Professor, Surgery, 2004 (2013); BA 1976 Augustana; BS 1978 South Dakota MED; MD 1980 Tufts Med, MA

Yeager, Rebecca, Lecturer, English as Second Language, 2012 (2012);

Yeakel, Gregory J., Adjunct Assistant Professor, Pharmacy, 2005 (2005); BSPH 1974 Drake

Yeaman, Charles A., Associate Professor, Internal Medicine/Anatomy Cell Biology, 2001 (2006); BS 1986 Calif-San Diego; PHD 1993 Wisconsin

Yeates, Randhall Robert, Adjunct Instructor, Pharmacy, 2009 (2009); BSPH 1986 Iowa; MBA 1998 Iowa

Yeats, Robert Evan, Emeritus Associate Professor, Music, 1973 (1981); BS 1966 Ithaca; MA 1971 Iowa; MFA 1977 Iowa

Yeh, Malcolm H., Clinical Associate Professor, Neurology, 1992 (2004); BA 1980 Calif-Berkeley; MD 1985 Calif-Davis

Yerkes, Lawrence John, Adjunct Instructor, Interdisciplinary Programs, 1983 (1983);

Yi, Kai, Adjunct Assistant Professor, Physics Astronomy, 2014 (2014); PHD 2004 Johns Hopkins University

Yi, Tong, Adjunct Lecturer, Management Sciences, 2011 (2011); PHD 2005 Louisiana State

Yin, Youbing, Adjunct Assistant Professor, Mechanical Engineering, 2011 (2011); PHD 2011 Iowa

Yockey, Joseph W., Associate Professor, Law-Faculty, 2010 (2010); BA 2000 Kansas; JD 2004 Illinois

Yoder, Franklin Lee, Adjunct Assistant Professor, History, 2000 (2000); BA 1988 Iowa; MA 1989 Chicago; PHD 1999 Chicago

Yoder, Holly Blosser, Adjunct Lecturer, Honors Program, 2010 (2010); BA 1985 Eastern Mennonite; MA 2009 Iowa

Yoder, Reagan Lee, Adjunct Assistant Professor, Art Art History, 2001 (2001); BA 1971 Bethel; MA 1985 Iowa; MFA 1987 Iowa

Yoder Dowden, Amy Melinda, Clinical Assistant Professor, Internal Medicine, 2007 (2008); MD 2000 Missouri-Kansas; BA 2000 Missouri-Kansas

Yohe, William Tyson, Adjunct Assistant Professor, Pharmacy Practice and Science, 2010 (2010); PHARMD 2000 Iowa

Yoon, Sang-Seok, Lecturer, Asian Slavic Languages Literature, 2012 (2012);

Yorek, Mark A., Professor, Internal Medicine, 1987 (2002); BS 1976 Bemidji; PHD 1981 North Dakota

York, Douglas Kent, Adjunct Instructor, Emergency Medicine, 2009 (2009); AA 1979 Des Moines Community

Yost, William J., Clinical Adjunct Professor, Internal Medicine, 1997 (2010); MD 1988 Iowa

Youn, Byeng Dong, Adjunct Assistant Professor, Mechanical Engineering, 2003 (2003); PHD 2001 University of Iowa

Young, Dan, Adjunct Instructor, Preventive Community Dentistry, 2011 (2011); DMD 2008 Nova Southeastern

Young, Donald Carleton, Clinical Adjunct Assistant Professor, Obstetrics Gynecology, 2009 (2009); BA 1981 Drake; DO 1985 Des Moines University

Young, James R., Emeritus Assistant Professor, Family Medicine, 1976 (2002); BS 1967 Iowa State; MD 1970 Iowa

Young, Joann L., Adjunct Instructor, Social Work, 1998 (1998); MA 1974 Drake

Young, Lance B., Adjunct Assistant Professor, Preventive Community Dentistry/History, 2008 (2008); BA 1989 Duke; MBA 1991 Tulane; MA 1996 West Florida

Young, Mark A., Associate Professor, Chemistry, 1990 (1997); BA 1979 Princeton; PHD 1987 California-Berkeley

Young, Nathan Cline, Adjunct Associate Professor, Civil-Environmental Engineering, 2008 (2008); BSE 1998 Iowa; MS 2000 Iowa; PHD 2006 Iowa

Young, Rachel, Assistant Professor, Journalism Mass Communication, 2013 (2013);

Youngblood, Dawn Michelle, Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARMD 1998 Iowa

Yousufuddin, Mohammed, Clinical Adjunct Assistant Professor, Internal Medicine, 2010 (2010); MBBS 1980 Osmania Medical India

Yu, Liping, Adjunct Professor, Biochemistry, 2014 (2014); BS 1982 Southern Yangtze Univ, China; MS 1985 Univ. of California Davis; PHD 1989 Univ. of California Davis

Yuen, Kee-Ho, Professor, Art Art History, 2000 (2009); BA 1983 Chinese of Hong Kong; MA 1988 Iowa; MFA 1989 Iowa

Zabner, Joseph, Professor, ICTS - Pilot Studies/Internal Medicine, 1995 (2004); MD 1987 UnivCentral de Venezuela

Zadeii, Gholam Reza, Clinical Adjunct Associate Professor, Internal Medicine, 2004 (2014); BA 1978 Incarnate Word College; MS 1980 Incarnate Word College; MD 1984 Santiago U School of Medicine

Zaharis, Catherine Ann, Adjunct Lecturer, Finance, 2010 (2010); BBA 1982 Iowa; MBA 1983 Drake

Zaheer, Asgar, Associate Professor, Neurology, 1995 (2011); PHD 1979 Bombay-India

Zahr, Firas, Clinical Assistant Professor, Internal Medicine, 2013 (2013);

Zaidan, Remi, Adjunct Assistant Professor, Physics Astronomy, 2014 (2014);

Zaiger, Laurie, Lecturer, Teaching and Learning, 2013 (2014);

Zajacz, Rita, Assistant Professor, Communication Studies, 2005 (2005); BA 1995 Budapest, Hungary; MA 1998 Indiana; PHD 2005 Indiana

Zalenski, Anne Whitehead, Adjunct Assistant Professor, Rehabilitation and Counselor Education, 2009 (2012); MA 1985 Iowa; PHD 2001 Iowa

Zaloznaya, Marina, Assistant Professor, Sociology, 2012 (2012);

Zamba, Gideon Kd, Associate Professor, Biostatistics, 2003 (2012); MS 1995 DU Benin; PHD 2003 Minnesota

Zavala, Donald, Emeritus Professor, Internal Medicine, 1969 (1976);

Zavazava, Nicholas, Professor, Biomedical Engineering/Internal Medicine, 2001 (2003); BSC 1980 ZIMBABWE; MBCHB 1987 Kiel; MD 1988 Kiel; PHD 1993 Kiel

Zearley, Jennifer Rose, Adjunct Assistant Professor, Pharmacy, 2009 (2009); PHARMD 2002 Iowa

Zebrowski, Patricia, Professor, Communication Sciences and Disorders, 1988 (2009); BS 1977 State Univ of NY-Geneseo; MS 1981 Syracuse; PHD 1987 Syracuse

Zeithamel, Marcia C., Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARMD 2005 Kansas

Zellmer, Kimberly Anna, Adjunct Assistant Professor, Pharmacy Practice and Science, 2011 (2011); PHARMD 2008 Iowa

Zeman, Christine Lynn, Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARMD 2000 Iowa

Zepeda-Orozco, Diana, Clinical Assistant Professor, Pediatrics, 2012 (2012);

Zepeski, Kay Ilene, Adjunct Instructor, Pharmacy, 1998 (1998); BS 1981 Iowa

Zhai, Guangshu, Adjunct Assistant Professor, Civil-Environmental Engineering, 2012 (2012); PHD 2008 RCEES Chinese Academy of Scien

Zhan, Fenghuang, Professor, Internal Medicine, 2012 (2012);

Zhang, Hantao, Professor, Computer Science, 1988 (2000); BS 1981 Wuhan-China; PHD 1984 Nancy-France; PHD 1988 Rensselaer Polytechnic-France

Zhang, Qin, Assistant Professor, Marketing, 2009 (2009); MS 2000 Washington - St. Louis; PHD 2002 Washington - St. Louis

Zhang, Quanjiang, Assistant Professor, Internal Medicine, 2013 (2013);

Zhang, Weizhou, Assistant Professor, Pathology/Radiation Oncology, 2012 (2012);

Zhang, Xiaoyi, Associate Professor, Mathematics, 2009 (2012); BA 1998 Zheng Zhou, China; PHD 2003 China Academy

Zhang, Ying J., Adjunct Professor, Biostatistics, 2004 (2010); BS 1985 Fudan-China; MS 1988 Fudan-China; MS 1994 Florida State; PHD 1998 Washington

Zhang, You-Kuan, Professor, Earth and Environmental Sciences/Civil-Environmental Engineering, 1993 (2006); BS 1978 Chamgchun Institute-China; MS 1982 Nanjing-China; PHD 1990 Arizona

Zhao, Chen, Assistant Professor, Pathology, 2014 (2014);

Zhao, Kang, Assistant Professor, Management Sciences, 2012 (2012);

Zhao, Xiaoyuan, Lecturer, Asian Slavic Languages Literature, 2008 (2008); MA 2008 Memphis

Zhorne, Derek James, Clinical Assistant Professor, Pediatrics, 2014 (2014);

Zhou, Xun, Assistant Professor, Management Sciences, 2014 (2014);

Zhu, Jing, Lecturer, Teaching and Learning, 2014 (2014);

Zhu, Xi, Assistant Professor, Health Management Policy, 2011 (2011); BS 2000 East China Univ; MS 2003 East China Univ; PHD 2011 Minnesota

Zhu, Xiaodong, Assistant Professor, Internal Medicine, 2012 (2012);

Zhupanska, Olesya I., Associate Professor, Mechanical Engineering, 2007 (2013); MS 1996 Kiev Taras Schevchenk; PHD 2000 Kiev Taras Schevchenk

Ziebarth, Nicolas L., Assistant Professor, Economics, 2012 (2012);

Ziegler, Ekhard E., Professor, Pediatrics, 1973 (1981); MD 1964 Innsbruck-Austria

Zike, Wilbur L., Emeritus Associate Professor, Surgery, 1969 (1975); AB 1953 Houghton; MD 1957 McGill

Ziliotto, Silvia, Adjunct Lecturer, French Italian, 2013 (2013);

Zimmer, John, Adjunct Instructor, Preventive Community Dentistry, 2012 (2012);

Zimmerman, Dale, Professor, Statistics Actuarial Science/ Biostatistics, 1986 (1999); BS 1980 Iowa State; MS 1982 Minnesota; PHD 1986 Iowa State

Zimmerman, Miriam Bridget, Clinical Professor, Biostatistics, 2003 (2008); BS 1978 Phillipines; MS 1982 Phillipines; MS 1984 Iowa State; PHD 1987 Iowa State

Zimmermann, Gerald Neal, Adjunct Associate Professor, Communication Sciences and Disorders, 1977 (1982); PHD 1973 Iowa

Zingman, Leonid, Associate Professor, Internal Medicine, 2007 (2014); MD 1984 First Leningrad Medical

Ziuchkarski, Kirsten, Adjunct Instructor, Preventive Community Dentistry, 2011 (2011); BA 1998 Colorado; DDS 2003 Colorado

Zlab, Mark K., Clinical Adjunct Assistant Professor, Otolaryngology-Head Neck Surgery, 1998 (1998); MD 1985 Nebraska

Zlatnik, Frank J., Emeritus Professor, Obstetrics Gynecology, 1975 (1984); BA 1962 Carleton; MD 1966 Cornell

Zmolek, Michael A., Lecturer, History/Division of Interdisciplinary Program, 2013 (2014);

Zubow, Lauren Faith Danna, Clinical Adjunct Instructor, Communication Sciences and Disorders, 2014 (2014); MS 2006 University of Iowa

Zurbruggen, Thomas L., Clinical Adjunct Instructor, Internal Medicine, 1982 (1988); MD 1978 Iowa

Zweng, Marilyn J., Emeritus Professor, Mathematics/ Teaching and Learning, 1965 (1972); BS 1953 Michigan State; MS 1957 Wisconsin; PHD 1963 Wisconsin

Iowa Administrative Code

The Code of Iowa contains information about admission and residency rules common to Iowa's three state universities—The University of Iowa, Iowa State University, and the University of Northern Iowa. It also provides supplemental information about application to The University of Iowa. Visit Iowa Code on the Iowa Legislature web site to search and read the Iowa Administrative Code.

University Calendar

Some University Calendar dates may change; see Calendars/Deadlines on the Office of the Registrar web site for the most up-to-date academic calendar.

2014 Fall Semester

August 25	Classes begin
September 1	University holiday, offices closed
Nov. 23-30	Thanksgiving recess
November 27-28	University holidays, offices closed
December 12	Classes end
December 15-19	Final exam week
December 25-26	University holidays, offices closed

Fall commencement ceremonies: dates vary by college; see Commencement on the Office of the Registrar web site.

2014-15 Winter Session

December 29	Classes begin
January 1	University holiday, offices closed
January 16	Classes end

2015 Spring Semester

January 19	University holiday, offices closed
January 20	Classes begin
March 15-22	Spring break
May 8	Classes end
May 11-15	Final exam week

Spring commencement ceremonies: dates vary by college; see Commencement on the Office of the Registrar web site.

2015 Summer Sessions

The University of Iowa offers several summer sessions: one 12-week session, one 8-week session, two 6-week sessions, and one 4-week session. Each session is listed below in order by its starting date.

May 18-June 12	Four-week session (final exam day: June 12)
May 18-June 26	Six-week session I (final exam day: June 26)
May 18-August 7	Twelve-week session (final exam day: August 7)
May 25	University holiday, offices closed
June 15-August 7	Eight-week session (final exam day: August 7)
June 29-August 7	Six-week session II (final exam day: August 7)
July 3	University holiday, offices closed

Office of the Registrar Calendars

The Office of the Registrar provides additional calendars that list detailed academic deadlines, final exam schedules, and University holidays. It also publishes a five-year academic calendar (PDF file available). See

Calendars/Deadlines on the Office of the Registrar web site.

Individual College Calendars

Some University of Iowa colleges have academic year schedules that vary from the one listed above. Contact the individual colleges or visit their web sites; use the A-Z Search or the Phonebook/E-mail directory on the University of Iowa home page.

Campus Visits

Each year The University of Iowa is the destination for visitors with wide-ranging interests. Prospective and new students and their parents, new faculty and staff members, fans of intercollegiate athletics, University of Iowa Health Care patients, audiences for the visual and performing arts, museum visitors, and conference and continuing education participants are among those drawn to the campus.

Prospective and New Students

Prospective and new students should come first to the Admission Visitors Center, C110 Pomerantz Center, 213 N. Clinton Street. The center is open weekdays 8:30 a.m. to 4:30 p.m. and selected Saturday mornings. It is best to visit the campus on weekdays, when classes are in session and when other University offices are open. Please call the Office of Admissions to arrange for a campus visit: 319-335-1569.

Attractions, Campus Maps, Parking

For links to campus maps, walking tours, how to arrange visits to varied attractions, and where to park on campus, see Campus Maps. For additional information about the University, use the A-Z Search on the The University of Iowa home page.

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